



# The Economic Impact of Graduate Medical Education Expansion in Indiana

Prepared for: Indiana Graduate Medical Education Board

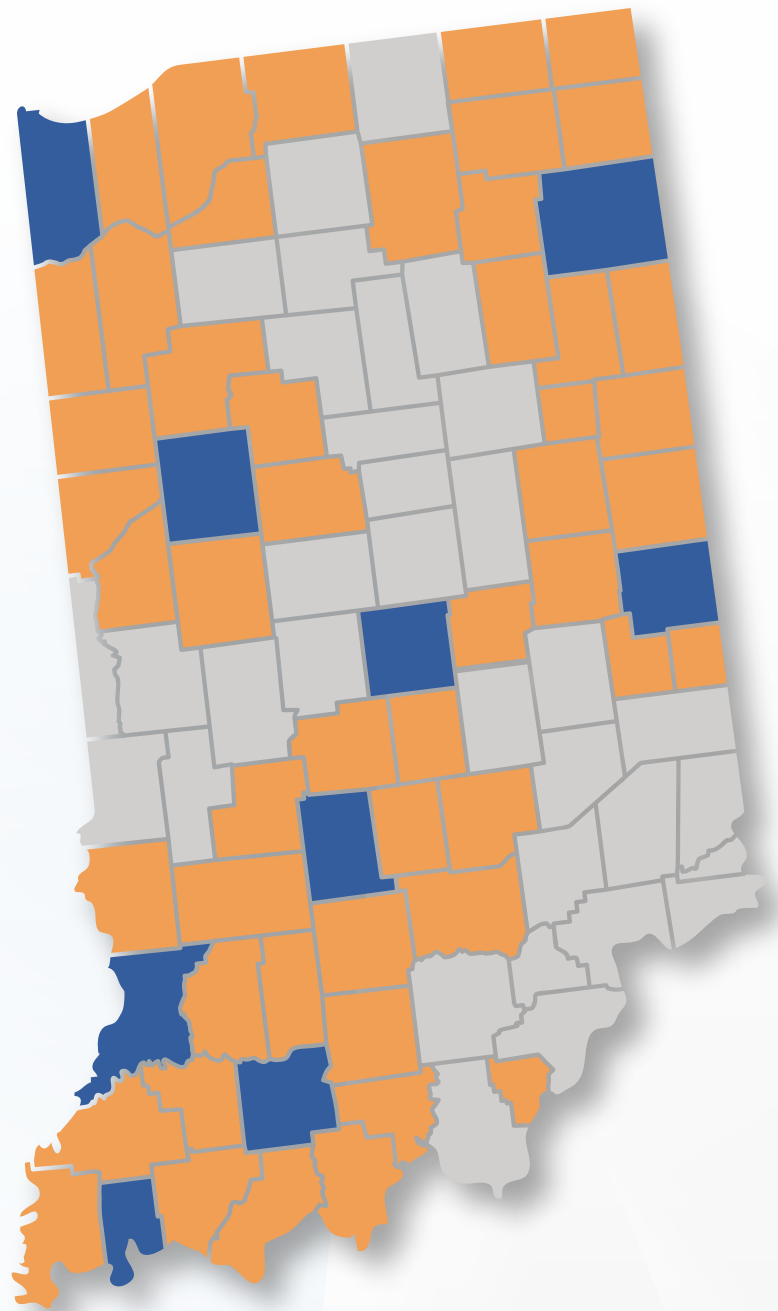
# Graduate Medical Residency Program

## KEY

Residency Location

Areas served by resident physicians

Location	Grantee
Fort Wayne	Fort Wayne Medical Education Program
Fort Wayne	Parkview Health
Indianapolis	Southwestern Indiana GME Consortium - Family Medicine
Richmond	Reid Health
Lafayette	Indiana University School of Medicine - Amett
Vincennes Evansville	Southwestern Indiana GME Consortium - Psychiatry
Jasper	Southwestern Indiana GME Consortium - Family Medicine
Vincennes Evansville	Southwestern Indiana GME Consortium - Internal Medicine
Bloomington	Indiana University School of Medicine
Fort Wayne	Indiana University School of Medicine
Muncie	Meridian Health Services
Gary	NW Indiana GME Consortium
Seymour	Schneck Medical Center
Indianapolis	Suburban Health Organization
Columbus	Columbus Regional Health
Indianapolis	St. Vincent Emergency Physicians Group
Crown Point	Franciscan Health Foundation
Portland	Jay County Hospital/ IU Health Jay
Indianapolis	Franciscan Health
Bloomington	Indiana University Health





