



***Increasing Primary Care and Preventive Care
Utilization in Indiana: A State-Level Approach***

Center for Health Policy
Richard M. Fairbanks School of Public Health
Indiana University Indianapolis
January 2026

PROJECT LEADS

Dr. Aparna Soni, PhD, MA, is an Associate Professor in the Department of Health Policy and Management at the Indiana University Fairbanks School of Public Health. She is a health economist and also affiliated with the Regenstrief Institute, the Indiana Diabetes Research Center, the IZA Institute of Labor Economics, and the University of Wisconsin's Center for Financial Security. Dr. Soni holds a PhD in Business Economics and Public Policy from the Kelley School of Business at Indiana University Bloomington and an MA in Economics from Boston University. She studies the impacts of public programs and policies on individuals' health. Previously, she was an Assistant Professor at American University's School of Public Affairs.

Dr. Nir Menachemi, PhD, MPH, serves as the Dean of the Fairbanks School of Public Health at Indiana University, Indianapolis. He is the Fairbanks Endowed Chair and holds the rank of professor. He also holds an appointment as a scientist with the Regenstrief Institute. Dr. Menachemi's work focuses on the intersection of health policy, medicine, and business. As a health services researcher, much of his work has focused on cost, quality, and access to care in the United States. He has published more than 300 peer-reviewed scientific papers and received numerous awards from state and national public health organizations recognizing the impact of his work. Dr. Menachemi holds a PhD in Health Services Administration from the University of Alabama at Birmingham and an MPH in Health Policy and Management from the State University of New York. Prior to joining the faculty at Indiana University Indianapolis, Dr. Menachemi held faculty positions at the University of Alabama at Birmingham's School of Public Health and the Florida State University College of Medicine.

PROJECT TEAM

Andrea Renzi-Burns, MA

Lindsey Sanner, MPH

SUGGESTED CITATION

Aparna Soni, Andrea Renzi-Burns, Lindsey Sanner, Nir Menachemi. *Increasing Primary Care and Preventive Care Utilization in Indiana: A State-Level Approach*. Prepared by the Center for Health Policy, Richard M. Fairbanks School of Public Health, Indiana University Indianapolis. January 2026.

EXECUTIVE SUMMARY

Strengthening primary care and preventive care is a key priority for the state of Indiana, as codified in recent legislation and backed by employers and health leaders.¹⁻⁴ Policymakers, business and provider coalitions, insurers, and residents broadly agree on the importance of primary care and preventive care as pillars of Hoosier health and key requirements for continued state-level economic growth. However, stakeholders are not always aligned on the strategies and investments needed to build a stronger primary care and preventive care system in the state.

In spite of being the largest medical specialty, primary care has been on a decline for the past two decades as more physicians leave the field each year than the number of entering graduating residents.⁵ As Indiana makes meaningful progress toward lowering health care costs and increasing efficiencies across the state's health system,⁶ it is increasingly important to turn to primary care and preventive care to continue improving health outcomes and containing costs. This report was developed for Indiana lawmakers, employers, insurers, health care providers, and other key stakeholders to:

1. Describe levels and trends of primary care and preventive care utilization in Indiana, relative to neighboring and comparable states.
2. Present the evidence on key benefits of a strong primary care and preventive care system for individuals, the health care system, and the economy.
3. Assess the efficacy of state-level policies and payer- and employer-based approaches to increase primary care and preventive care utilization.

The report opens with an introduction to *primary care* and *preventive care*, including how these concepts are defined and how they overlap and differ. We define **primary care** as integrated, accessible personal health services delivered by clinicians who are responsible for most health needs, form sustained partnerships with patients, and practice in the context of family and community. **Preventive care** refers to services that aim to avert disease or address potential health concerns in their early stages before they develop into more serious and costly conditions.

Next, we present a series of graphs and data tables describing current levels and recent trends of key metrics — including primary care provider supply, health spending, and utilization of recommended preventive services — for Indiana compared with neighboring,

cohort, and exemplar states. We then synthesize the national peer-reviewed evidence on how investing in primary care affects care quality, utilization, patient experience, and total health care spending.

Finally, we catalog US-based, real-world strategies — state, employer, provider, and payer levers — that have been shown to increase primary care and preventive care utilization. We classify potential strategies into three levels based on the weight of the evidence in the literature. Those for which there is (1) convincing evidence on cause and effect, (2) promising evidence on cause and effect, and (3) correlational evidence where cause and effect should not be inferred. We conclude by translating our findings into Indiana-specific recommendations.

Key Findings: The Importance of Strengthening Primary Care and Preventive Care Systems

- **Quality and outcomes improve.** A greater focus on primary care is consistently associated with better control of chronic conditions, higher uptake of preventive services, and fewer healthcare complications.
- **Use shifts from high- to lower-cost settings.** Strengthening primary care and preventive care reduces avoidable emergency department visits and hospitalizations, particularly for ambulatory care-sensitive conditions.
- **Total spending impact is favorable over time.** While most strategies to strengthen primary care and preventive care systems require upfront investment, many studies show net savings or cost-neutrality within 12 to 36 months through reduced spending on acute and specialty care.
- **Patient experience improves.** Access to care, continuity, and coordination improve, with the largest gains for high-need, rural, and low-income populations when team-based primary care models and community partnerships are present.
- **Implementation details matter.** The most impactful results are realized when financing (e.g., value-based or hybrid primary care payment) of primary care is paired with benefit design (e.g., zero out-of-pocket costs for patients for high-value preventive and primary services), data sharing, and patient nudging.

Key Takeaways for Indiana Decision-Makers

The most convincing, rigorous evidence supports the following strategies as ways to effectively expand access to and increase utilization of primary care and preventive care:

- Health insurance expansions
- Expand funding and support for federally qualified health centers (FQHCs) and community clinics
- Scope-of-practice expansion for advanced practice providers
- Expand graduate medical education (e.g., “residency”), especially in high-need urban and rural areas
- Paid sick leave
- Reduce cost-sharing for patients
- Value-based care and hybrid payment models
- Increase reimbursement rates for primary care providers
- Collaborative and team-based care models
- Patient reminders and nudging

The following approaches require caution, as convincing evidence shows that they either have no impact or have adverse impacts on primary care and preventive care utilization:

- Workplace wellness programs
- High-deductible health plans
- Telehealth and virtual primary care

Indiana can improve health and bend the cost curve by spending smarter: funding primary care teams to prevent illness, manage chronic disease, and coordinate care. The evidence shows better outcomes, a shift away from avoidable high-cost health care utilization, and a strong value proposition for employers, insurers, and taxpayers.

INTRODUCTION

Indiana’s health and economic competitiveness hinge on a strong foundation of primary care and preventive care for Hoosiers. These services are the best front door to the health system, the engine of early detection and chronic disease control, and a proven lever to reduce avoidable emergency and hospital use. For employers, payers, and taxpayers, better primary care and preventive care translates into a healthier workforce, fewer high-cost care episodes, and steadier premiums over time. For communities, it means more uniform access to care, improved patient experience, and greater stability for rural and underserved areas.

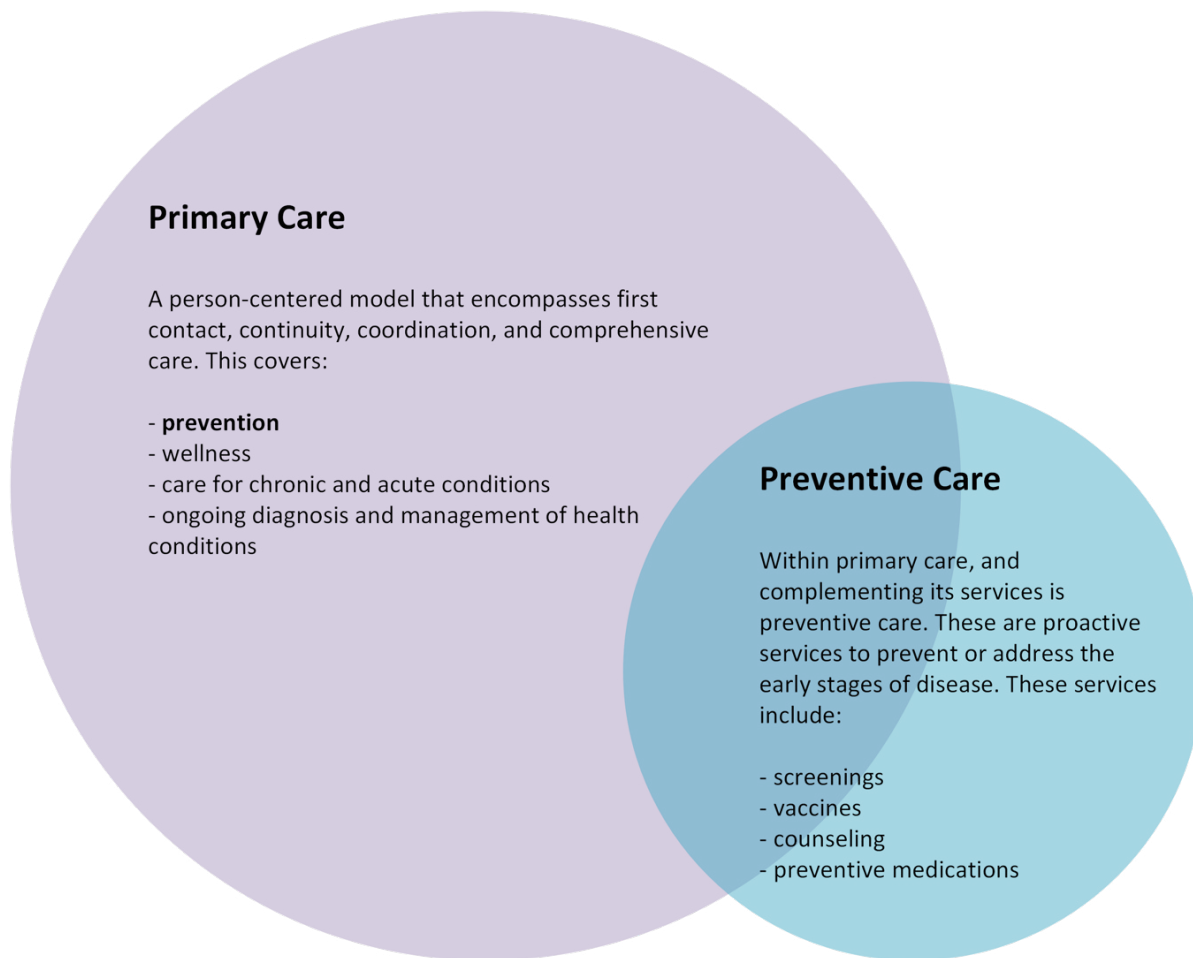
Defining Primary Care and Preventive Care

Primary care is defined by the National Academies as ***integrated, accessible personal health services delivered by clinicians who are responsible for most health needs, form sustained partnerships with patients, and practice in the context of family and community***.⁷⁻⁹ Typical primary care clinicians include family physicians, general internists, pediatricians, nurse practitioners, and physician assistants. The core functions of primary care emphasize first contact, continuity, coordination, and comprehensiveness. Primary care covers prevention, wellness, care for chronic and some acute conditions, and ongoing diagnosis and management of health conditions.

Preventive care refers to services that aim to ***avert disease or address potential health concerns in their early stages before they develop into more serious and costly conditions***. Examples include screenings for chronic diseases (e.g., cancer, heart disease, diabetes), vaccinations, health education and counseling on lifestyle factors, and certain preventive medications.¹⁰⁻¹² These services are generally recommended for people without symptoms and are delivered in a variety of settings, including primary care clinics, hospital outpatient and specialty clinics, pharmacies and retail clinics, school-based centers, public health departments, worksites, and community-based programs.

Similarities and Differences Between Primary Care and Preventive Care

Primary care and preventive care both pursue better health outcomes across the patient's life and often happen in the same place — the primary care clinic — where clinicians use evidence-based guidelines (e.g., from the United States Preventive Services Taskforce) to decide which preventive services fit a person's age, sex, and risk factors.¹² The key difference is **scope**. Primary care is the person-centered *approach and setting* that manages acute problems, chronic disease, mental health, and prevention, while coordinating specialty care. Preventive care is a *bundle of specific interventions* (screenings, vaccines, counseling, preventive medicines, etc.) that can be provided within primary care, by referral to specialty clinics, pharmacies, and retail clinics, or a variety of other settings.^{8,10,13}

Figure 1. Overlap Between Primary Care and Preventive Care

Note: The relationship between primary care and preventive care depicted in the figure is not drawn to scale.

SECTION 1. WHERE DOES INDIANA STAND?

Our analysis of multiple data sources (including surveillance data, government records, and data based on insurance claims) shows that primary care and preventive care are still underutilized in Indiana. In a series of graphs, we compare levels and recent trends in primary care provider supply, primary care spending, and utilization of preventive services for Indiana versus the national average and the three groups of comparator states listed below:

1. **Neighboring states** – Illinois, Kentucky, Michigan, Ohio
2. **Cohort states** – Alabama, Arizona, Arkansas, Georgia, Missouri, South Carolina, Tennessee

3. **Exemplar states** – Minnesota, North Carolina, Oregon, Washington

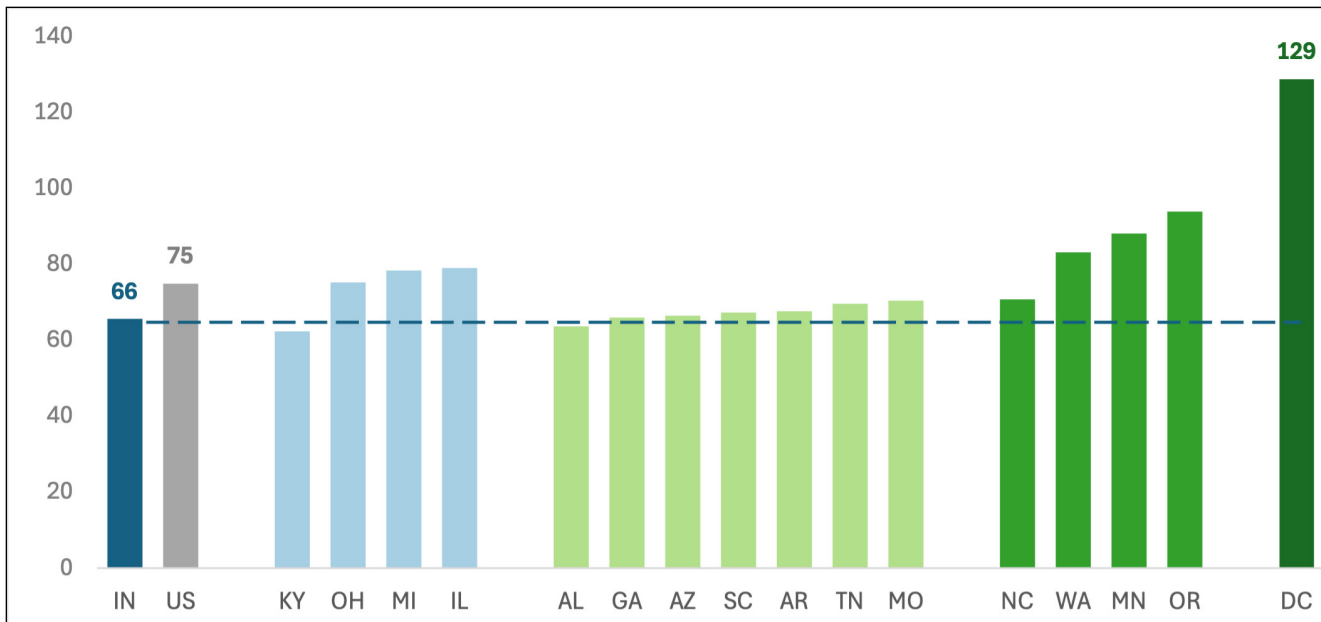
Neighboring states include Indiana's four immediate neighbors. **Cohort** states are similar to Indiana based on socioeconomic, demographic, geographic, and political characteristics. **Exemplar** states were selected because they show strong outcomes across key primary care and preventive care indicators, serving as benchmarks for what is achievable by Indiana. Each graph also presents data for the top-performing state for that metric.

Supply of Primary Care Providers

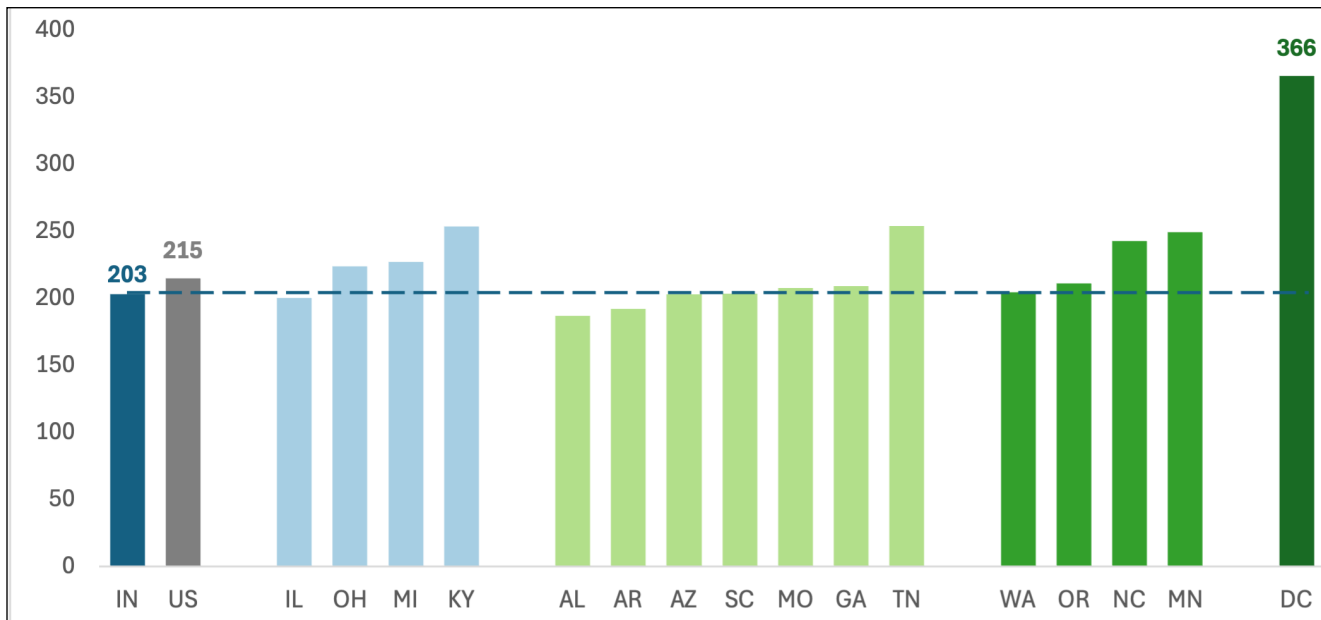
Indiana lags the US and most comparator states in terms of primary care physicians (PCPs) per capita (**Figure 2**). Given that PCPs provide most preventive care, this shortage has serious implications for patients' access to preventive care services. As we will illustrate in Section 2, fewer PCPs means that fewer people receive recommended services, and more people face adverse health outcomes.

