

Cultivating the Physicians of the Future through
Targeted Funding Initiatives:
A Roadmap to Measurably Expand Graduate Medical
Education in Indiana



Prepared by: Tripp Umbach

PREPARED FOR | THE INDIANA GRADUATE MEDICAL EDUCATION BOARD

Executive Summary and Recommendations

Graduate Medical Education (GME) refers to the three to seven years of residency training that physicians in the US must complete after graduating from medical school and before joining or establishing a medical practice. In the past few years, the debate on how best to fund and reform GME has moved up the health policy agenda. Currently, the dominant public funder of GME is Medicare, with Medicaid^{1,2} and the Veterans Administration also contributing significantly to GME funding. Proposals to reform GME have focused on funding, governance, and the prioritization of specialties. Most of these proposals come from national organizations offering national solutions. **Generally, absent from the discussion is the important role states play in reforming GME.** A few states have pioneered methods and organizational structures to target GME positions relative to state health workforce needs and have offered creative mechanisms to support GME.³ **Ultimately, states have a strong stake in developing GME programs to meet the needs of special populations and their constituents.**

Addressing both physician shortages and mal-distribution requires analysis and action on the state level. Current data indicates that significant physician shortages exist in Indiana. According to data supplied by The Robert Graham Center⁴, **Indiana will need an additional 817 primary care physicians (PCPs) by 2030**, a 20% increase compared to the state's current (as of 2010) 3,906 PCP workforce.⁵ As of November 2015, there were 14,686 active physicians in the state of Indiana. Indiana ranks 38th in the country relative to the number of physicians per population, with 222.6 physicians per 100,000 population. Of the 10,344 active physicians who have completed GME in state of Indiana, 5,701, or 55.10%, of those are actively practicing medicine in the state.⁶

On January 27, 2015, Governor Mike Pence announced that the Healthy Indiana Plan "HIP 2.0" waiver had been approved. Since then, membership has grown to more than 370,000 members, and more than 5,300 new health care providers have been added to the Indiana Health Coverage Programs network to serve HIP 2.0 and Medicaid members. However, physician distribution clustered in specific Indiana cities, away from rural and urban underserved areas, continues to be a significant challenge.

According to "County Health Rankings, 2016: Indiana Health Gaps Report", the ratio of population to PCPs in the 'best counties' is 1,214:1, while in the 'worst counties', the ratio is 4,622:1. The difference is even more staggering when it comes to mental health providers (MHPs). The ratio of population to MHPs in the 'best counties' is 611:1, while in the 'worst counties', the ratio is 4,590:1. When individual county data

¹ Institute of Medicine Report: Graduate Medical Education That Meets the Nation's Health Needs, Released July 29, 2014.

² Association of American Medical Colleges, Medicare Payments for Graduate Medical Education, What Every Medical Student, Resident, and Advisor Needs to Know, 2013.

³ Spero JC, Fraher EP, Ricketts TC, Rockey PH. GME in the United States: A Review of State Initiatives. Cecil G. Sheps Center for Health Services Research, The University of North Carolina at Chapel Hill. September 2013.

⁴ The Robert Graham Center aims to improve individual and population healthcare delivery through the generation or synthesis of evidence that brings a family medicine and primary care perspective to health policy deliberations from the local to international levels.

⁵ Primary care use was estimated with 2010 Medical Expenditure Panel Survey (MEPS) data. Current active PCPs within Indiana were identified using the 2010 American Medical Association (AMA) Masterfile, adjusting for retirees and physicians with a primary care specialty but not practicing in primary care settings. Indiana population projections are from those produced by the state based on the 2010 Census.

⁶ AAMC 2015 State Physician Workforce Data.

was analyzed, Newton County was found to have by far the worst PCP ratio (14,087:1), as well as the worst MHP ratio (14,160:1). It is not uncommon for shortages to arise in certain specialty areas of medicine due to changes in medicine, technology and practice. In these instances, some areas of the country may have a shortage of training positions for these specialties due to the dynamics of the medical marketplace and the longitudinal development of teaching programs⁷.

The IU School of Medicine is now one of the largest medical school in the nation, with almost 1,400 medical students. Marian University's new College of Osteopathic Medicine, which began enrolling students in 2013, will graduate its first class of more than 150 osteopathic physicians next spring, bringing their total to 600 medical students. **Between the two schools, by next year, Indiana will have 500 students obtaining medical degrees.** Both IU School of Medicine and Marian University College of Osteopathic Medicine are major contributors to Indiana's health care workforce.