# Project Overview

Tripp Umbach analyzed the economic and social impact that expanded residency positions have produced for Indiana since GME expansion efforts began under the 2016 funding plan. Tripp Umbach developed economic impact models to estimate the impact of the program in 2022 and its annual growth by 2026 based on anticipated growth in residency positions and workforce development.

The findings in this report include the impact of residency expansion on:

- Direct and indirect economic impact, job creation, and tax revenue generated and paid to the state.
- Number of physicians remaining in Indiana after completing their Indiana-based residency.
- Value of additional hours of patient care provided.
- Projected future economic impact of planned expansion based on current appropriations



# Key Findings

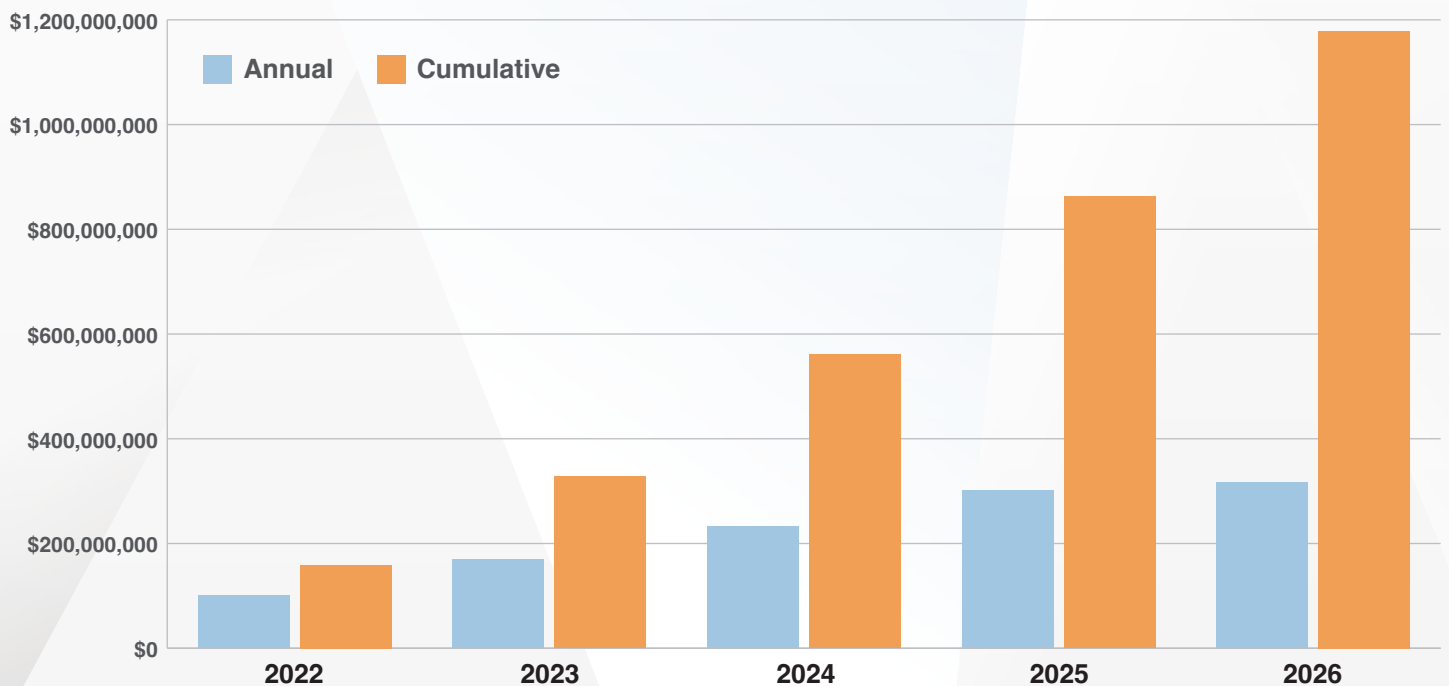
Indiana’s funding of GME programs is expected to contribute more than \$1.2 billion to the state’s economy by 2026 and provide a high ROI for state dollars.