Figure 3a presents levels of total primary care providers per capita, including both physicians and non-physician providers. Non-physician providers are also known as advanced practice providers (APPs). APPs commonly include nurse practitioners and physician assistants. They provide many of the same frontline primary care services, such as diagnosing and treating common conditions, ordering tests, doing preventive visits, and managing chronic diseases. Figure 3a shows that the inclusion of APPs significantly narrows the gap between Indiana and other states in terms of primary care provider supply. This suggests that Indiana has more APPs per capita than other comparator states (**see Appendix Figure 1**).

Figure 3b shows that in both Indiana and the United States, the number of PCPs has declined slightly between 2018 and 2025. The number of APPs, on the other hand, has grown rapidly over this time.

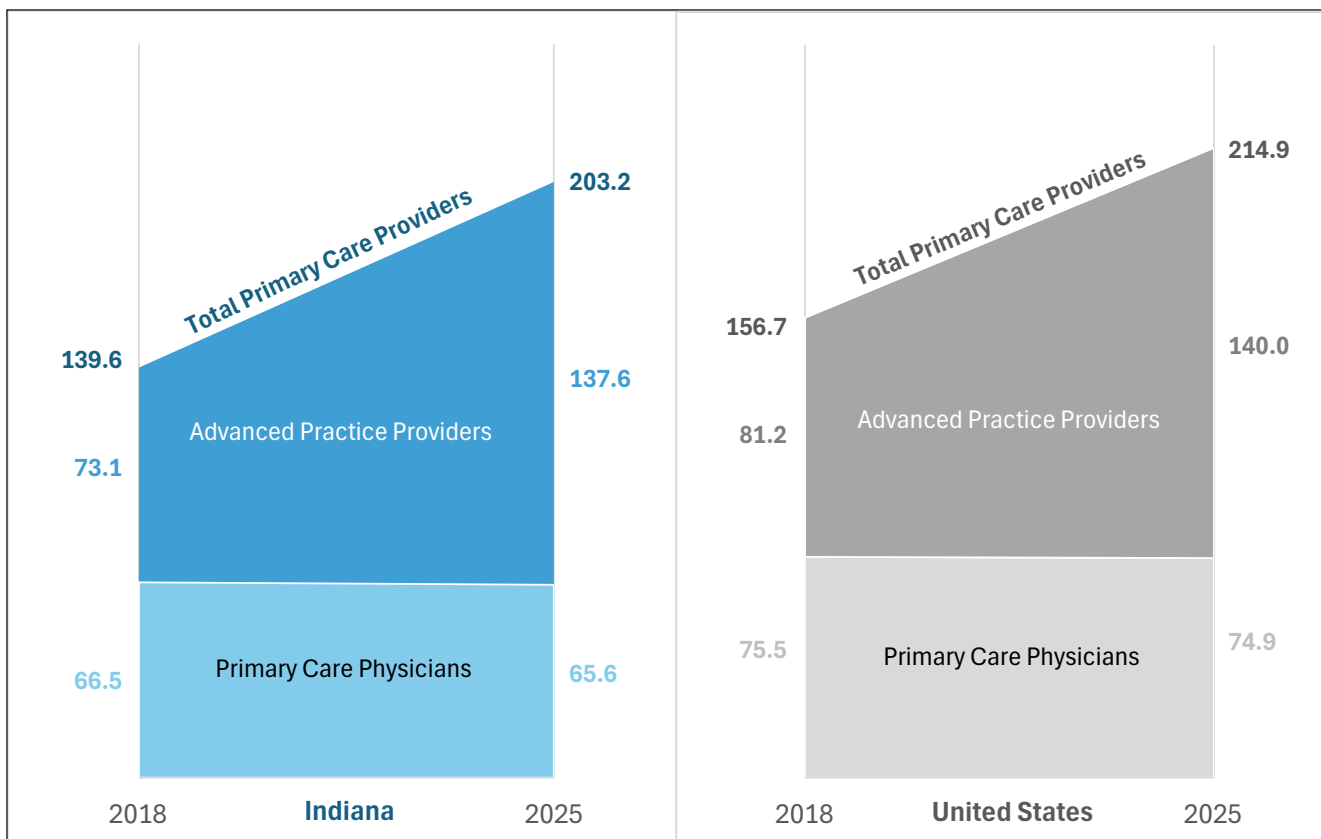
Figure 2. Primary Care Physicians per 100K Population

Notes: Authors' calculations based on 2025 County Health Rankings Data. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring**, **Cohort**, **Exemplar States**, and the **Top State**.

Figure 3a. Total Primary Care Providers (Physicians and APPs) per 100K Population

Notes: Authors' calculations based on 2025 County Health Rankings Data. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring**, **Cohort**, **Exemplar States**, and the **Top State**.

Figure 3b. Growth in Primary Care Providers (Total, Physicians, and APPs) per 100K Population, 2018 to 2025



Notes: Authors' calculations based on 2018 and 2025 County Health Rankings Data. The figure compares **Indiana** and the **US Overall** in 2018 and 2025.

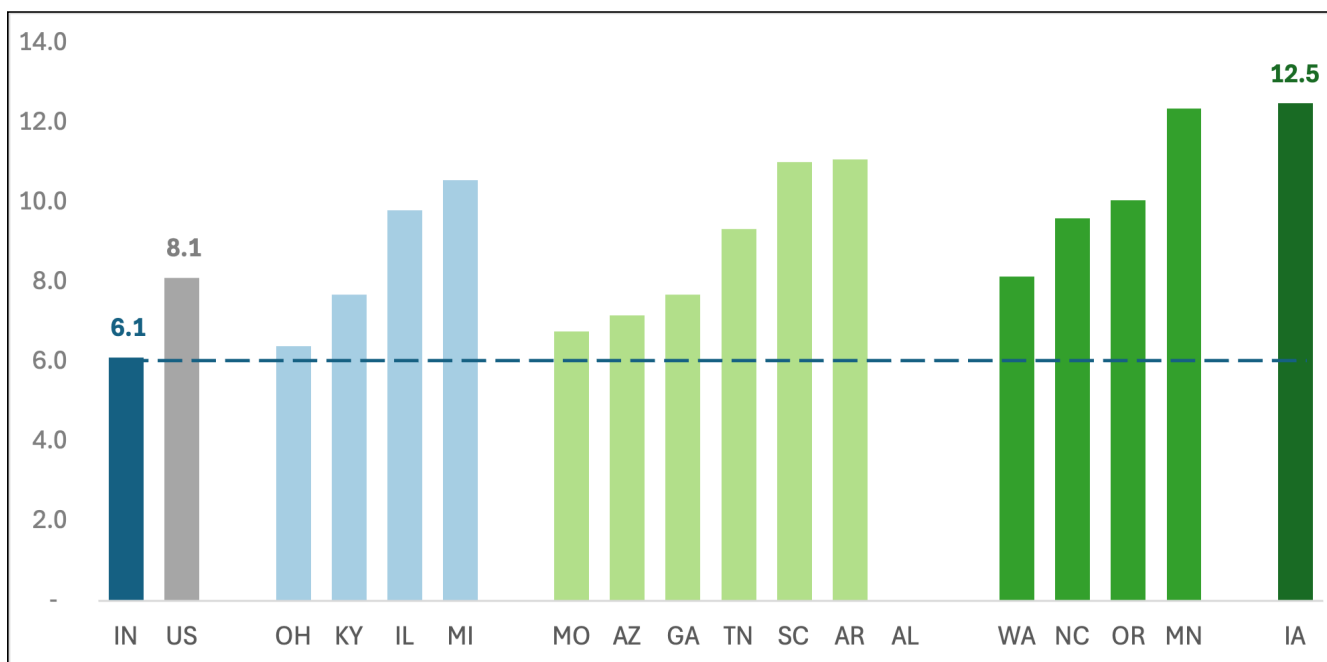
Primary Care Spending

Figures 4a and 5a plot the percent of total health spending that is dedicated to primary care within employer-sponsored insurance (ESI) and Medicare Fee for Service (FFS) plans, respectively. Among Indiana's ESI plans, only about 6% of total health spending is dedicated to primary care. This number is 25% lower than the national average (8%) and the lowest among all comparator states.

Among Medicare FFS plans, however, Indiana's spending on primary care is comparable to that of the United States and neighboring states, though Indiana lags behind most cohort and exemplar states. Notably, the portion of Medicare FFS dollars that went to primary care increased substantially over a five-year period for Indiana, outpacing the national growth rate (**Figure 5b**). Growth in primary care spending among ESI plans, in contrast, was stagnant for both Indiana and the US over the past five years (**Figure 5a**).

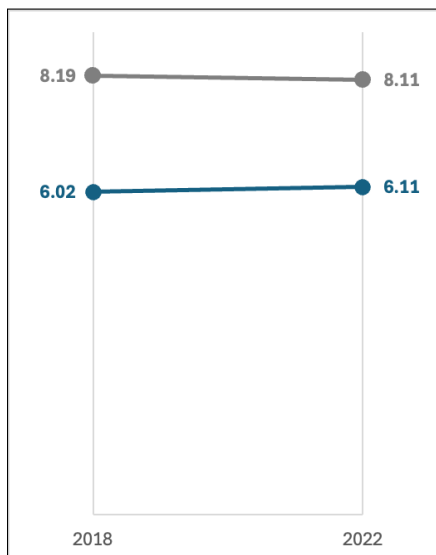
These results should be interpreted carefully, as variation in the share of spending across states could be due to state-level differences in the number of primary care services delivered, the cost of the services, or a combination of both. Moreover, the data is more than three years old at the time of this report's publishing. Another limitation is that we lack data at the state level on primary care spending in Medicaid and Medicare Advantage plans, though national data shows that across the country, Medicaid spends a smaller portion of its total health spending on primary care than commercial insurance plans.¹⁴

Figure 4a. Percent of Total Health Spending on Primary Care, Employer-sponsored Insurance



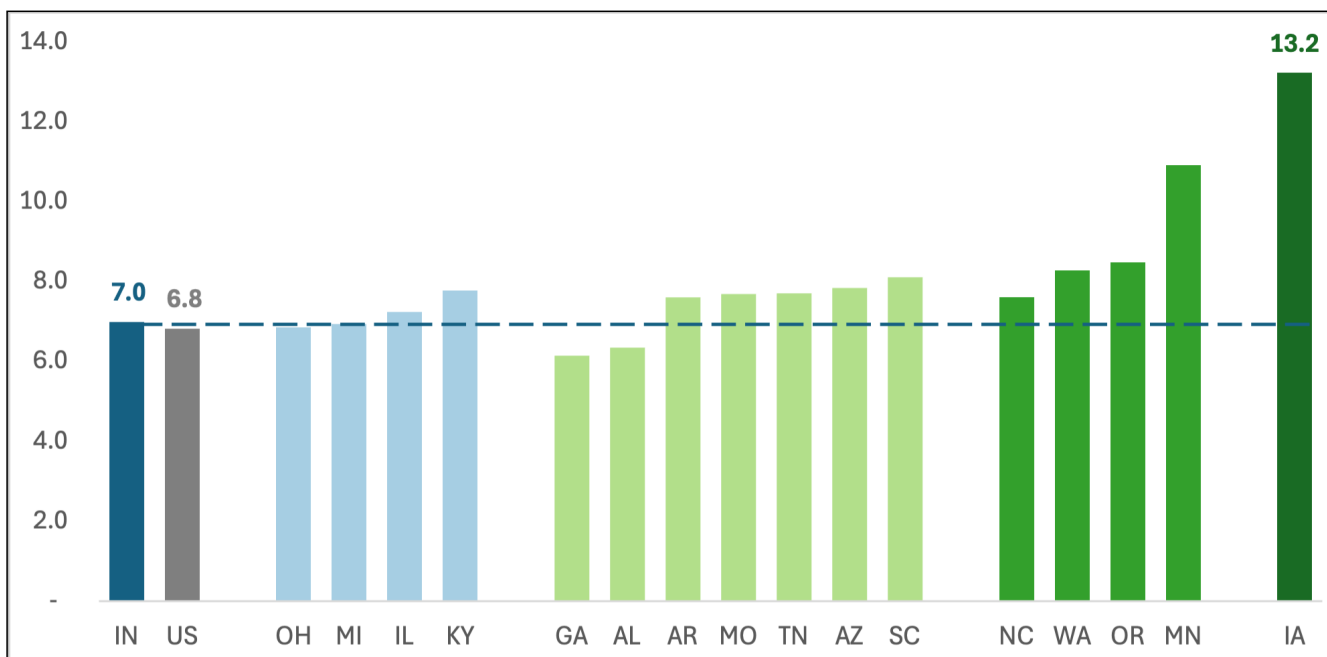
Notes: Authors' calculations based on the Health Care Cost Institute's 2022 data on primary care spending. The figure plots the percentage of total health spending that is rendered by primary care providers (PCPs), obstetrics, registered nurses, and other allied practitioners. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring**, **Cohort**, **Exemplar States**, and the **Top State**.

Figure 4b. Growth in Total Health Spending on Primary Care, Employer-sponsored Insurance, 2018 to 2022

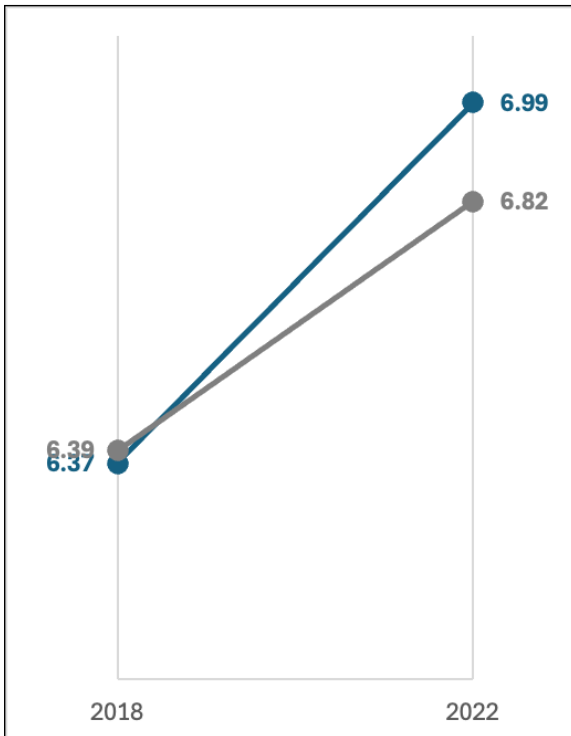


Notes: Authors' calculations based on the Health Care Cost Institute's 2018 and 2022 data on primary care spending. The figure plots the percentage of total health spending that is rendered by primary care providers (PCPs), obstetrics, registered nurses, and other allied practitioners. The figure compares **Indiana** and the **US Overall**, in 2018 and 2022.

Figure 5a. Percent of Total Health Spending on Primary Care, Medicare FFS



Notes: Authors' calculations based on the Health Care Cost Institute's 2022 data on primary care spending. The figure plots the percentage of total health spending that is rendered by primary care providers (PCPs), obstetrics, registered nurses, and other allied practitioners. Figure compares levels in **Indiana** to the **US Overall**, **Neighboring Cohort**, **Exemplar States**, and the **Top State**.

Figure 5b. Growth in Total Health Spending on Primary Care, Medicare FFS, 2018 to 2022

Notes: Authors' calculations based on the Health Care Cost Institute's 2018 and 2022 data on primary care spending. The figure plots the percentage of total health spending that is rendered by primary care providers (PCPs), obstetrics, registered nurses, and other allied practitioners. The figure compares **Indiana** and the **US Overall** in 2018 and 2022.

Utilization of Primary Care and Preventive Care Services

Hoosier adults are more likely to receive annual routine checkups than other Americans, including those in most comparator states (**Figure 6a**). This metric has improved substantially in Indiana over the past six years, as compared to the national growth rate (**Figure 6b**). However, as Figure 7 shows, children in Indiana are less likely to receive annual preventive medical checkups. Only 77% of Hoosier children receive recommended annual preventive visits, far less than the national average and each of our comparator states.