The Problem..." Good News and Bad News"

Ultimately, Indiana is in a "good news and bad news" situation in that the state has strong medical schools and students who graduate from Indiana's medical schools and wish to remain in the state to practice medicine (good news), but the state has significantly fewer teaching hospitals and training sites, especially in rural and urban-underserved Indiana (bad news). Access to appropriate primary care services is important to maintaining and improving health. Those who obtain regular primary care receive more preventive services, are more likely to comply with their prescribed treatments, and have lower rates of illness and premature death, according to research.⁸ Moreover, physicians providing care in rural areas often serve large geographic areas that require long travel times. These areas may be substantially underserved by hospitals and other health care facilities. Demographic shifts, such as the aging rural physician workforce and the growth in the rural elderly and near-elderly population have increased demand for primary care services statewide. A basic tenet of quality in health care is not just meeting, but exceeding, patient expectations. Factors that increase measures of patient satisfaction, such as improved access to a primary care physician and enhanced continuity of care⁹, are consistently reported as evidence of quality in primary care. Also, GME is also closely tied to the national research infrastructure, providing essential training in research methods directly relevant to discovering new ways to keep patients healthy, diagnose and treat illness, and improve the delivery of care.¹⁰ Ultimately, strengthening the retention rate of primary care providers through pipeline efforts, such as developing GME programs in rural, underserved areas, will help reach new at-risk populations, provide more care to the populations they already reached, and provide a broader array of services to their patients.

Unfortunately, there are currently only 387 first-year post graduate medical residency positions (PGY-1)¹¹ available in the state. Because there will be significantly fewer first year GME positions than medical school graduates each year in Indiana, the number of graduates who can remain in Indiana for residency

⁷ https://www.aamc.org/advocacy/gme/71178/gme_gme0012.html

⁸ Starfield, L. Shi, L., and J. Macinko "Contribution of Primary Care to Health Systems and Health," The Milbank Quarterly 83, no. 3 (2005): 457-502.

⁹ Continuity of care is concerned with quality of care over time. It is the process by which the patient and his/her physician-led care team are cooperatively involved in ongoing health care management toward the shared goal of high quality, cost-effective medical care. Source: <http://www.aafp.org/about/policies/all/definition-care.html>

¹⁰ COGME: Twenty-first Report, August 2013.

¹¹ 2016 NRMP Main Residency Match®: Match Rates by Specialty and State.

training will be limited. This in turn decreases the likelihood that these physicians will establish practices in Indiana since physicians are most likely to practice in the state where they complete medical training. **Sustainable state funding, coupled with financial support from communities and local hospitals, will lessen the discrepancy between the number of new medical school graduates and the number of first year GME positions available in Indiana, thereby increasing the number of physicians who will provide needed health care services to Indiana residents.**

The need for GME expansion is a challenge facing the entire country, not just the state of Indiana. As noted previously, the only way to become a practicing physician in the United States is to complete three to seven years of residency training after graduation from medical school. However, although there has been a significant increase in medical school enrollment over the past decade, the number of government supported residency training positions that are available to new medical school graduates has remained relatively flat¹². GME is an essential public investment in tomorrow's healthcare system that furthers the nation's goal to attain the triple aims of better health, better healthcare, and lower costs.¹³ An important aspect of GME is the impact the training program has on the residents decision about where to continue the practice of medicine.

National studies indicate that the availability of both undergraduate medical education (UME, or medical school) and GME in the same region has the greatest impact on a state's future physician workforce. Based on national data provided by the Association of American Medical Colleges (AAMC), and Tripp Umbach estimates, when a physician graduates from high school, college, medical school, and a residency training program in the same state, the likelihood of that physician remaining in the state to practice is more than 70% (this model is considered the "classic pipeline" for physician workforce development). The likelihood of a physician staying in the state to practice is increased by 100% if the physician graduates from a medical school and enters a residency program in the same region, and the likelihood increases even more if the physician also went to high school and college in the same region.

Based upon the issues outlined above, it's clear that a balanced and cooperative effort among those involved in medical education throughout Indiana is needed. This includes providing necessary funding for graduate medical education on the federal, state, and private level, as all three need to work together to support the training of Indiana's future physicians.