In 2022, state-funded GME programming produced an annual impact of **\$24.1 million** for Indiana’s economy. Additionally, program participants who graduated in 2022 will have an annual economic impact of **\$100.4 million**. Cumulatively, in 2022, Indiana GME will have an annual economic impact of **\$124.5 million**. The 2022 economic impact is based on 29 graduates staying in the state to practice medicine. By 2024, Indiana GME will have an estimated 76 graduates practicing in the state, which will more than double the annual economic impact from 2022. Further, Indiana GME is estimated to have **\$1.2 billion** in cumulative economic impact by 2026 with an estimated 103 graduates practicing in the state. The impact is displayed below.

**Table 1: Estimated Economic Impact**

Year	Number of graduates in IN (est.)	Annual Economic Impact	Cumulative Economic Impact
2022	29	\$100,450,000	\$159,250,000
2023	55	\$169,050,000	\$328,300,000
2024	76	\$232,750,000	\$561,050,000
2025	98	\$301,350,000	\$862,400,000
2026	103	\$316,050,000	\$1,178,450,000

**Figure 1. Cumulative and Annual Economic Impact**





By 2026, the return on investment of the program will equal **\$12.56 for every \$1** invested by the State of Indiana.

The total return on investment for every dollar in 2022 is **\$8.46**. This is expected to increase to \$9.89 in 2023, \$10.63 in 2024, \$12.43 in 2025, and \$12.56 by 2026. This ROI is generated largely by physicians educated through the state-funded GME program staying in the state to practice.

When physicians practice, they generate healthcare cost savings by improving community health, creating efficiencies in the healthcare delivery system, and producing operational impacts from the business side of being employed or operating a practice. The impact of each graduate trained is reflected in the expected increase in return on investment for every dollar as shown in Figure 2 below.