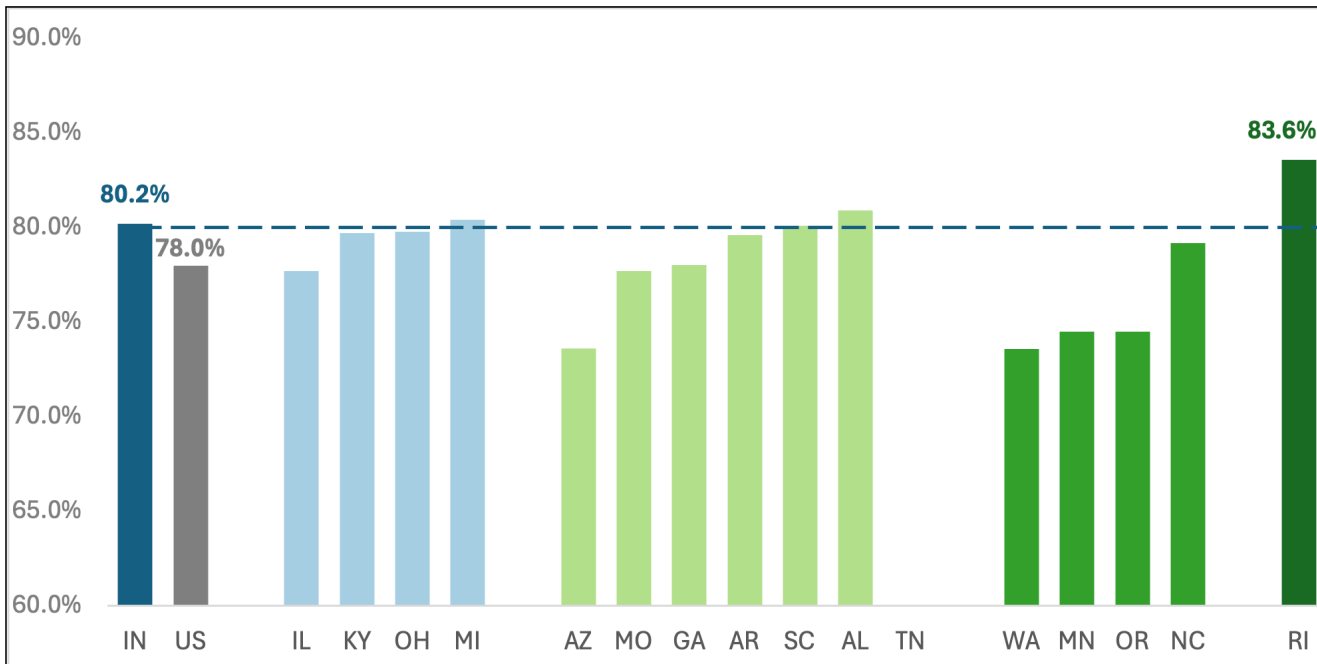
Indiana's rates of flu vaccination (**Figure 8a**), dental visits (**Figure 9a**), and blood cholesterol checks (**Appendix Figure 3a**) are slightly lower than the national average and that of exemplar states. Notably, Hoosiers are much less likely than other Americans to receive recommended cancer screenings, such as mammograms (**Figure 10a**), cervical exams (**Figure 11a**), colonoscopies (**Figure 12**), and PSA tests (**Appendix Figure 2a**). Poor adherence to recommended preventive care translates into worse health outcomes.

For example, Indiana’s rates of high blood pressure (**Appendix Figure 4a**) and diabetes (**Appendix Figure 5a**) are higher than the national average and that of our neighboring states.

Given that primary care often serves as the frontline for identifying and treating common mental health conditions, we also assess trends in access to mental health treatment.

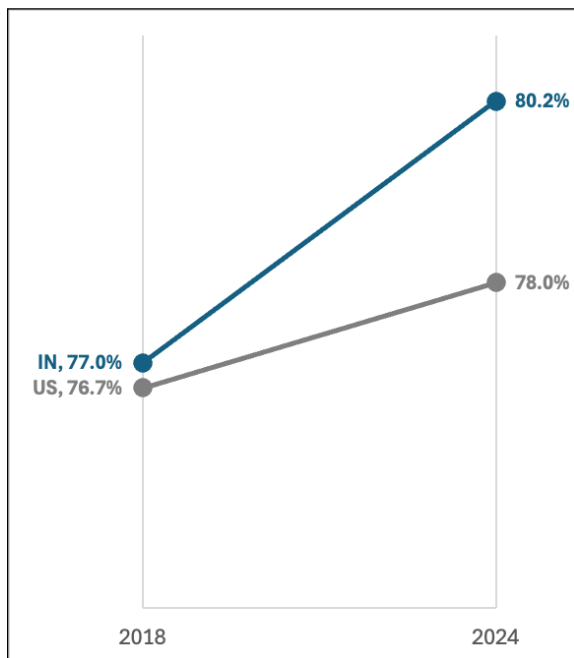
Figure 13 shows that a quarter of Hoosiers with any mental illness report an unmet need for treatment. “Unmet need” is defined as seeking treatment or thinking they should receive treatment but not receiving it. This number is comparable to the US average and lower than most exemplar states, but higher than most of our neighboring and cohort states. Children fare better on this metric, though there is still room for improvement. About 85% of Hoosier children aged 12-17 who need mental health treatment receive it; this number is comparable to the US average (**Figure 14**).

Figure 6a. Routine Checkup Within Past 1 Year, % of Adult Population



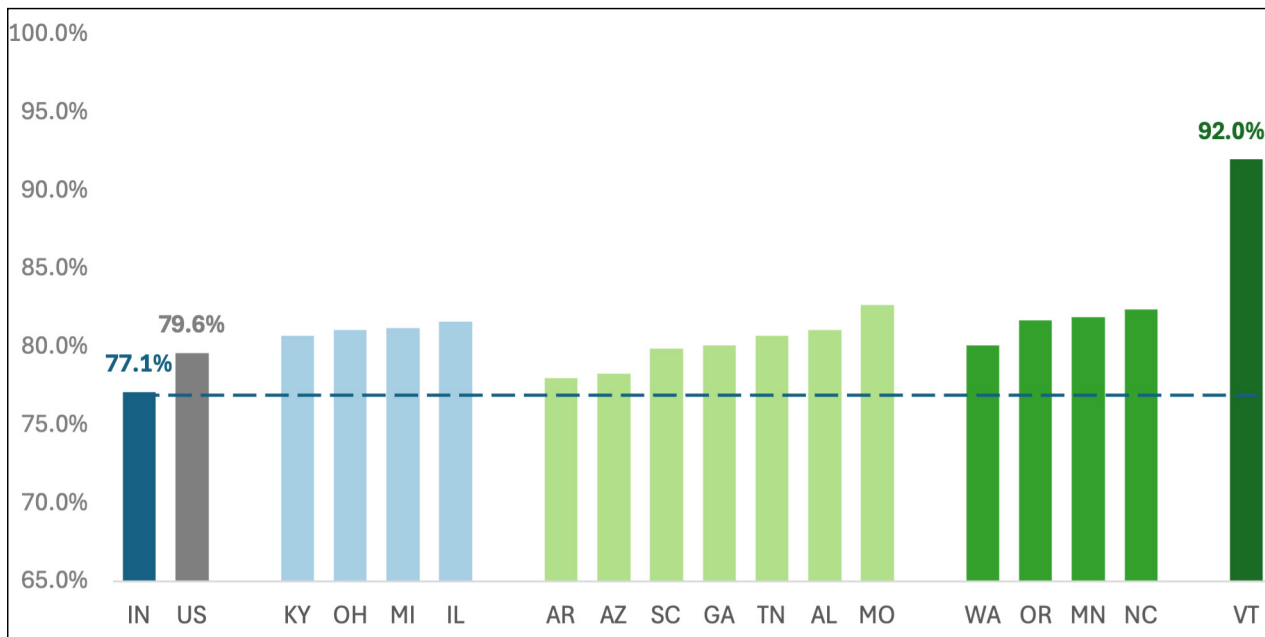
Notes: Authors’ calculations based on 2024 survey data from the CDC’s Behavioral Risk Factors Surveillance System data. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring**, **Cohort**, **Exemplar States**, and the **Top State**.

Figure 6b. Change in Routine Checkup Within Past 1 Year, % of Adult Population, 2018 to 2024

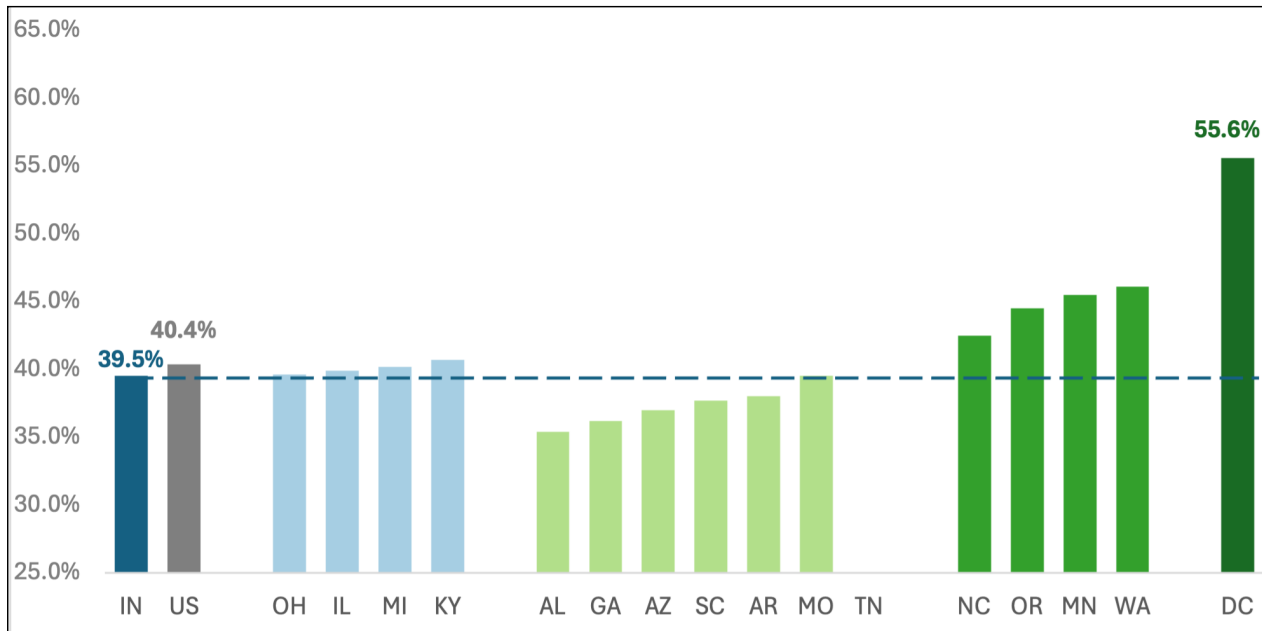


Notes: Authors' calculations based on 2018 and 2024 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares **Indiana** and the **US Overall** in 2018 and 2024.

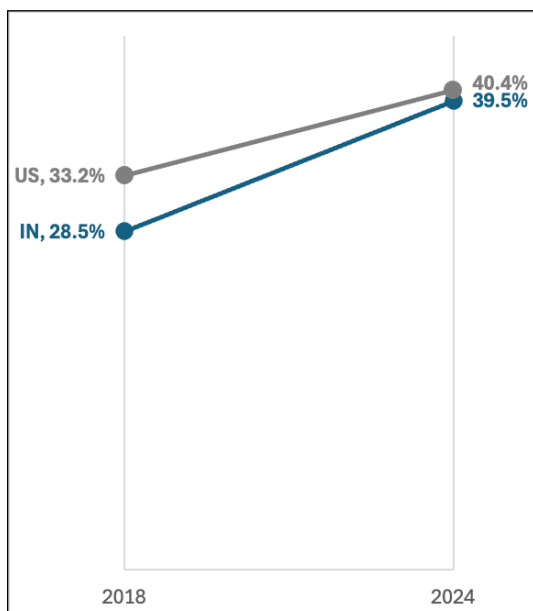
Figure 7. Percentage of Children Aged 0-17 who Received One or More Preventive Medical Visits in the Past 12 Months



Notes: Authors' calculations based on America's Health Rankings 2023-2024 data (two-year estimates). The figure compares levels in **Indiana** to the **US Overall**, **Neighboring**, **Cohort**, **Exemplar States**, and the **Top State**.

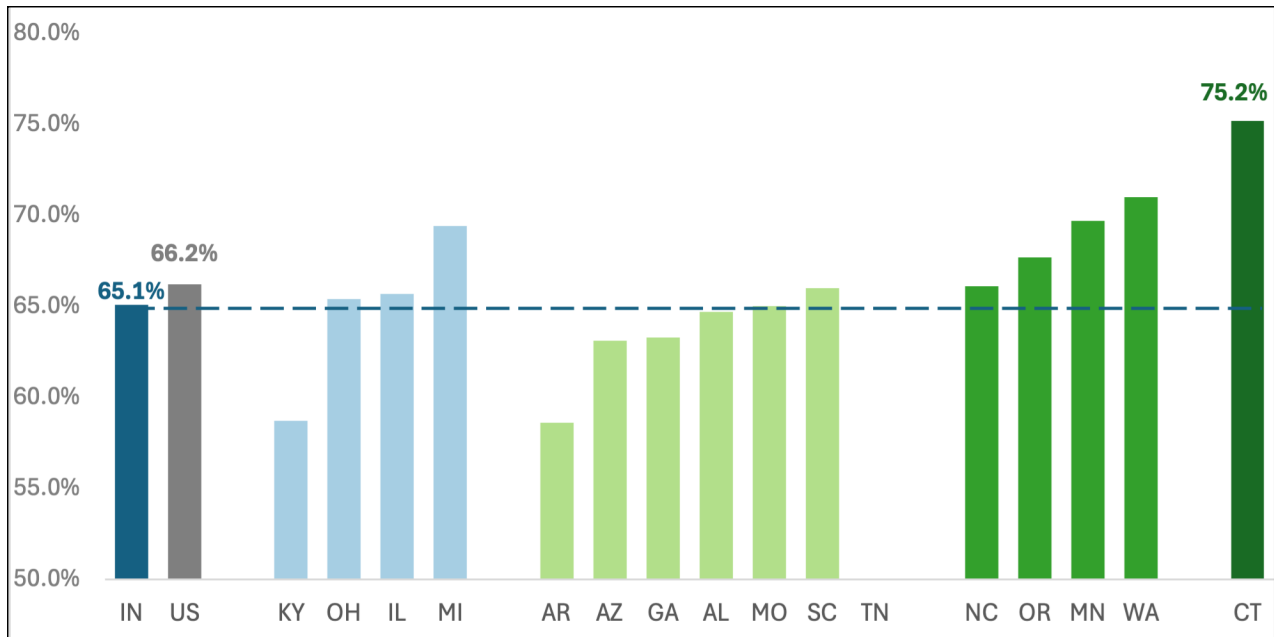
Figure 8a. Flu Vaccine Within Past 1 Year, % of Adult Population

Notes: Authors' calculations based on 2024 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring**, **Cohort**, **Exemplar States**, and the **Top State**.

Figure 8b. Change in Flu Vaccine Within Past 1 Year, % of Adult Population, 2018 to 2024

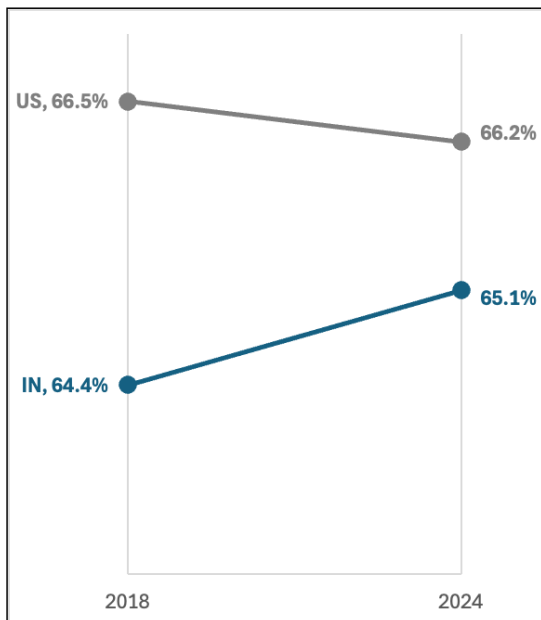
Notes: Authors' calculations based on 2018 and 2024 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares **Indiana** and the **US Overall** in 2018 and 2024.

Figure 9a. Dental Visit Within Past 1 Year, % of Adult Population



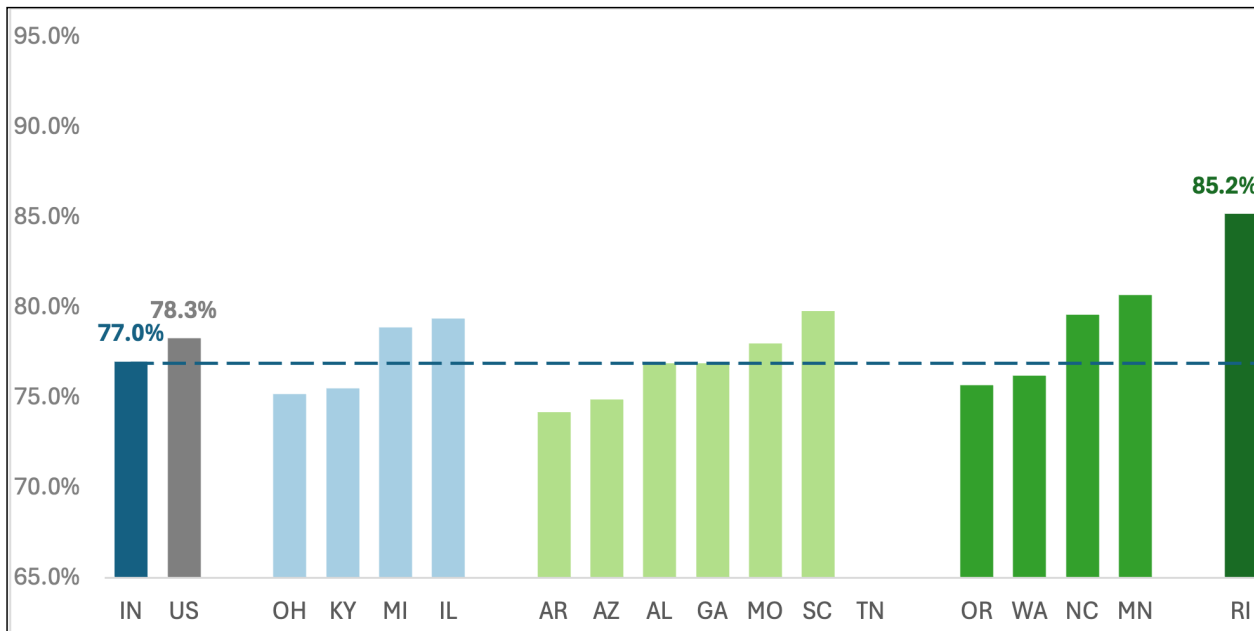
Notes: Authors' calculations based on 2024 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring**, **Cohort**, **Exemplar States**, and the **Top State**.

Figure 9b. Change in Dental Visit Within Past 1 Year, % of Adult Population, 2018 to 2024



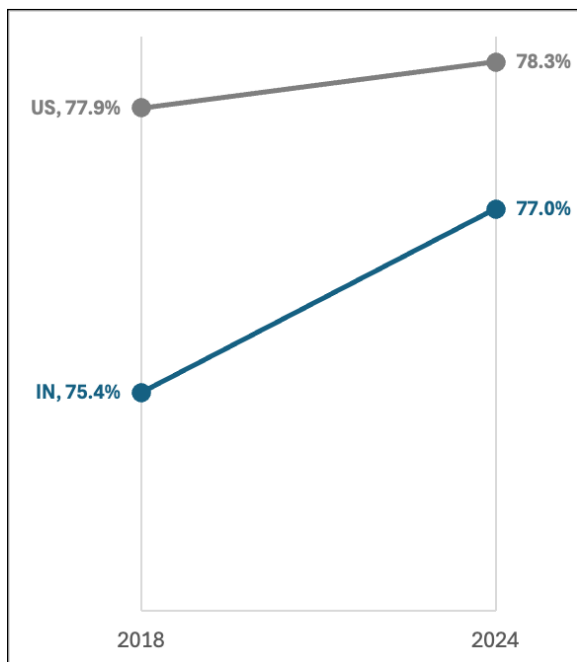
Notes: Authors' calculations based on 2018 and 2024 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares **Indiana** and the **US Overall** in 2018 and 2024.

Figure 10a. Mammogram Within Past 2 Years, % of Women Over Age 40



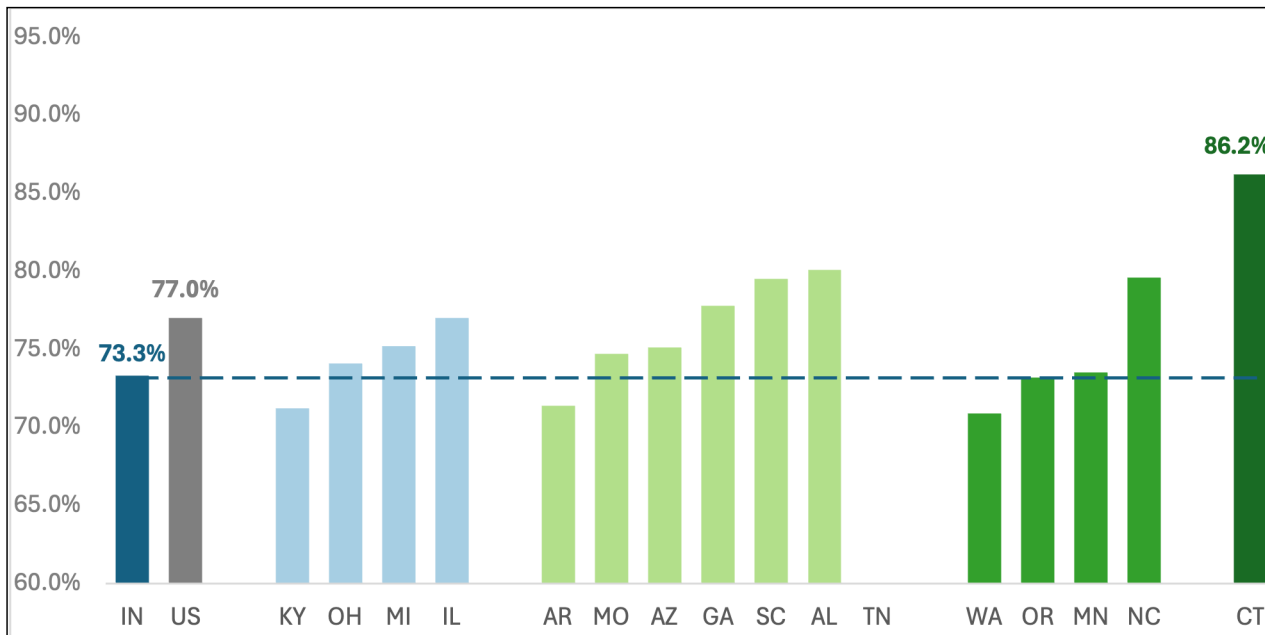
Notes: Authors' calculations based on 2024 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring**, **Cohort**, **Exemplar States**, and the **Top State**.

Figure 10b. Change in Mammogram Within Past 2 Years, % of Women Over Age 40



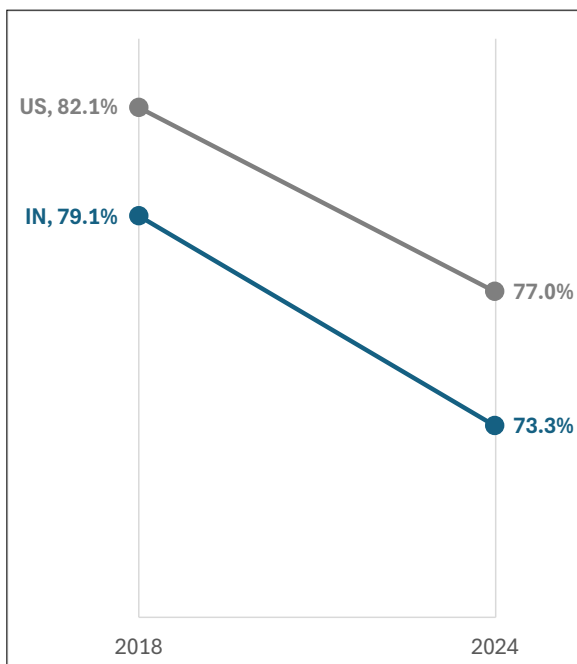
Notes: Authors' calculations based on 2018 and 2024 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares **Indiana** and the **US Overall** in 2018 and 2024.

Figure 11a. Cervical Exam Within Past 2 Years, % of Women Over Age 21



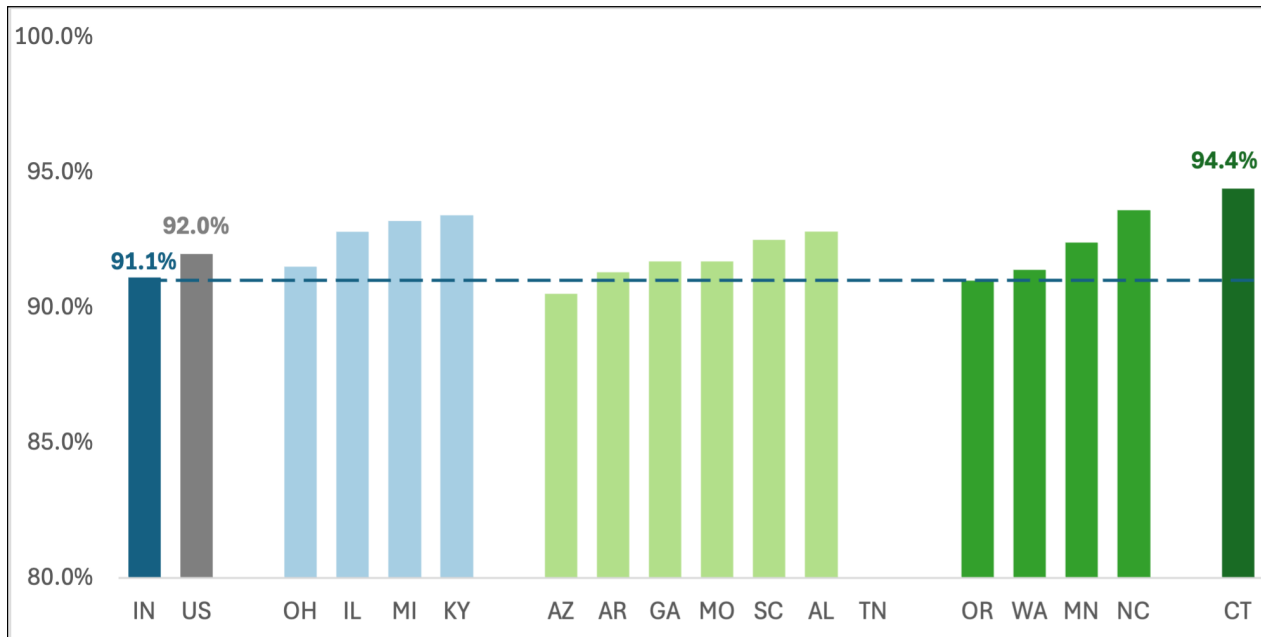
Notes: Authors' calculations based on 2024 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring**, **Cohort**, **Exemplar States**, and the **Top State**.

Figure 11b. Change in Cervical Exam Within Past 2 Years, % of Women Over Age 21



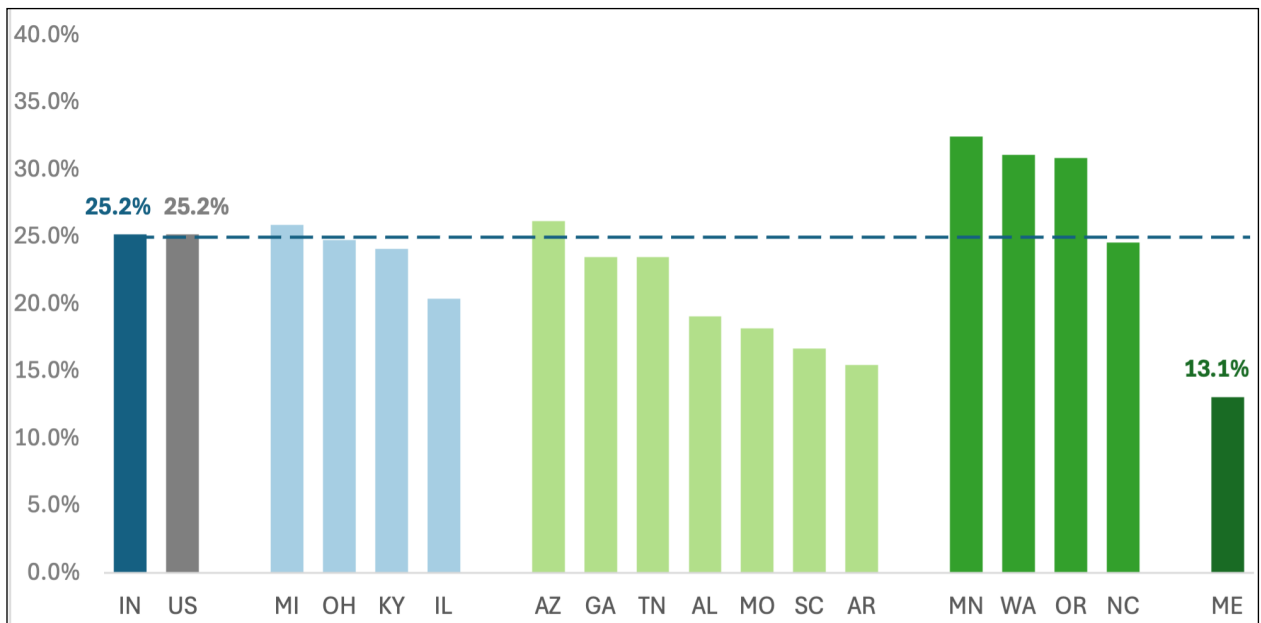
Notes: Authors' calculations based on 2018 and 2024 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares **Indiana** and the **US Overall** in 2018 and 2024.

Figure 12. Colonoscopy Within Past 10 Years, % of Adults Over Age 40



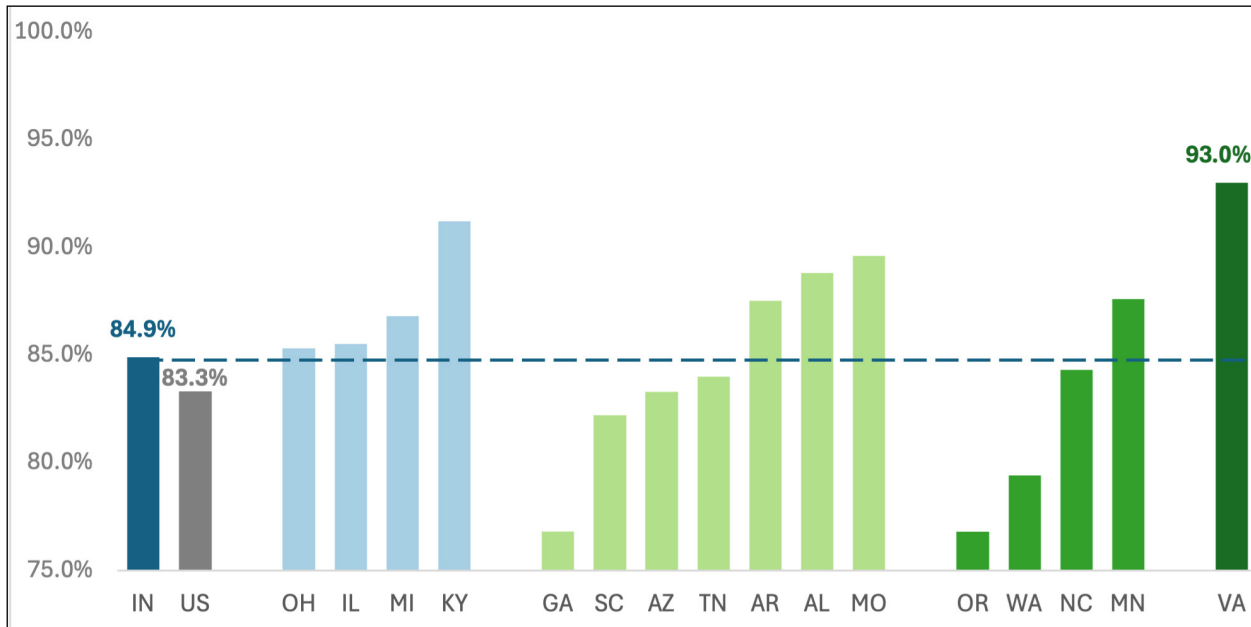
Notes: Authors' calculations based on 2024 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring Cohort**, **Exemplar States**, and the **Top State**.

Figure 13. Adults with Any Mental Illness Reporting an Unmet Need for Treatment, %



Notes: Authors' calculations based on 2025 data from Mental Health America. "Unmet need" is defined as seeking treatment or thinking they should receive treatment but not receiving it. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring Cohort**, **Exemplar States**, and the **Top State**.

Figure 14. Children Aged 12-17 Who Receive Needed Mental Health Treatment or Counseling, %

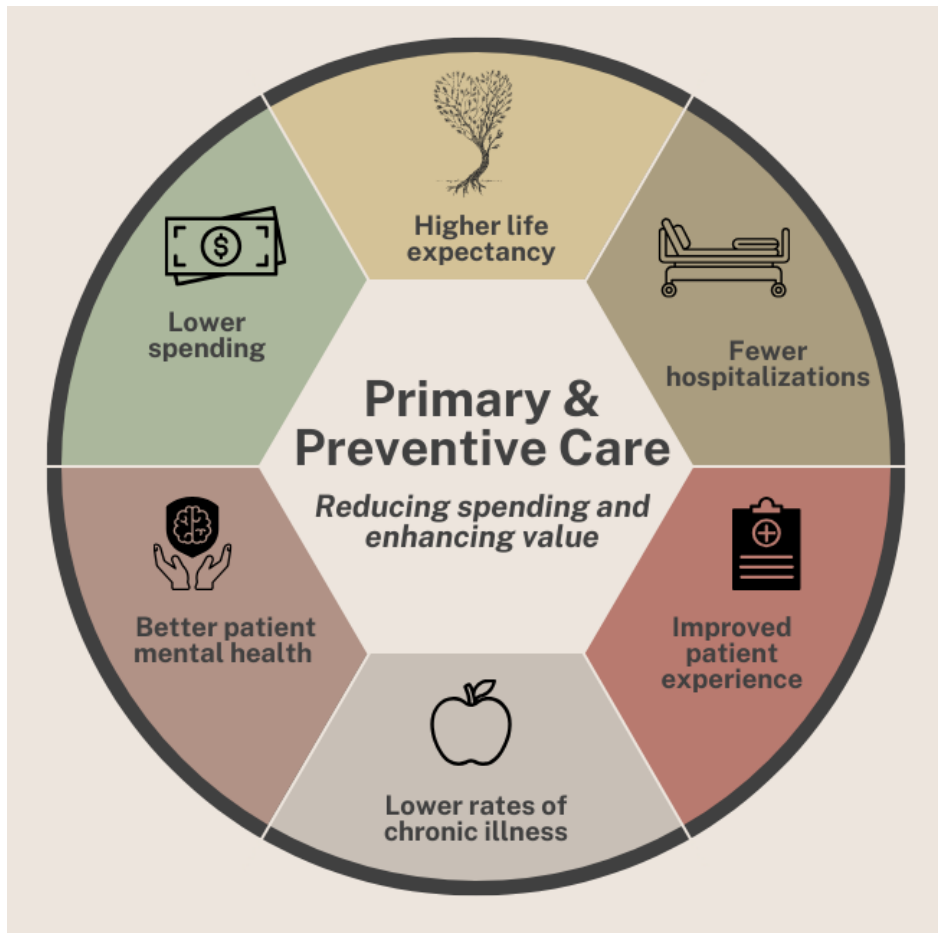


Notes: Authors' calculations based on America's Health Rankings 2023-2024 data (two-year estimates). The figure compares levels in **Indiana** to the **US Overall**, **Neighboring**, **Cohort**, **Exemplar States**, and the **Top State**.