**Figure 2: Estimated Return on \$1 Invested**



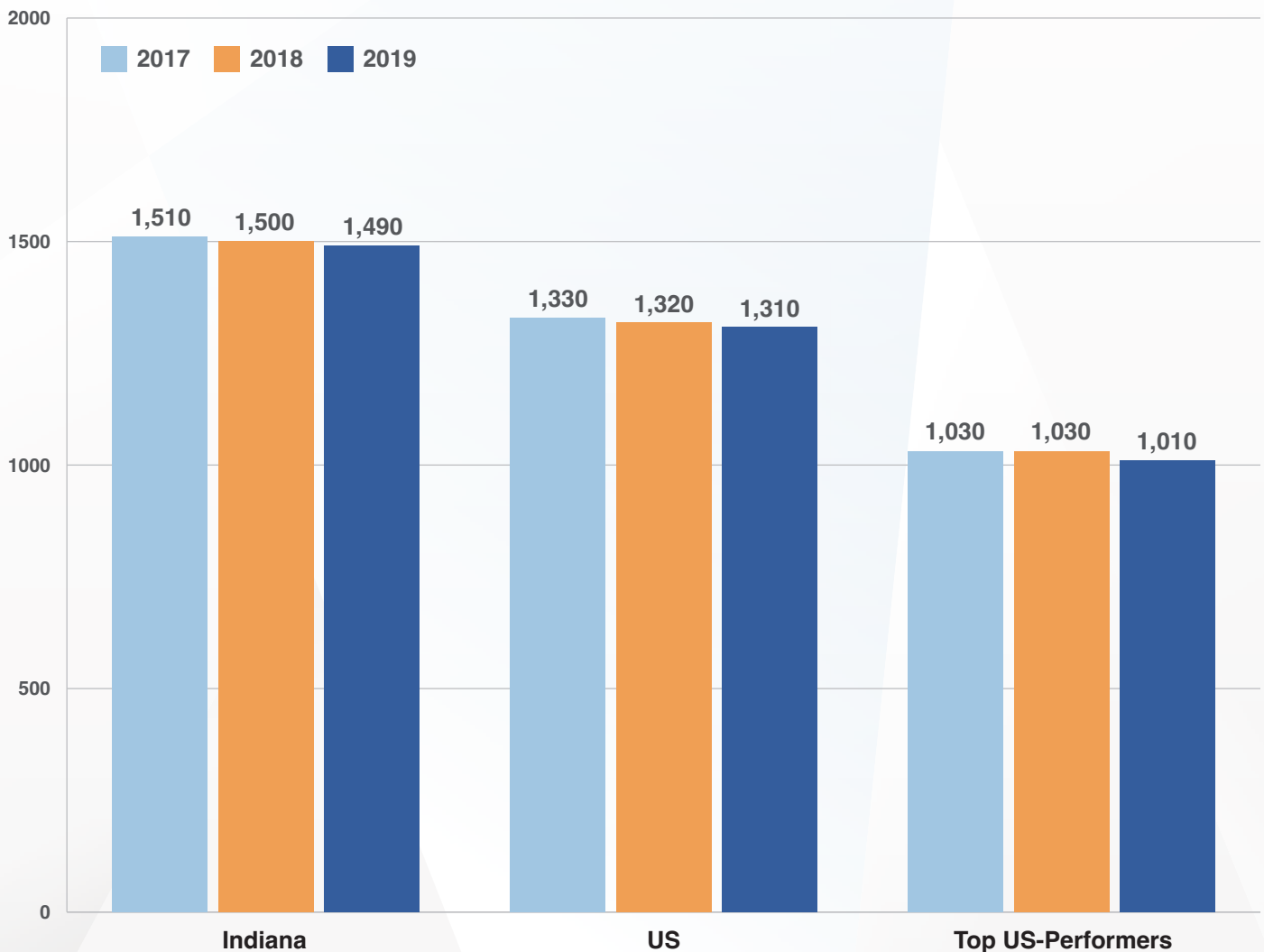


## 2030 projections indicate Indiana will require 817 primary care physicians to meet current healthcare needs.

Indiana will require an additional 817 primary care physicians (PCPs) by 2030, a 20% increase to the state's current (as of 2010) 3,906 practicing PCPs. The current PCP-to-population ratio of 1,659:1 is higher than the national average of 1,463:1. The 2030 projection of 817 providers stands above Midwest regional averages and below the national average. Components of Indiana's increased need for PCPs include 35% (286 PCPs) from increased utilization due to aging, 48% (398 PCPs) due to population growth, and 16% (133 PCPs) due to a greater insured population following the Affordable Care Act (ACA).<sup>3</sup>

Indiana reported a decrease in the physician-to-patient ratio in 2017 (1,510:1) to 2019 (1,490:1). However, Indiana's physician-to-patient ratio is higher than that of the nation from 2017 (1,330:1) to 2019 (1,310:1). The top performers among states in the 90th Percentile had physician-to-patient-ratios of 1,010:1 in 2019.

Figure 4: Patient-to-Physician Ratio from 2017 to 2019.<sup>4</sup>



<sup>3</sup> Robert Graham Center. Projecting Primary Care Physician Workforce

<sup>4</sup> County Health Rankings





## The Aging Physician Population

Another issue tied to physician shortages that is often overlooked is the fact that physicians retire. Not only is there a national shortage of physicians, but many physicians leave the field every year. Across the United States, 940,254 physicians are practicing. Of these physicians, 16.3% are under the age of 40, 50.0% are aged 40-59, and 33.7% are aged 60 or older.<sup>5</sup> This equates to 316,865 physicians across the country who will retire in the next few years. Puerto Rico has the highest percentage of physicians 60 and older (47.3%), while Utah has the lowest percentage (28.3%).<sup>6</sup> Physician retirement could have the greatest impact on supply.