SECTION 2. WHY INCREASE PRIMARY CARE AND PREVENTIVE CARE UTILIZATION?

A recent US Government Accountability Office (GAO) report highlighted strengthening primary care as the first and foremost recommendation to reduce spending and enhance value in the US health care system.^{15,16} This section describes the demonstrated benefits of primary care and preventive care utilization based on the medical and health services literature. **Figure 15** summarizes these findings.

Figure 15. How Increasing Primary Care and Preventive Care Utilization Reduces Spending and Enhances Value



Improvements in Health Outcomes and Quality of Care

A strong body of evidence consistently links greater access to primary care with **better health outcomes and higher quality at lower or similar cost.**

- In a national analysis of US counties between 2005 and 2015, an additional 10 PCPs per 100,000 residents was associated with a 52-day **increase in life expectancy** and 0.9 to 1.4% **lower cardiovascular, cancer, and respiratory mortality**, even after controlling for differences in counties' socio-demographic and economic characteristics. Increasing PCPs had a larger impact on these outcomes than similar increases in specialist physicians.¹⁷
- Another national study found that states with more generalist physicians **spent less on health care and used more high-value care** (e.g., beta blockers after

myocardial infarction, mammography, and influenza vaccination). Each additional generalist physician per 10,000 population was associated with an improvement in quality rank and \$684 lower Medicare spending per beneficiary. Conversely, more specialist physicians were associated with the opposite pattern (higher spending and lower quality on core measures).¹⁸

- The authors' own original analysis of county-level data from nearly 3,000 counties shows that more PCPs per capita are correlated with higher life expectancy, lower rates of preventable hospitalizations, better self-reported physical and mental health, lower smoking rates, lower rates of drug use, greater engagement in health-promoting behaviors (such as exercising and getting recommended mammograms and flu vaccinations), and lower rates of chronic illness, such as diabetes and obesity. (See **Appendix Table 1.**)

Moreover, when primary care is *regular, comprehensive* (e.g., includes a broader scope of services), *team-based*, or *continuous* (e.g., characterized by stable PCP-patient relationships), patients have even **lower health care spending** and **less avoidable acute care**.

- A study using Medicare claims data found that more comprehensive primary care among family physicians (defined as broader in-office services offered) was associated with lower total Medicare costs and fewer hospitalizations.¹⁹
- Continuity of care — having ongoing, coordinated care with the same trusted provider or team — generates additional improvements. Using a nationally representative sample of 1.5 million Medicare beneficiaries cared for by over 6,000 PCPs, researchers found that beneficiaries seeing physicians in the highest continuity quintile had 14% lower total Medicare spending and 16% lower odds of hospitalization versus beneficiaries in the lowest continuity quintile.²⁰
- In Medicare, regular, frequent, and continuous primary care visits were jointly associated with lower Medicare expenditures and lower acute care utilization, including both emergency department visits and hospitalizations.²¹
- Data from the Veterans Health Administration (VHA) primary care clinics show that team-based care is significantly associated with important outcomes for both patients and providers. Greater implementation of the VHA's patient-centered medical home (PCHM) model was favorably associated with patient satisfaction and quality, and with lower ED and hospital use, when implementation was deeper.²²

Improvements in Patient Experience

Increased investment in primary care improves the **patient experience**. Investments that improve the “feel” of primary care (e.g., stronger and longer-lasting provider-patient relationships, greater access to primary care, supportive providers) are associated with better patient experience and downstream lower utilization and spending.

- Medical home implementation in the VHA showed higher patient satisfaction when core medical home elements (access, continuity, coordination, comprehensiveness, team-based care) were implemented more fully.²²
- A systematic review of 142 studies evaluating five federal programs focused on enhancing primary care found substantial improvements in clinical care delivery and greater patient engagement.²³

Primary Care and Preventive Care May Reduce Some Costs

Primary care and preventive care **reduce some types of health care spending** by identifying health issues early, managing chronic conditions, promoting healthy lifestyles, and avoiding costly emergency department and other preventable acute care.^{24,25}

However, increased utilization of preventive care may **increase some forms of health spending**, particularly in the short-term, in several ways^{26,27}:

- *Screening Costs*: The upfront cost of broad screenings for the general population may not be cost-effective if only a small percentage of people truly need treatment.
- *False Positive Results*: Screenings that result in high rates of false positive results may not be cost-saving if patients who get false results go on to receive second opinions or unnecessary treatment.
- *Treatment of Detected Issues*: Finding and treating conditions like high cholesterol or early-stage cancers adds to short-term health care expenses.
- *Behavioral Factors*: Patient out-of-pocket costs for follow-up tests can discourage future preventive care, increasing long-term costs.

How investments in prevention are made matters. Preventive measures are more likely to result in savings if they **target specific populations at high risk** for disease. For example, the efficiency of cancer screening depends on the frequency of screening and the level of cancer risk in the screened population. **Dollars aimed at continuity of care,**²⁰ **comprehensiveness (a wide range of in-practice services),**¹⁹ and **proactive**

care management¹⁸ are the approaches that are most consistently associated with lower total spending.

Potential for AI and Emerging Technologies to Enhance the Return on Primary Care and Preventive Care

Though outcomes have not been fully studied yet, new technologies, especially artificial intelligence (AI), have significant potential to strengthen primary care and preventive care, while improving cost-effectiveness across the health system. Automation of routine tasks such as documentation, triage, and follow-up can reduce administrative burden on clinicians, allowing primary care teams to spend more time on direct patient care and complex decision-making. Additionally, AI-enabled tools can support earlier detection of disease, identify and monitor high-risk patients, and automatically send reminders and “nudges” to appropriate groups of patients.

One example is the use of deep learning models to assist with real-time clinical decision support to primary care physicians. Though these currently tend to be used in acute care settings in the intensive care unit, there is potential for these models to be used in primary care settings. Another example is the use of natural language processing (NLP) to analyze unstructured and structured patient data in EHRs in real time to help health systems better assess treatment responses and associated costs. This approach can generate actionable insights on clinical and financial performance, strengthening value-based care tracking, evaluation, and implementation.²⁸

Finally, the convergence of AI and genomics is advancing precision medicine. Machine learning and deep learning techniques can be used to develop predictive models that support more personalized treatment strategies.²⁹ One systematic review found that genomic data-driven models can predict cancer survival across several common cancer types, though further research is necessary to strengthen their clinical applicability.³⁰

SECTION 3. HOW TO INCREASE PRIMARY CARE AND PREVENTIVE CARE UTILIZATION: AN EVALUATION OF POLICY AND ORGANIZATIONAL STRATEGIES

Employers, insurers, policymakers, and health systems broadly agree that Indiana must boost primary care and preventive care to improve outcomes, curb avoidable hospital use, and steady premiums, but they often diverge on the best strategies to strengthen and expand the state's primary care and preventive care systems.

To provide guidance for stakeholders, this section synthesizes the evidence on 19 identified strategies that could increase primary care and preventive care use. We have listed these strategies by the key stakeholder group that is responsible for implementing them: state government, employers, payers, or providers.

However, we note that for many of these strategies, the state can influence other stakeholders' implementation through policy design. State regulation may be particularly useful in cases where voluntary multi-organizational alignment is difficult, or when addressing gaps for rural and other vulnerable populations is needed.

Our focus here was on conducting a critical assessment of the literature and providing evidence-based recommendations. Wherever possible, we focused on evidence from Indiana's neighboring or cohort states. Based on the weight of evidence in the literature, as a function of the study designs used in individual studies, we describe the takeaway points for a given strategy as:

1. **Convincing evidence on cause and effect.** These study designs include randomized controlled trials, quasi-experimental studies that account for some selection bias and time trends (such as difference-in-differences, instrumental variable, regression discontinuity design, interrupted time series with control, and two-way fixed effects), and systematic reviews that include individual studies with the above designs. These designs provide the best potential evidence about cause and effect in real-world settings. If multiple studies of this type provide evidence of the same conclusion, stakeholders can pursue changes with confidence. If multiple studies of this type produce conflicting findings, we recommend further studying context-specific nuances before taking action.
2. **Promising evidence on cause and effect.** These study designs include propensity

score designs, longitudinal designs that do not account for selection bias, and time trends (such as cohort studies, pre-post studies, and time series without controls), and systematic reviews based only on such study designs. These types of studies account for some confounding and selection bias but cannot reliably determine cause and effect. They can help point stakeholders in a given direction. If multiple studies of this type provide similar findings, we recommend studying the effects of a pilot project or another limited-in-scope policy change.

3. **Correlational evidence where cause and effect should not be inferred.**

These types of studies, which include case studies, cross-sectional studies, and systematic reviews limited only to these study designs, are insufficient to justify significant changes to policy or practice. They generate useful hypotheses, but additional research using more rigorous study designs is warranted before making policy or organizational change.

Table 1 summarizes key takeaways from this review. We categorize strategies into three groups: (1) Take Action, (2) Worth Piloting, and (3) Requires Caution. The first category (“Take Action”) includes approaches for which there is convincing evidence of *beneficial impact* on primary care and preventive care utilization. The third category (“Requires Caution”) lists strategies for which there is convincing evidence that they either *reduce* primary care and preventive care utilization or have *zero impact* on these measures. The middle category (“Worth Piloting”) includes approaches for which there is promising evidence of benefits as defined above. Policies for which there is currently only correlational evidence or insufficient evidence are not included in Table 1. Each strategy listed in Table 1 is described in greater detail in the subsections below.

Table 1. An Evaluation of Policy and Organizational Strategies to Strengthen Primary Care and Preventive Care: Summary of Findings from a Literature Review

	Take Action! Convincing Evidence of Benefits	Worth Piloting Promising Evidence of Benefits	Requires Caution Evidence of Adverse Impacts
State Government Programs and Policies	Health insurance expansions Expand funding and support for federally qualified health centers (FQHCs) and community clinics Scope-of-practice expansion for advanced practice providers Expand graduate medical education (e.g., “residency”), especially in high-need urban and rural areas	Loan repayment and financial incentives in exchange for serving rural areas	
Employer Initiatives	Paid sick leave		Workplace wellness programs
Payer Based Approaches	Reduce cost sharing for patients Value-based care and hybrid payment models Increase reimbursement rates for primary care providers		High-deductible health plans
Provider-Based Strategies	Collaborative and team-based care models Patient reminders and nudging	Wearables and remote patient monitoring	Telehealth and virtual primary care

State Government Programs and Policies

- **Health insurance expansions.** There is convincing evidence that insurance coverage expansions increase primary care utilization and preventive screenings, particularly for low-income populations and other targeted groups. For example, several national studies evaluating Medicaid expansion (including in Indiana) found that expanding public insurance coverage to low-income people increases the probability of receiving annual routine checkups, HIV tests, dentist visits, and early detection of cancer.³¹⁻³⁴ Studies of the impact of private insurance expansions for young adults also provide convincing evidence of the link between employer-sponsored insurance (ESI) coverage and preventive care. Expanding ESI coverage increases the probability of having a primary care doctor³⁵ and the receipt of routine checkups, dental checkups, and blood pressure measurement.³⁶
- **Expand graduate medical education (e.g., “residency”) slots, especially in high-need urban and rural areas.** One way to address the PCP shortage is to train more physicians in primary care. There is convincing evidence that targeted government subsidies for graduate medical education (i.e., “residency”) in high-need areas significantly increases the number of attending PCPs practicing in those areas.³⁷ Rural areas continue to face some of the largest PCP shortages, and there is evidence that physicians who are from rural areas themselves³⁸ and/or received more training in rural locations³⁹ are most likely to subsequently choose rural practice locations.

A challenge is that, currently, most funding for residency programs goes to training in academic hospitals instead of community-based or rural care. This results in graduating physicians choosing specialty areas in large hospitals rather than community-based primary care practices.¹⁴ There are examples of states and medical schools attempting to address this issue. For example, the New York University Grossman School in Long Island offers free tuition in a three-year program and recruits medical students who are passionate about patient advocacy and have experience working in underserved communities with primary care physicians.

Another example is the University of California-Davis School of Medicine, which trains students who tend to have a lower socioeconomic status, represent racial

and ethnic minorities, and/or are from rural areas. Additionally, Florida passed legislation in 2024 that allows the state to better track Medicaid graduate medical education funding and provide greater oversight to understand the need for primary care residents compared to specialties.¹⁴

- **Expand funding and support for federally qualified health centers (FQHCs) and community clinics.** There is convincing evidence that expanding funding for FQHCs — health centers that receive federal, and sometimes state, funding to serve medically underserved areas — increases access to primary care for underserved populations and reduces emergency department visits for non-emergency or primary care treatable conditions.⁴⁰ Moreover, increased FQHC funding is associated with significant increases in annual pediatric visits and reductions in costly emergency department visits for low-income children.⁴¹
- **Scope-of-practice expansion for advanced practice providers (APPs).** There is convincing evidence that, especially in the presence of physician shortages, more flexible, team-based approaches that leverage non-physician providers can help meet future primary care needs and ensure access to basic primary and preventive care. Multiple studies leverage variation across states in physician assistants' and nurse practitioners' authority to practice and prescribe drugs without physician oversight. These studies generally find that expanding the APP scope of practice increases the frequency of routine checkups, improves care quality, and decreases emergency room use by patients with ambulatory care-sensitive conditions.⁴²⁻⁴⁴
- **Loan repayment and financial incentives in exchange for serving rural areas.** There is promising evidence that offering physicians financial incentives through student loan forgiveness programs results in small increases in physician supply in rural counties. However, the magnitude of the increase is small and often short-lived.^{45,46} Increasing long-term total compensation is critical to attracting and retaining physicians in underserved areas, and research shows that current incentive programs are too small to fully address shortages.⁴⁵
- **Enact mandatory minimums for the portion of health care spending to be spent on primary care.** There is emerging correlational evidence based on nearly 20 states committed to increasing spending on primary care.⁴⁷ States have taken

different approaches to mandate how health plans spend a minimum percentage of their spending on primary care. For example, Delaware is using a stair-step approach to increase their percentage of spending on primary care by 2.5% each year starting in 2022 for public and private insurance to reach 11.5% of total spending to primary care by 2025. Starting in 2026, they will enact mandatory minimums. Colorado has enforced a 1% increase in allocation to primary care by commercial insurers each year and has seen an increase in primary care spending from 12.0% to 15.1% from 2020 to 2022.⁴⁸ Rhode Island began this effort in 2010 by requiring commercial insurers to increase their allocation to primary care by 1% each year and capped hospital price growth.⁴⁸

- **Build a data infrastructure to calculate and report primary care spending.** States can bring together multiple stakeholders and build a data infrastructure that facilitates the measurement, reporting, and assessment of primary care spending. Making this data transparent and accessible can help stakeholders identify gaps in primary care spending across geographic areas, insurance plans, and subgroups and formulate effective solutions. There is correlational evidence that calculating and reporting data on primary care spending is associated with increases in primary care. For example, four states (RI, OR, CO, DE) that released multiple reports on primary care investment all experienced increases in the spending dedicated to primary care after attention was drawn to the topic.⁴⁹
- **Primary care population-based payment (PBP) in Medicaid.** PBP is an approach that some Medicaid programs use to pay primary care providers a set, prospective amount per enrolled patient, rather than paying for each visit or service. The payment is meant to support ongoing, comprehensive care for a defined population.

There is limited evaluation of these models, but some states have explored them, and at least six state Medicaid programs are pursuing value-based payment approaches that pay providers through upfront, flexible payments tied to quality incentives.⁵⁰ These all vary in their design, which is reflective of variability in state-based Medicaid programs. For example, Pennsylvania is working on a Rural Health Model aimed at providing rural hospitals with sustainable and predictable funds. Maryland has a Total Cost of Care Model that aligns primary care, hospitals, and

partners towards quality and high-value preventive care.

States are also experimenting with strengthening primary care within Medicaid programs. For example, West Virginia introduced legislation in 2024 to improve access to Medicaid recipients by providing technical assistance to community-based primary care facilities, a grant program for federally qualified health centers, and an annual report to track Medicaid primary care spending. We were unable to identify rigorous studies of the impact of these programs.

Employer Initiatives

- **Paid sick leave.** There is convincing evidence that offering employees paid sick leave helps them use primary care and preventive care. Compared to states without paid sick leave mandates, those with paid sick leave mandates experienced increases in annual outpatient visits, various cancer screenings, vaccinations, and A1c and cholesterol testing after the mandates were enacted.⁵¹⁻⁵³ One study also found a decrease in the probability of emergency care utilization for conditions treatable in a primary care setting.⁵¹
- **Workplace wellness programs** require caution. Convincing evidence suggests workplace wellness programs and incentives fail to improve health (including self-reported health and behaviors, clinical measures, health spending or utilization), absenteeism, job-tenure, or job performance in a 12- to 24-month post-period.⁵⁴

Convincing experimental evidence from Illinois shows that while workplace wellness programs can increase the likelihood of completing a health screening, participating in healthy behaviors, or having a PCP, there are substantial biases in the types of individuals who choose to participate in these programs. Employees with higher salaries and healthier lifestyles tend to participate in these wellness programs more often than those with lower salaries and/or those who engage in fewer healthy behaviors. As such, employees who take advantage of workplace wellness programs would have likely sought recommended primary and preventive care even in the absence of the programs.⁵⁵

Payer-Based Approaches

- **Reduce cost-sharing for patients.** There is convincing evidence that reducing

patients' out-of-pocket costs for primary care, including both front-end *and* downstream costs (such as for diagnostic follow-up tests resulting from a routine checkup), is one of the most consistent ways to increase use of preventive care.⁵⁶ Rigorous studies show that eliminating cost-sharing for preventive services increases recommended biennial mammography and vaccination among both privately and publicly insured patients.^{57,58} Overall, studies indicate that socioeconomic status plays a role in how the population benefits from the elimination of cost-sharing. For low-income children, increasing families' copays by even a small amount results in significant declines in physician visits.⁵⁹

- **Value-based care and hybrid payment models.** There is convincing evidence that *value-based payment models* improve adults' utilization of preventive care and primary care — such as cancer screenings, diabetes testing, and diabetes care — while reducing hospitalizations.⁶⁰ For example, Nebraska was an early adopter of value-based care and required health plans to calculate and report primary care spend rates in 2022. Data show that value-based purchasing contracts through Medicare and private insurers significantly increased primary care spending rates while also lowering overall health care costs.⁶¹

There is general agreement on the need to move away from fee-for-service to value-based models that encourage accountability for results. However, there are practical challenges in the implementation of these models, such as redesigning workflows, identifying which quality metrics to tie to payment, overcoming provider resistance, ensuring robust data analytics for tracking outcomes, and managing financial risk. Some states are experimenting with alternative payment models, such as *hybrid payment models*, which blend traditional fee-for-service with newer value-based approaches. In these models, providers still get paid for services rendered to ensure consistent revenue and cover operational costs, but they receive bonuses for meeting certain quality metrics. These models often incorporate *bundled payments*, a single payment for all services related to a specific episode of care, and *capitation*, a fixed monthly payment per patient to manage their overall health. Many experts argue that hybrid capitated models, which include this monthly, per-enrollee payment, will strengthen primary care by giving PCPs more flexibility to deliver care that improves health outcomes.⁶² While there is evidence showing that hybrid capitated models reduce elective surgical

procedures and other forms of low-value care,⁶³ more rigorous research of their impact in primary care and preventive care utilization is needed.

- **Increase reimbursement rates for primary care providers.** There is convincing evidence that increasing reimbursement rates provided to primary care physicians increases availability of primary care appointments, but it tends to increase “effective supply” (PCPs’ participation in networks, willingness to take new patients, and visit volume) more than it increases the total number of PCPs, especially in the short run.

For example, in a “secret shopper” study, a Medicaid primary care fee increase was associated with increased new-patient appointment availability for Medicaid patients, and states with larger fee increases saw larger availability gains.⁶⁴ Increasing payment to PCPs may eventually increase the *number* of PCPs, but it is a slower process due to long training pipelines and delayed workforce entry. Evidence from Medicare’s Primary Care Incentive Payment, which provided a 10% bonus on certain primary care services, resulted in an increase in the number of PCPs.⁶⁵ However, most studies show that workforce headcount responds with a lag, as it takes years to train new physicians.⁶⁶

- **High-deductible health plans** require caution. There is convincing evidence that high-deductible health plans, though effective in containing health care spending, can reduce recommended preventive care, even when these services have no copays for patients because of a mix of behavioral, informational, and system-level factors:
 - Lack of health literacy is an issue. Insurance coverage rules are typically complex and vary by service, diagnosis, and setting. Many patients do not know that preventive services are exempt from the deductible, and fear of an unexpected bill leads people to avoid care altogether.
 - Patients may also fear downstream costs. If a “free” routine checkup identifies an abnormal result, follow-up labs or imaging can trigger large out-of-pocket costs. To avoid this risk, patients may skip the initial preventive visit.
 - Preventive visits can turn into partially billable encounters if the provider discusses or treats a condition during the visit that reclassifies the visit as diagnostic. These surprise bills reduce patient trust and future utilization of preventive care.

A systematic review of convincing studies found that high-deductible health plans were linked to significant reductions in clinically appropriate services, including preventive care and office visits, in more than half of the studies reviewed.⁶⁷ Another systematic review of the literature concluded that high-deductible health plans are reducing the use of some preventive services, especially screenings.⁶⁸

Provider-Based Strategies

- **Collaborative and team-based care models.** There is convincing evidence that team-based approaches to primary care may reduce hospitalizations and other acute care needs for chronically ill patients. However, these models have also been shown to increase all health care visits among healthier patients, including both outpatient visits and hospitalizations.⁶⁹ Some convincing studies show that adding community health workers to care teams increases breast, cervical, and colorectal cancer screenings.⁷⁰
- **Patient reminders and nudging.** There is convincing evidence that patient nudges can increase the use of preventive care. Randomized control trials in Seattle and Philadelphia show that using multicomponent nudging — which included pre-visit text message reminders to patients, an automatic pended order (a vaccine order automatically pre-prepared by the EHR before the visit, without the clinician having to initiate it), and monthly comparisons of panel vaccination rates to peer clinicians — increased patient vaccine completion at primary care visits by 5 percentage points.⁷¹
- **Telehealth and virtual primary care** require caution. There is convincing evidence that telemedicine can paradoxically increase rural-urban disparities due to low levels of technology adoption, limited technological literacy, and low internet bandwidth in rural areas.⁷² Correlational evidence shows that telehealth adoption is associated with reductions in waiting times, lower patient costs, and more effective care for certain conditions, but has negative impacts on patient experience with primary care.⁷³ More research on telemedicine is warranted.
- **Wearables and remote patient monitoring.** There is promising evidence that technology-based remote patient monitoring interventions (e.g., smartphone applications, augmented clinical devices with monitoring capabilities, wearable

devices for intermittent monitoring, etc.) have achieved positive patient outcomes such as mobility, safety, and adherence, as well as a decreased risk of hospitalizations and additional outpatient visits.⁷⁴ However, evidence from convincing clinical trials is mixed, with many studies finding no significant impact of remote patient monitoring on clinical markers such as BMI and blood pressure.⁷⁵

- **Utilize artificial intelligence (AI) for EHR tasks.** There is correlational evidence on the benefits of using AI to support primary care administrative burdens, such as note-taking and entering data into the EHR.¹⁴ A mixed-methods study in a California health system that implemented real-time, scribe-like AI support to assist physicians with note-taking found that physicians reported reduced cognitive demand and effort needed for documentation as well as an increase in perceived quality of care delivered to their patients. Within the tracking of the EHR system, researchers found an overall significant reduction in note-writing time while observing an increase in note length. The study also found the need for more customization, a way to ensure reliability and accuracy, and the ability to improve integrations with ethical and legal teams.⁷⁶

CONCLUSION AND RECOMMENDATIONS

This report, prepared by researchers from the Indiana University Richard M. Fairbanks School of Public Health in Indianapolis, describes the state of primary care and preventive care in Indiana and examines the efficacy of state and organizational approaches to increase primary care and preventive care utilization.

Our state-level comparisons suggest that **Indiana underinvests in primary care**. Indiana significantly lags the nation and most comparator states on PCP supply and the percent of total health spending on primary care within employer-sponsored insurance plans. In terms of preventive care utilization for adults, Indiana meets, or slightly exceeds, national averages for receiving routine medical checkups and needed mental health treatment. However, our state's rates for flu vaccination, dental visits, mammograms, cervical exams, and colonoscopies are all lower than national averages. Most notably, preventive medical visits for children in Indiana are much lower than for the nation overall and most comparator states. Without regular checkups, children may miss critical opportunities for their providers to identify potential physical or cognitive delays, which have adverse impacts on childhood development. Moreover, missing opportunities to detect child

health issues early and provide timely interventions and/or referrals leads to poorer health outcomes and higher future costs for families and the health care system.

For a state seeking to reduce health care costs, investing in primary care and preventive care offers a practical and proven step forward. Based on our critical assessment of the evidence underpinning strategies that may increase primary and preventive care, we have identified a **prioritized list of viable strategies for Indiana stakeholders to consider**. These recommended strategies were selected due to having the most consistent convincing studies supporting their ability to affect change and for being within the practical reach of Indiana stakeholders.

Based on the evidence (**see Table 1**), we propose several ways Indiana can increase primary and preventive care:

- For patients, out-of-pocket prices and other barriers to care matter. **Health insurance expansions** and **reductions in cost-sharing** for patients are two of the most effective strategies in increasing utilization of primary care and preventive care. To increase health insurance expansion, Indiana can streamline eligibility and enrollment processes and increase outreach for existing public and marketplace insurance options. To reduce cost-sharing for patients, Indiana can encourage or require health plans to lower copayments for primary care and/or select services that stakeholders elect to prioritize for the state to improve upon. Conversely, the recent movement toward high-deductible health plans in our state⁷⁷, while effective in containing costs and reducing unnecessary care, may have the unintended consequence of reducing recommended preventive care services.
- Amidst physician shortages, **advanced practice providers**, such as nurse practitioners and physician assistants, offer a timely and cost-effective opportunity to expand the primary care workforce. Studies show that scope-of-practice expansions for advanced practice providers improve access to primary care and reduce unnecessary acute care usage. Indiana stakeholders should consider situations where an increased use of advanced practice providers can help improve access to primary and preventive care utilization, especially in areas of the state with the most severe access constraints.

- **Value-based care** strengthens primary care by shifting incentives from volume to outcomes. By rewarding prevention, chronic disease management, and care coordination, value-based models encourage greater investment in primary care teams, longer patient visits, and proactive outreach for preventive care. Indiana lags most other states in adopting a highly coordinated, statewide strategy dedicated to value-based payment innovation across all payers.⁷⁷ Accelerating the adoption of value-based care across the state could represent an opportunity to strengthen our primary care and preventive care system. Currently, comprehensive value-based care programs are rarely available in commercial insurance. Stakeholders should consider ways to increase collaborative approaches to value-based insurance uptake, which can take several years before yielding the desired outcomes sought by policymakers.

It is critical that we strengthen Indiana's primary care and preventive care systems to reduce downstream health spending and enhance value in the health care system. For this reason, we determined that workplace wellness programs, high-deductible health plans, and telehealth and virtual primary care should *not* be pursued at this time due to insufficient evidence to support successful impact on primary and preventive care. If stakeholders want to experiment with smaller-scale implementations, due to promising evidence in the literature, the following strategies could be considered and rigorously studied prior to wider-scale adoption: loan repayment and financial incentives in exchange for serving rural areas; wearables and remote patient monitoring.

The goal of this report is to provide a menu of strategies for policymakers and business leaders to review and prioritize. We believe that most strategies will require multi-stakeholder collaboration and strong state leadership. Success will ultimately depend on whether stakeholders can align around evidence-based solutions that prioritize long-term sustainability over short-term political or fiscal considerations.

REFERENCES

1. Indiana Department of Health. Health First Indiana: A State Investment in Local Public Health. Accessed October 29, 2025. <https://www.in.gov/healthfirstindiana/>
2. Cunningham T. Indiana House approves ban on noncompete agreements for some doctors. WFYI Public Media. April 10, 2025. Accessed January 12, 2026. <https://www.wfyi.org/news/articles/indiana-house-approves-ban-on-noncompete-agreements-for-some-doctors>
3. Gruenling J. Marian University tackles Indiana's primary care physician shortage. August 13, 2025. Accessed January 12, 2026. <https://www.wrtv.com/news/local-news/marian-university-tackles-indianas-primary-care-physician-shortage>
4. State of Indiana. Pledge to Act. Health First Indiana. 2025. Accessed January 12, 2026. <https://www.in.gov/healthfirstindiana/pledge-to-act/>
5. Tierney WM. Take Back Primary Care. J Gen Intern Med. Published online November 21, 2025. doi:10.1007/s11606-025-09961-1
6. Smith C. Indiana hospital officials point to new studies showing decreased health care costs. Indiana Capital Chronicle. <https://indianacapitalchronicle.com/2025/12/02/indiana-hospital-officials-point-to-new-studies-showing-decreased-health-care-costs/?emci=1be512e5-bfce-f011-8195-000d3a1d58aa&emdi=27c33ca2-7acf-f011-8195-000d3a1d58aa&ceid=578727>. December 2, 2025. Accessed January 1, 2026.
7. U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Access to Primary Care. Healthy People 2030. Accessed November 23, 2025. <https://odphp.health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries/access-primary-care?>
8. Institute of Medicine. Primary Care: America's Health in a New Era. National Academies Press; 1996:5152. doi:10.17226/5152
9. World Health Organization. Integrated Primary Care for UHC. Accessed November 23, 2025. <https://www.who.int/teams/integrated-health-services/clinical-services-and-systems/primary-care?>
10. Centers for Medicare & Medicaid Services. Preventive Care. CMS.gov. Published online June 2, 2025. Accessed November 23, 2025. <https://www.uspreventiveservicestaskforce.org/uspstf/about-uspstf/task-force-resources/uspstf-overview?>
11. CDC. Are You Up to Date on Your Preventive Care. CDC. Published online August 15, 2025. Accessed November 23, 2025. <https://www.cdc.gov/chronic-disease/prevention/preventive-care.html?>
12. U.S. Preventive Services Task Force. USPSTF: An Overview. Published online April

2021. <https://www.uspreventiveservicestaskforce.org/uspstf/about-uspstf/task-force-resources/uspstf-overview?>
13. Agency for Healthcare Research and Quality. Care Coordination. Agency Healthc Res Qual. Published online June 2014. <https://www.ahrq.gov/ncepcr/care/coordination.html?>
 14. Jabbarpour Y, Jetty A, Byun H, Siddiqi A, Park J. The Health of US Primary Care: 2025 Scorecard Report — The Cost of Neglect. Milbank Memorial Fund. Accessed January 14, 2026. <https://www.milbank.org/publications/the-health-of-us-primary-care-2025-scorecard-report-the-cost-of-neglect/>
 15. U.S. Government Accountability Office. Highlights of a Forum: Reducing Spending and Enhancing Value in the U.S. Healthcare System.; 2025. Accessed November 24, 2025. <https://www.gao.gov/products/gao-25-107465>
 16. Irene Papanicolas, Richard M. Scheffler. Reducing Spending And Enhancing Value In US Health Care: Reflections On The GAO Report. Published online October 29, 2025. doi:10.1377/forefront.20251028.698557
 17. Basu S, Berkowitz SA, Phillips RL, Bitton A, Landon BE, Phillips RS. Association of Primary Care Physician Supply With Population Mortality in the United States, 2005-2015. JAMA Intern Med. 2019;179(4):506. doi:10.1001/jamainternmed.2018.7624
 18. Katherine Baicker, Amitabh Chandra. Medicare Spending, The Physician Workforce, and Beneficiaries' Quality of Care. Published online April 2004. Accessed November 24, 2025. <https://ccpr.ucla.edu/wp-content/uploads/2024/04/Medicare-Spending-The-Physician-Workforce-and-Beneficiaries-Quality-of-Care.pdf>
 19. Bazemore A, Petterson S, Peterson LE, Phillips RL. More Comprehensive Care Among Family Physicians is Associated with Lower Costs and Fewer Hospitalizations. Ann Fam Med. 2015;13(3):206-213. doi:10.1370/afm.1787
 20. Bazemore A, Petterson S, Peterson LE, Bruno R, Chung Y, Phillips RL. Higher Primary Care Physician Continuity is Associated With Lower Costs and Hospitalizations. Ann Fam Med. 2018;16(6):492-497. doi:10.1370/afm.2308
 21. Sonmez D, Weyer G, Adelman D. Primary Care Continuity, Frequency, and Regularity Associated With Medicare Savings. JAMA Netw Open. 2023;6(8):e2329991. doi:10.1001/jamanetworkopen.2023.29991
 22. Nelson KM, Helfrich C, Sun H, et al. Implementation of the Patient-Centered Medical Home in the Veterans Health Administration: Associations With Patient Satisfaction, Quality of Care, Staff Burnout, and Hospital and Emergency Department Use. JAMA Intern Med. 2014;174(8):1350. doi:10.1001/jamainternmed.2014.2488

23. Sessums LL, Day TJ, Liu L, Crosson JC. Federal Investment in Primary Care Transformation: A Systematic Review and Qualitative Analysis. *JAMA Health Forum*. 2025;6(11):e254117. doi:10.1001/jamahealthforum.2025.4117
24. Maciosek MV, Coffield AB, Flottemesch TJ, Edwards NM, Solberg LI. Greater Use Of Preventive Services In U.S. Health Care Could Save Lives At Little Or No Cost. *Health Aff (Millwood)*. 2010;29(9):1656-1660. doi:10.1377/hlthaff.2008.0701
25. Newhouse JP. An Ounce of Prevention. *J Econ Perspect*. 2021;35(2):101-118. doi:10.1257/jep.35.2.101
26. Baicker K, Chandra A. Can Prevention Save Money? *JAMA Health Forum*. 2025;6(4):e251464. doi:10.1001/jamahealthforum.2025.1464
27. Cohen JT, Neumann PJ, Weinstein MC. Does Preventive Care Save Money? *Health Economics and the Presidential Candidates*. *N Engl J Med*. 2008;358(7):661-663. doi:10.1056/NEJMp0708558
28. Poveda JL, Bretón-Romero R, Del Rio-Bermudez C, Taberna M, Medrano IH. How can artificial intelligence optimize value-based contracting? *J Pharm Policy Pract*. 2022;15(1):85. doi:10.1186/s40545-022-00475-3
29. Abdelhalim H, Berber A, Lodi M, et al. Artificial Intelligence, Healthcare, Clinical Genomics, and Pharmacogenomics Approaches in Precision Medicine. *Front Genet*. 2022;13:929736. doi:10.3389/fgene.2022.929736
30. Deepali, Goel N, Padmavati Khandnor. Advances in AI-based genomic data analysis for cancer survival prediction. *Multimed Tools Appl*. 2024;84(14):14139-14166. doi:10.1007/s11042-024-19684-w
31. Simon K, Soni A, Cawley J. The Impact of Health Insurance on Preventive Care and Health Behaviors: Evidence from the First Two Years of the ACA Medicaid Expansions. *J Policy Anal Manage*. 2017;36(2):390-417. doi:10.1002/pam.21972
32. Soni A. The effects of public health insurance on health behaviors: Evidence from the fifth year of Medicaid expansion. *Health Econ*. 2020;29(12):1586-1605. doi:10.1002/hec.4155
33. Soni A, Simon K, Cawley J, Sabik L. Effect of Medicaid Expansions of 2014 on Overall and Early-Stage Cancer Diagnoses. *Am J Public Health*. 2018;108(2):216-218. doi:10.2105/AJPH.2017.304166
34. Lin L, Soni A, Sabik LM, Drake C. Early- and Late-Stage Cancer Diagnosis Under 3 Years of Medicaid Expansion. *Am J Prev Med*. Published online November 2020. doi:10.1016/j.amepre.2020.06.020
35. Barbaresco S, Courtemanche CJ, Qi Y. Impacts of the Affordable Care Act dependent coverage provision on health-related outcomes of young adults. *J Health Econ*. 2015;40:54-68. doi:10.1016/j.jhealeco.2014.12.004