Another factor to consider is the aging general population. For example, 16.4% of Indiana's residents are seniors. Digging deeper into this population growth, we see that the real concern for medical care is the percentage of individuals entering the age bracket of 65 and older. Seniors, for multiple reasons, consume the most healthcare services when compared to other age groups. As the state ages, healthcare needs continue to increase.<sup>7</sup> Lack of access to physicians might inadvertently deny many older individuals needed health care.

Changes in Indiana's aging population also have important implications for the healthcare workforce. The state's elderly population will likely be the major recipients of healthcare in the future as seniors consume the most healthcare services when compared to other age groups for multiple reasons. This growth in the number of elderly Hoosiers is expected to have an unprecedented impact on the overall demand for healthcare services.

In 2020, Indiana reported that 16.0% of the state's physicians were younger than 40, while more than one-third (33.3%) are 60 and older.<sup>8</sup> Indiana is in the top twenty-five of states with active physicians aged 60 or older, and retirement within the next few years will leave a significant hole in the state's physician workforce and further impact Indiana residents' ability to seek care. For a state with existing healthcare issues and concerns, an aging workforce will pose significant problems for its residents.

<sup>5</sup> AAMC 2021 State Physician Workforce Data Report

<sup>6</sup> Ibid.

<sup>7</sup> United States Census Bureau; Quick Facts

<sup>8</sup> AAMC 2021 State Physician Workforce Data Report



# Recommendations

## Continue funding the program to achieve the goals of physician workforce expansion and economic development

There continues to be a shortage of over 800 physicians in Indiana. While the state has done a good job of supporting the creation of residency programs, expansion needs to continue. With just over 15,000 active physicians in the state, and 33% nearing retirement, the physician shortage continues to grow.

## Track physician graduates to determine where they practice after their residency training to achieve a more accurate account of program success and return on investment

According to the AAMC, Indiana boasts a 54% retention rate for physicians who complete GME in the state. That retention puts Indiana in the top 10 states, with California showing the highest, at 71% retention. It will be beneficial to know how The Graduate Medical Residency Education Fund has impacted these rates and if the fund generates higher retention rates for its participants.



# Appendix A: FAQs Regarding Economic Impact Assessment

## What is economic impact?

Economic impact begins when an organization spends money. Economic impact studies measure the direct economic impact of an organization's spending, plus additional indirect spending in the economy as a result of direct spending. Economic impact has nothing to do with dollars collected by institutions, their profitability or even their sustainability, since all operating organizations have a positive economic impact when they spend money and attract spending from outside sources.



Direct economic impact measures the dollars that are generated within the State of Indiana because of the presence of state-funded GME programming, along with the impacts stemming from graduate-doctors practicing after the program.

This includes not only spending on goods and services to support the operations of the programs with vendors within the state, and the spending of its employees and residents, but also the business volume generated by businesses within the region that benefit from spending by the programs. It is important to remember that not all dollars spent by Indiana CHE GME stay in the geographic area. Dollars that “leak” out of the state in the form of purchases from out-of-state vendors are not included in CHE GME’s economic impact on the defined area.

The total economic impact includes the “multiplier” of spending from companies that do business with Indiana CHE GME. Support businesses may include lodging establishments, restaurants, construction firms, vendors, temporary agencies, etc. Spending multipliers attempt to estimate the ripple effect in the state economy where the spending occurs.

## What is the multiplier effect?

Multipliers are a numeric way of describing the secondary impacts stemming from the operations of an organization. For example, an employment multiplier of 1.8 would suggest that for every 10 employees hired in the given industry, eight additional jobs would be created in other industries, such that 18 total jobs would be added to the given economic region. The multipliers used in this study range from 1.8 to 2.0.

The Multiplier Model is derived mathematically using the input-output model and Social Accounting formats. The Social Accounting System provides the framework for the predictive Multiplier Model used in economic impact studies. Purchases for final use drive the model. Industries that produce goods and services for consumer consumption must purchase products, raw materials, and services from other companies to create their product. These vendors must also procure goods and services. This cycle continues until all the money is leaked from the region's economy. Three types of effects are measured with a multiplier: the direct, the indirect, and the induced effects. The direct effect is the known or predicted change in the local economy that is to be studied. The indirect effect is the business-to-business transactions required to satisfy the direct effect. Finally, the induced effect is derived from local spending on goods and services by people working to satisfy the direct and indirect effects.