36. Han X, Yabroff KR, Robbins AS, Zheng Z, Jemal A. Dependent Coverage and Use of Preventive Care under the Affordable Care Act. *N Engl J Med*. 2014;371(24):2341-2342. doi:10.1056/NEJMc1406586
37. McNamara C, Pineda-Torres M. Medical residency subsidies and physician shortages. *J Public Econ*. 2025;251:105494. doi:10.1016/j.jpubeco.2025.105494
38. Hu X, Dill MJ, Conrad SS. What Moves Physicians to Work in Rural Areas? An In-Depth Examination of Physician Practice Location Decisions. *Econ Dev Q*. 2022;36(3):245-260. doi:10.1177/08912424211046600
39. Russell DJ, Wilkinson E, Petterson S, Chen C, Bazemore A. Family Medicine Residencies: How Rural Training Exposure in GME Is Associated With Subsequent Rural Practice. *J Grad Med Educ*. 2022;14(4):441-450. doi:10.4300/JGME-D-21-01143.1
40. Myong C, Hull P, Price M, Hsu J, Newhouse JP, Fung V. The impact of funding for federally qualified health centers on utilization and emergency department visits in Massachusetts. *PLOS ONE*. 2020;15(12):e0243279. doi:10.1371/journal.pone.0243279
41. Myong C, Fung V. ACA Funding Increases for Federally Qualified Health Centers and Changes in Health Center Use for Children in Massachusetts. *Health Serv Res*. 2020;55(S1):29-29. doi:10.1111/1475-6773.13364
42. Traczynski J, Udalova V. Nurse practitioner independence, health care utilization, and health outcomes. *J Health Econ*. 2018;58:90-109. doi:10.1016/j.jhealeco.2018.01.001
43. Bae K, Norris C, Shakya S, Timmons E. Advanced Practice Registered Nurse Full Practice Authority, Provider Supply, and Health Outcomes: A Border Analysis. *Policy Polit Nurs Pract*. 2024;25(1):6-13. doi:10.1177/15271544231212155
44. Timmons EJ. The effects of expanded nurse practitioner and physician assistant scope of practice on the cost of Medicaid patient care. *Health Policy Amst Neth*. 2017;121(2):189-196. doi:10.1016/j.healthpol.2016.12.002
45. Kulka A, McWeeny D. Rural Physician Shortages and Policy Intervention. *Social Science Research Network*. Preprint posted online December 12, 2019. doi:10.2139/ssrn.3481777
46. Davis CS, Meyers P, Bazemore AW, Peterson LE. Impact of Service-Based Student Loan Repayment Program on the Primary Care Workforce. *Ann Fam Med*. 2023;21(4):327-331. doi:10.1370/afm.3002
47. Foubister V. Five States Leading Efforts to Increase Primary Care Spending. *Milbank Memorial Fund*. March 12, 2025. Accessed January 14, 2026. <https://www.milbank.org/publications/states-lead-efforts-to-increase-primary-care-spending/>

48. Brown SH, Ricci DA, Tadikonda A, Song Z. State Investments in Primary Care—5 Early Leaders of a Potential Policy Trend. *JAMA Health Forum*. 2025;6(9):e253505. doi:10.1001/jamahealthforum.2025.3505
49. Condon MJ, Koonce E, Sinha V, et al. Investing in Primary Care: Lessons from State-Based Efforts. Calif Health Care Found. Published online April 1, 2022. <https://www.chcf.org/wp-content/uploads/2022/03/InvestingPCLessonsStateBasedEfforts.pdf>
50. Houston R, Smithey A, Brykman K. Medicaid Population-Based Payment: The Current Landscape, Early Insights, and Considerations for Policymakers. Cent Health Care Strateg. Published online November 1, 2022. https://www.chcs.org/media/Medicaid-Population-Based-Payment-Current-Landscape-Early-Insights-and-Considerations-for-Policymakers_111622.pdf
51. Ko H, Glied SA. Associations Between a New York City Paid Sick Leave Mandate and Health Care Utilization Among Medicaid Beneficiaries in New York City and New York State. *JAMA Health Forum*. 2021;2(5):e210342. doi:10.1001/jamahealthforum.2021.0342
52. Jeung C, Lee KM, Gimm GW. The Impact of Connecticut's Paid Sick Leave Law on the Use of Preventive Services. *Am J Prev Med*. 2021;60(6):812-819. doi:10.1016/j.amepre.2020.12.023
53. Stimpson JP, Liao JM, Morenz AM, Joo JH, Wilson FA. A difference-in-differences analysis of Medicaid expansion and state paid sick leave laws on colorectal cancer screening. *Cancer*. 2025;131(10):e35904. doi:10.1002/cncr.35904
54. Song Z, Baicker K. Effect of a Workplace Wellness Program on Employee Health and Economic Outcomes: A Randomized Clinical Trial. *JAMA*. 2019;321(15):1491-1501. doi:10.1001/jama.2019.3307
55. Reif J, Chan D, Jones D, Payne L, Molitor D. Effects of a Workplace Wellness Program on Employee Health, Health Beliefs, and Medical Use: A Randomized Clinical Trial. *JAMA Intern Med*. 2020;180(7):952-960. doi:10.1001/jamainternmed.2020.1321
56. Newhouse JP. A Summary of the Rand Health Insurance Study. *Ann N Y Acad Sci*. 1982;387(1 Science and P):111-114. doi:10.1111/j.1749-6632.1982.tb17166.x
57. Han X, Robin Yabroff K, Guy GP, Zheng Z, Jemal A. Has recommended preventive service use increased after elimination of cost-sharing as part of the Affordable Care Act in the United States? *Prev Med*. 2015;78:85-91. doi:10.1016/j.ypped.2015.07.012
58. Norris HC, Richardson HM, Benoit MAC, Shrosbree B, Smith JE, Fendrick AM. Utilization Impact of Cost-Sharing Elimination for Preventive Care Services: A Rapid Review. *Med Care Res Rev*. 2022;79(2):175-197. doi:10.1177/10775587211027372

59. Sen B, Blackburn J, Morrisey MA, et al. Did copayment changes reduce health service utilization among CHIP enrollees? Evidence from Alabama. *Health Serv Res.* 2012;47(4):1603-1620. doi:10.1111/j.1475-6773.2012.01384.x
60. Conrad DA, Ingraham B, Fishman P, et al. Impact on Health Services Utilization, Payment, and Quality in Federally Qualified Health Centers of Washington State's Value-Based Payment Model. *J Health Care Poor Underserved.* 2022;33(4):1905-1924.
61. Phillips KE, Haft H, Rauner B. The Key To Improving Population Health And Reducing Disparities: Primary Care Investment. *Health Aff Forefr.* doi:10.1377/forefront.20220725.733955
62. National Academies of Science, Engineering, and Medicine. Implementing High-Quality Primary Care. Accessed January 14, 2026. <https://www.nationalacademies.org/projects/HMD-HCS-18-15>
63. Quinn AE, Trachtenberg AJ, McBrien KA, et al. Impact of payment model on the behaviour of specialist physicians: A systematic review. *Health Policy.* 2020;124(4):345-358. doi:10.1016/j.healthpol.2020.02.007
64. Polsky D, Richards M, Basseyn S, et al. Appointment Availability after Increases in Medicaid Payments for Primary Care. *N Engl J Med.* 2015;372(6):537-545. doi:10.1056/NEJMsa1413299
65. Lewin Group. Health Practitioner Bonuses and Their Impact on the Availability and Utilization of Primary Care Services. ASPE. December 21, 2014. Accessed January 14, 2026. <http://aspe.hhs.gov/reports/health-practitioner-bonuses-their-impact-availability-utilization-primary-care-services-0>
66. Saulsberry L, Seo V, Fung V. The Impact of Changes in Medicaid Provider Fees on Provider Participation and Enrollees' Care: a Systematic Literature Review. *J Gen Intern Med.* 2019;34(10):2200-2209. doi:10.1007/s11606-019-05160-x
67. Agarwal R, Mazurenko O, Menachemi N. High-Deductible Health Plans Reduce Health Care Cost And Utilization, Including Use Of Needed Preventive Services. *Health Aff Proj Hope.* 2017;36(10):1762-1768. doi:10.1377/hlthaff.2017.0610
68. Mazurenko O, Buntin MJB, Menachemi N. High-Deductible Health Plans and Prevention. *Annu Rev Public Health.* 2019;40(Volume 40, 2019):411-421. doi:10.1146/annurev-publhealth-040218-044225
69. Meyers DJ, Chien AT, Nguyen KH, Li Z, Singer SJ, Rosenthal MB. Association of Team-Based Primary Care With Health Care Utilization and Costs Among Chronically Ill Patients. *JAMA Intern Med.* 2019;179(1):54-61. doi:10.1001/jamainternmed.2018.5118
70. Okasako-Schmucker DL, Peng Y, Cobb J, et al. Community Health Workers to

- Increase Cancer Screening: 3 Community Guide Systematic Reviews. *Am J Prev Med*. 2023;64(4):579-594. doi:10.1016/j.amepre.2022.10.016
71. Mehta SJ, Waddell KJ, Linn KA, et al. Nudges to Clinicians and Patients for Influenza Vaccines During Visits: The BE IMMUNE Randomized Clinical Trial. *JAMA Intern Med*. Published online January 5, 2026. doi:10.1001/jamainternmed.2025.7133
 72. Leung LB, Yoo C, Chu K, et al. Rates of Primary Care and Integrated Mental Health Telemedicine Visits Between Rural and Urban Veterans Affairs Beneficiaries Before and After the Onset of the COVID-19 Pandemic. *JAMA Netw Open*. 2023;6(3):e231864. doi:10.1001/jamanetworkopen.2023.1864
 73. Campbell K, Greenfield G, Li E, et al. The Impact of Virtual Consultations on the Quality of Primary Care: Systematic Review. *J Med Internet Res*. 2023;25:e48920. doi:10.2196/48920
 74. Tan SY, Sumner J, Wang Y, Wenjun Yip A. A systematic review of the impacts of remote patient monitoring (RPM) interventions on safety, adherence, quality-of-life and cost-related outcomes. *Npj Digit Med*. 2024;7(1):192. doi:10.1038/s41746-024-01182-w
 75. Noah B, Keller MS, Mosadeghi S, et al. Impact of remote patient monitoring on clinical outcomes: an updated meta-analysis of randomized controlled trials. *Npj Digit Med*. 2018;1(1):20172. doi:10.1038/s41746-017-0002-4
 76. Guo Y, Wang J, Hu D, et al. Evaluating ambient artificial intelligence documentation: effects on work efficiency, documentation burden, and patient-centered care. *J Am Med Inform Assoc*. Published online October 16, 2025:ocaf180. doi:10.1093/jamia/ocaf18
 77. Menachemi N, Soni A, Sanner L. Characterizing the Indiana Context: An Update to Understanding Costs of Care in the State. <https://fairbanks.indianapolis.iu.edu/research-centers/centers/health-policy/costs-of-care-indiana.html>

APPENDIX

To assess the correlation between primary care physician (PCP) supply and health outcomes, we conducted our own original analysis of recent data from the 2025 County Health Rankings. This descriptive study complements our review of the existing literature summarized in Section 2 of the main report. Our analysis included data from nearly 3,000 counties nationwide. We found that **increases in the number of PCPs per capita are associated with better health outcomes, lower rates of avoidable acute care, and improvements in health-promoting behaviors**. Even after controlling for differences across counties' socio-demographic factors — percent of county population that is rural, percent of county population that is non-White, median income, uninsurance rate, APPs per capita, and other social determinants of health (access to exercise opportunities, food environment index) — we found that counties with more PCPs per capita have:

- higher life expectancy
- lower rates of preventable hospitalizations
- better self-reported physical and mental health
- lower smoking rates
- lower rates of drug use
- greater engagement in health-promoting behaviors (such as exercising and getting recommended mammograms and flu vaccinations)
- lower rates of chronic illness such as diabetes and obesity

See Appendix **Table 1** for full results.

Appendix Table 1. Association Between Primary Care Physicians and Health Outcomes

Outcome Variable	Primary Care Physicians Per 100,000 Population	Sample Size
Life Expectancy (Years)	0.012*** (0.003)	2,846
Preventable Hospitalization Rate (Discharges for Ambulatory Care Sensitive Conditions Per 100,000 Medicare Enrollees)	-5.879*** (1.274)	2,853
Poor Physical Health (Age-Adjusted Percentage of Adults Reporting 14+ Days of Poor Physical Health Per Month)	-0.007*** (0.002)	2,902
Poor Mental Health (Age-Adjusted Percentage of Adults Reporting 14+ Days of Poor Mental Health Per Month)	-0.005* (0.002)	2,902
Diabetes Prevalence (Age-Adjusted Percentage of Adults with Diagnosed Diabetes)	-0.007*** (0.002)	2,902
Adult Obesity Rate (Percentage of Adult Population with BMI Over 30)	-0.043*** (0.007)	2,902
Smoking Rate (Age-Adjusted Percentage of Adults Who Are Current Smokers)	-0.009** (0.004)	2,902
Drug Deaths (Number of Drug Poisoning Deaths Per 100,000 Population)	-0.060** (0.030)	1,958
No Exercise (Percentage of Adults Reporting No Leisure-Time Physical Activity)	-0.030*** (0.005)	2,902
Mammograms (Percentage of Female Medicare Enrollees Aged 65-74 Having an Annual Mammogram)	0.031*** (0.010)	2,889

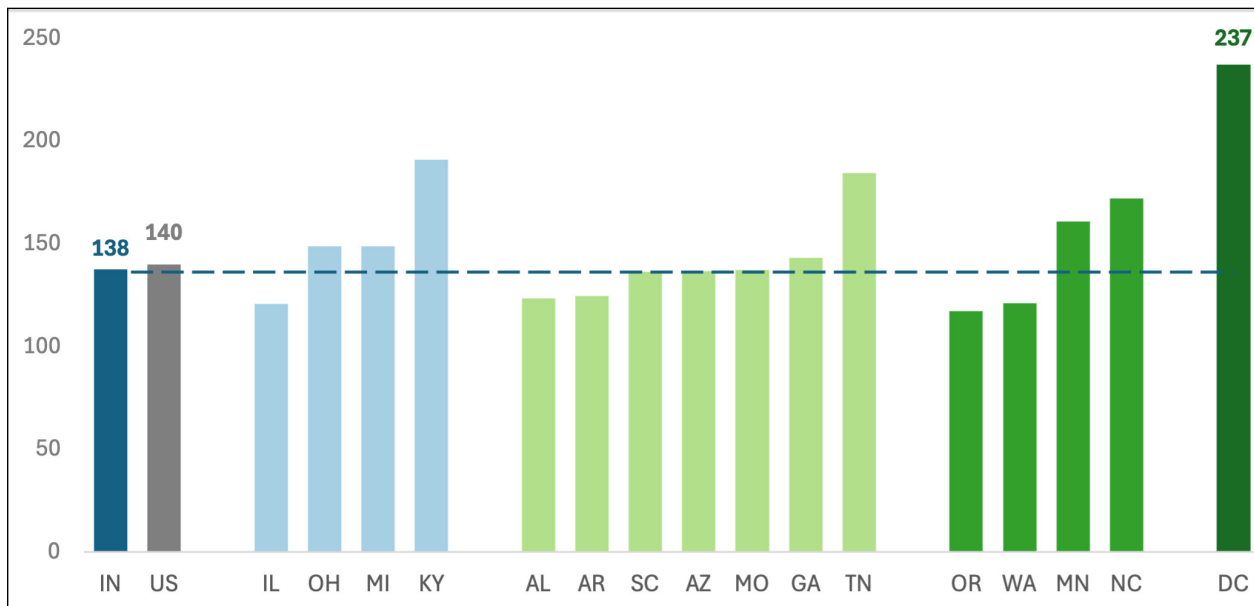
Appendix Table 1. Association Between Primary Care Physicians and Health Outcomes

Outcome Variable	Primary Care Physicians Per 100,000 Population	Sample Size
Flu Vaccination (Percentage of Medicare Enrollees Having an Annual Flu Vaccination)	0.055*** (0.010)	2,892

Source: Authors' calculations based on County Health Rankings 2025. Each row represents results from a different regression. All regressions are population-weighted and control for county characteristics (percent of county population that is rural, percent of county population that is non-White), economic characteristics (median income), access to health care (uninsurance rate, APPs per capita), and other social determinants of health (access to exercise opportunities, food environment index). Robust standard errors are in parentheses.

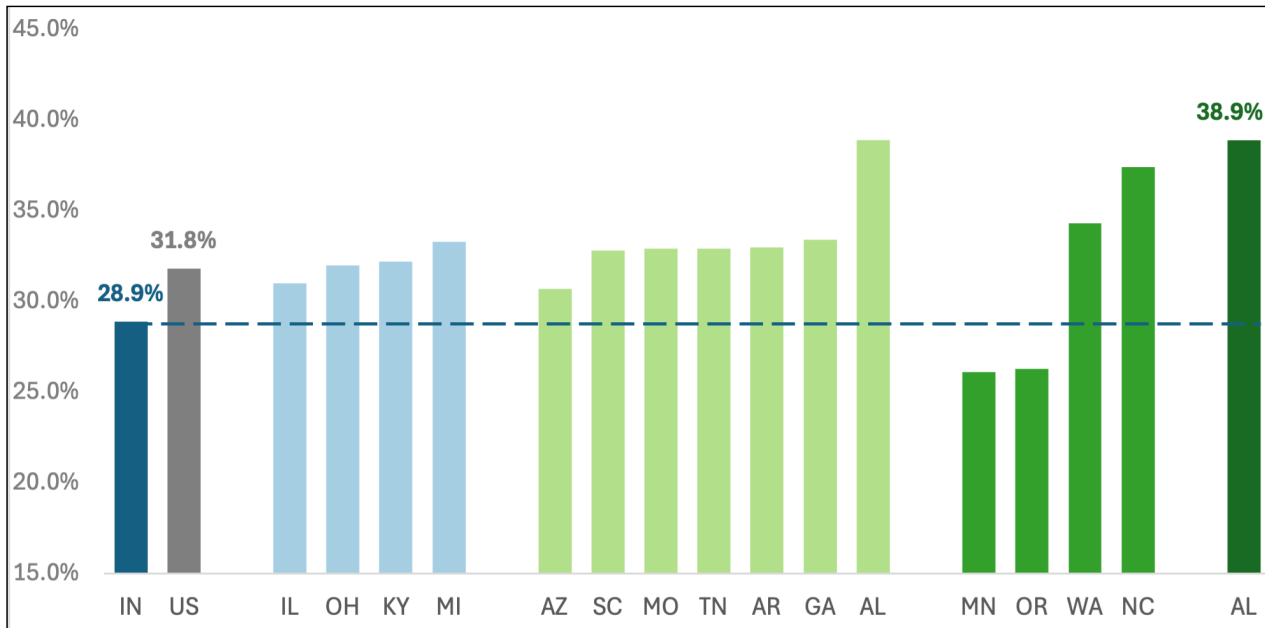
* p < 0.10, ** p < 0.05, *** p < 0.01

Appendix Figure 1. Advanced Practice Providers per 100K Population



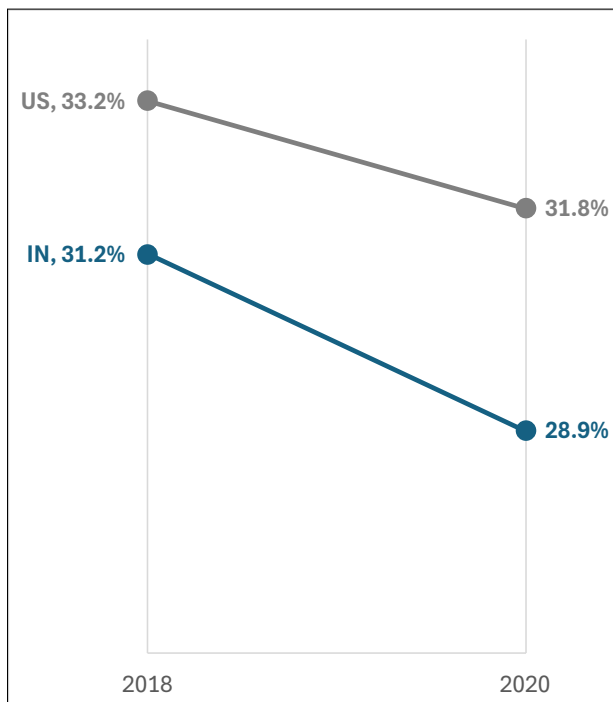
Notes: Authors' calculations based on 2025 County Health Rankings Data. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring Cohort**, **Exemplar**, and the **Top State**.

Appendix Figure 2a. PSA Test Within Past 2 Years, % of Men Aged 40+



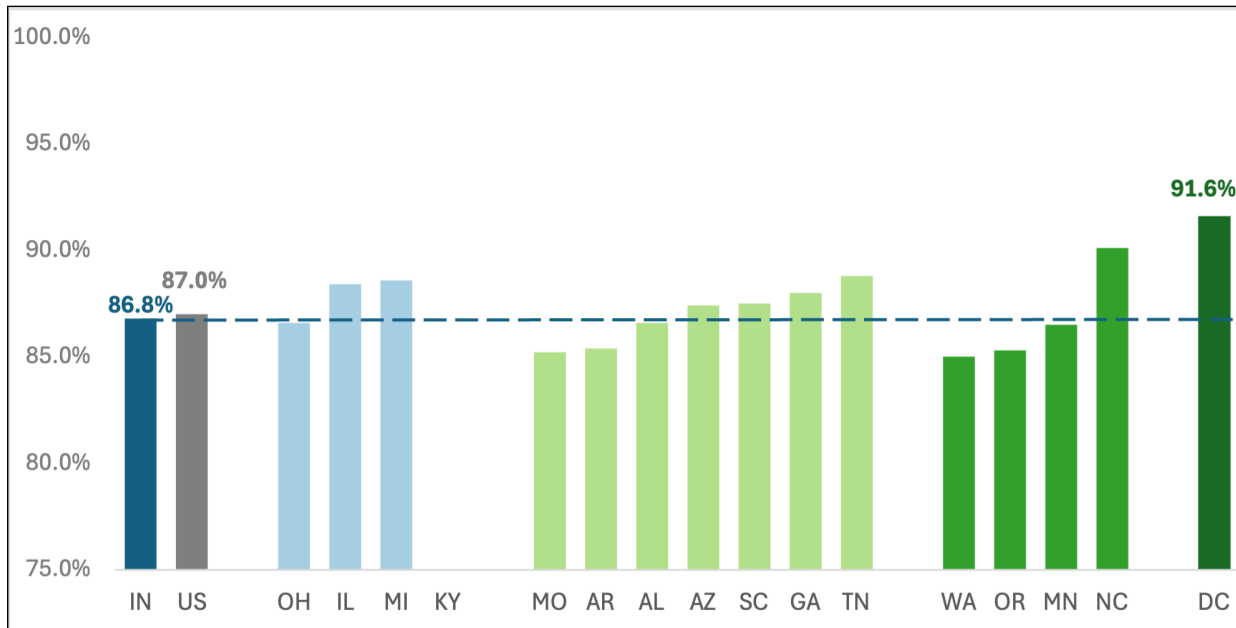
Notes: Authors' calculations based on 2020 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring Cohort**, **Exemplar States**, and the **Top State**.

Appendix Figure 2b. Change in PSA Test Within Past 2 Years, % of Men Aged 40+



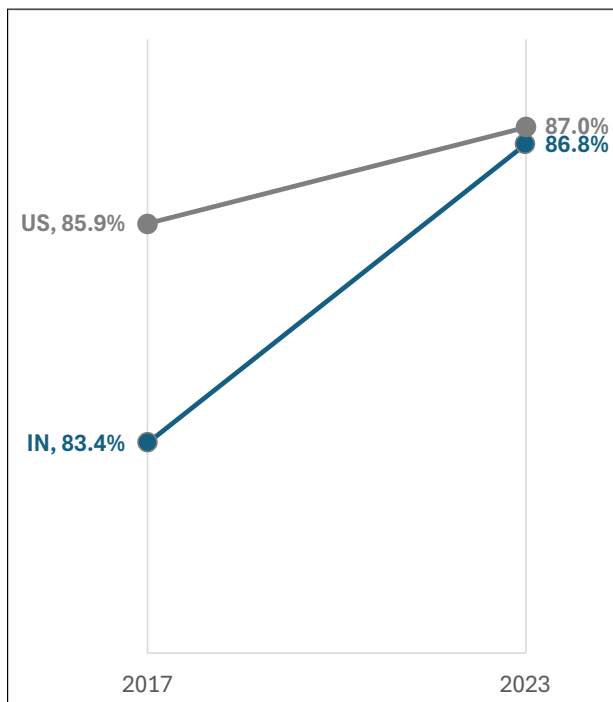
Notes: Authors' calculations based on 2018 and 2020 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares **Indiana** and the **US Overall** in 2018 and 2020.

Appendix Figure 3a. Blood Cholesterol Checked Within Past 5 Years, % of Adults



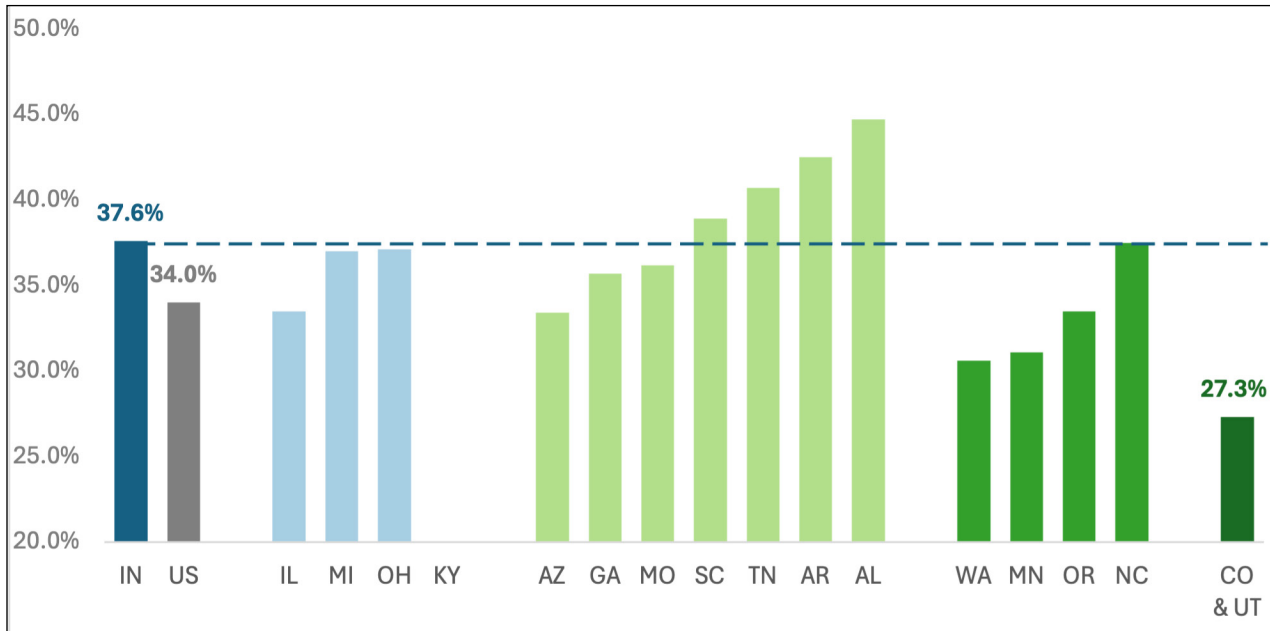
Notes: 2023 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring**, **Cohort**, **Exemplar States**, and the **Top State**.

Appendix Figure 3b. Change in Blood Cholesterol Checked Within Past 5 Years, % of Adults



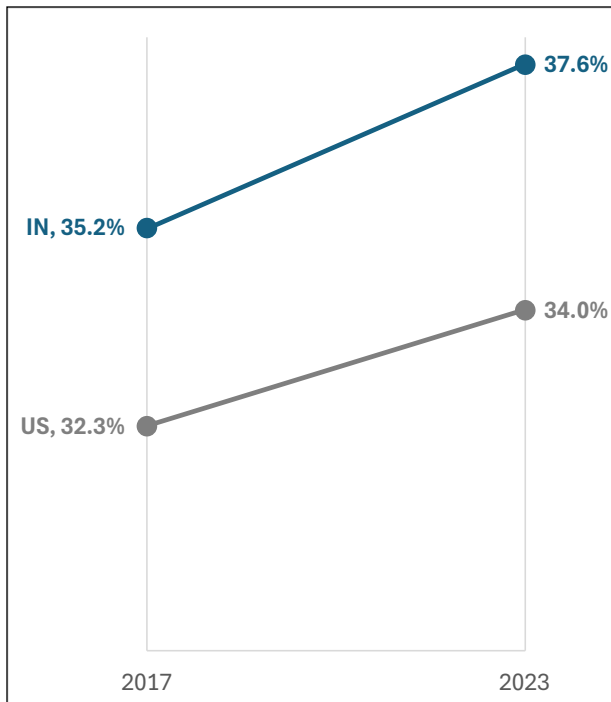
Notes: Authors' calculations based on 2017 and 2023 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares **Indiana** and the **US Overall** in 2017 and 2023.

Appendix Figure 4a. % of Adults that Have High Blood Pressure



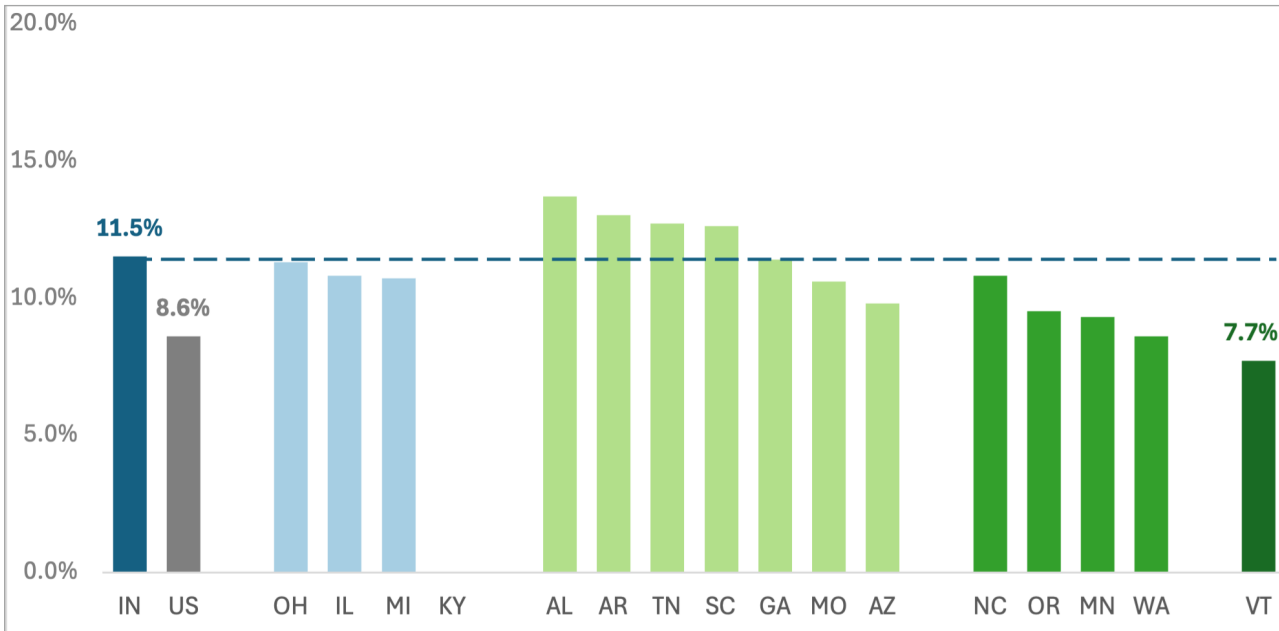
Notes: Authors' calculations based on 2023 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring Cohort**, **Exemplar States**, and the **Top State**.

Appendix Figure 4a. % of Adults that Have High Blood Pressure



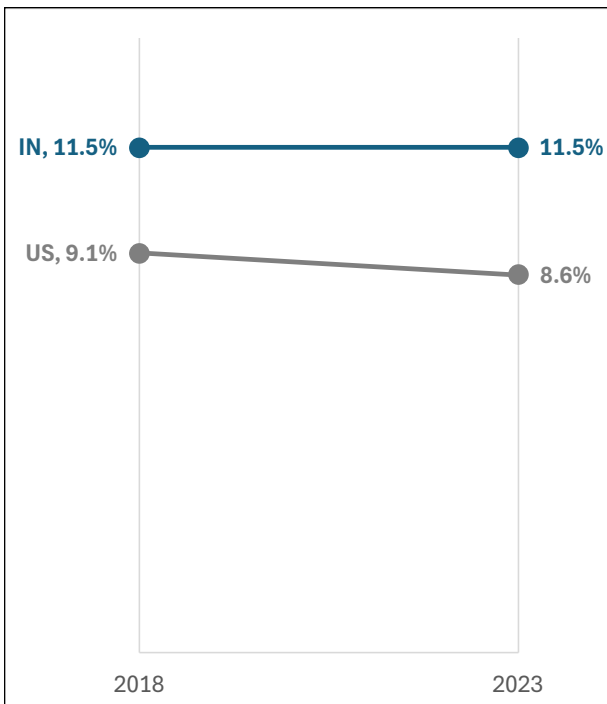
Notes: Authors' calculations based on 2017 and 2023 survey data from the CDC's Behavioral Risk Factors Surveillance System data. The figure compares **Indiana** and the **US Overall** in 2017 and 2023.

Appendix Figure 5a. % of Adults that Have Diabetes



Notes: Authors' calculations based on 2023 data from the CDC's Diabetes Atlas. The figure compares levels in **Indiana** to the **US Overall**, **Neighboring**, **Cohort**, **Exemplar States**, and the **Top State**.

Appendix Figure 5b. Change in % of Adults that Have Diabetes



Notes: Authors' calculations based on 2018 and 2023 data from the CDC's Diabetes Atlas. The figure compares **Indiana** and the **US Overall** in 2018 and 2023.