- Direct effects take place only in the industry immediately being studied.
- Indirect effects concern inter-industry transactions: Because GME programming exists, it has a demand for locally produced materials needed to operate.
- Induced effects measure the effects of the changes in household income: employees and residents in CHE GME-funded programs and suppliers purchase from local retailers and restaurants.
- Total Economic Impacts the total changes to the original economy as the result of the operations of CHE GME programs and doctors that participated in the program continuing practice in the state. I.e., Direct effects + Indirect effects + Induced effects = Total Economic Impacts





## **What methodology was used in this study?**

IMPLAN (Impact analysis for PLANning) data and software. Using classic input-output analysis in combination with regional-specific Social Accounting Matrices and Multiplier Models, IMPLAN provides a highly accurate and adaptable model for its users. The IMPLAN database contains county, state, ZIP code, and federal economic statistics that are specialized by region, not estimated from national averages, and can be used to measure the effect on a regional or local economy of a given change or event in the economy's activity.

## **What is employment impact?**

Employment impact measures the direct employment (employees, staff, faculty, administration) plus additional employment created in the economy as a result of the operations of CHE GME programs.

Indirect and induced employment impact refers to other employees throughout the region that exist because of CHE GME's economic impact. In other words, jobs related to the population – city services (police, fire, EMS, etc.), employees at hotels and restaurants, clerks at retail establishments, residents employed by vendors used by CHE GME programs.

## **What is the difference between direct and indirect taxes?**

Direct tax dollars include sales taxes and net corporate income taxes paid directly by the institution to the state, while indirect taxes include taxes paid to the state by vendors that do business with CHE GME programs.

## **Is this a one-time impact or does the impact repeat each year?**

The results presented in CHE GME's economic impact study are generated on an annual basis. The economic impact in future years can either be higher or lower based on the number of employees, students, capital expansion, increases in external research, and state appropriations.

## **What are Tripp Umbach's qualifications to perform an Economic Impact Study for CHE GME?**

Tripp Umbach is the national leader in providing economic impact analysis to leading health-care organizations, universities, and academic medical centers. Tripp Umbach has completed athletics-focused economic impact studies over the past 20 years for clients such as the University of Tennessee, University of Minnesota, Ohio State University, University of Washington, University of Iowa, University of Nebraska, University of Pittsburgh, University of Southern California, and the University of North Carolina.



# Appendix B: Tripp Umbach Qualifications

Tripp Umbach was founded in Pittsburgh, PA in 1990 and completed thousands of consulting assignments in all regions of the United States and internationally. Our firm has served more than 500 universities, 1,000 healthcare organizations, and hundreds of communities and economic development organizations globally. Tripp Umbach is an established national leader in developing and expanding Graduate Medical Education (GME) and expanding medical education.

Tripp Umbach is a leader in academic healthcare, community health planning, higher education, and economic development consulting, having completed more than 2,500 assignments over the past 30 years throughout the United States and internationally. We have completed Graduate Medical Education expansion projects in more than 50 communities throughout the United States and state-level reports in Georgia, Arizona, Arkansas, Oregon, Utah, and Indiana over the past 10 years.

We provide planning for academic medical centers, health systems, new and/or expanding medical schools, and communities that wish to develop and expand GME. Tripp Umbach's services include detailed analysis of organizational and operational structures related to specific residency programs to be developed within an institute model (e.g., by specialty and including operational costs and revenue sources during start-up and at full maturity). Tripp Umbach's work product also includes staffing plans, recommended organizational and governance structures, and financial analysis as required for the development and expansion of graduate medical education through various models.

Over the past 30 years, Tripp Umbach has been involved in approximately 100 medical education expansion projects in the United States and internationally. Our work has led to more than 40 new or expanded medical schools in all regions of the United States. Tripp Umbach has also completed medical education expansion and strategic planning for most of the medical schools in Florida and has completed Community Health Needs Assessments and Economic Impact studies for the Cleveland Clinic. Tripp Umbach has also worked with medical schools internationally in Canada, Mexico, England, United Arab Emirates, and Australia.