The state of Indiana recognizes the need to increase the number of primary care providers in underserved areas of the state. This recognition has prompted discussions at the legislative level regarding the allocation of increased financial support for GME. In 2015, House Enrolled Act 1323 was introduced. This bill established the Medical Residency Education Fund for the purpose of expanding medical education in Indiana by funding new residency program slots, and specified how this fund, as well as the Graduate Medical Education Fund, can be used. The bill also established the Graduate Medical Education Board (the Board) in order to: (1) determine how to provide funding for medical residents not funded by the federal Centers for Medicare and Medicaid Services (CMS); (2) provide technical assistance

¹² Effective October 1, 1997, to the extent the number of allopathic or osteopathic residents being trained at a teaching hospital exceeds the 1996 limit, teaching hospitals receive no additional IME or DGME payments; podiatry and dental residents are excluded from the resident limits.

¹³ Berwick DM, Nolan TW, Whittington J. The triple aim: care, health, and cost. *Health Aff (Millwood)*. May-Jun 2008;27(3):759-769.

for entities that wish to establish a residency program; (3) determine how to fund infrastructure costs for an expansion of graduate medical education; and (4) determine how to provide startup funding for entities that wish to establish a residency program.

In early 2016, Tripp Umbach¹⁴ was selected to work with the Indiana Graduate Medical Education Board¹⁵ to develop a roadmap to measurably expand GME throughout the state. Ultimately, the board is leading the initiatives outlined in the 2015 House Enrolled Act 1323. Before November 1, 2016, the Board is required to prepare and submit to the Indiana General Assembly a report with recommendations for the expansion of graduate medical education in Indiana. (Note: The Commission for Higher Education is the fiscal entity for the funding, which is non-reverting.) The overarching objectives of the Board are to raise awareness of the need to produce more physicians, especially primary care physicians in underserved and/or rural communities, and to develop recommendations relative to the allocation of state GME funding. **Increased awareness will lead to a better understanding of what steps are needed to address the physician workforce shortage in Indiana and, ideally, commitment to solutions. The primary goal of the Board is the retention of a physician workforce that meets community health care needs throughout Indiana. However, to get more well-trained doctors into the workforce and in regional areas of need, it can't be done without residency programs to train them.**

State Funding Allocation Recommendation:

Tripp Umbach recommends the state of Indiana allocate funds toward assessing, developing, and expanding residency training programs. Lack of dedicated funding will inhibit statewide distribution and expansion of the number of GME residency positions ultimately, hindering the number of physicians in Indiana.

Specifically, state funding is recommended to be used to support the following:

- **Feasibility Planning Grant:** The intent of this grant program is to encourage communities to explore opportunities for GME expansion so that the number of first-year residency positions is increased in regions that are in greatest need of additional physicians.
- **Program Development Grant:** The intent of this grant is to financially support efforts to develop new residency programs during the time after a Program Director has been hired but before the first resident begins training. Hospitals are not eligible for federal GME reimbursement until the first resident starts training. Because of this, the program development/start-up phase of GME expansion is typically the most difficult challenge faced by entities that are evaluating becoming a teaching facility.

¹⁴ Tripp Umbach is an established national leader in research and strategic planning for allopathic and osteopathic academic medical centers, health systems, new and expanding medical schools, and communities that wish to develop and expand GME. In the past 10 years, Tripp Umbach has developed plans and implemented more than 20 medical education programs throughout the United States.

¹⁵ Board Members Include: Tim Putnam (Chair), Steven Becker, MD, James Buchanan, MD, Mark Cantieri, DO, Paul Evans, DO, Paul Haut, MD, Tricia Hern, MD, Bryan Mills, Peter Nalin, MD, Donald Sefcik, DO, MBA, and Beth Wrobel.

- **New/Expanded Residency Position Funding:** The intent of this funding is to provide support for existing GME programs that intend to expand beyond their cap¹⁶ the number of residency positions, or to sponsoring institutions that intend to establish a new GME program. It is recommended that the Board prioritize the allocation of GME positions among specialties, geographies, and training sites that best respond to regional needs and shortages areas.

Based upon work completed for the state of Indiana, as well as its extensive experience with GME initiatives throughout the country, Tripp Umbach believes that the most effective allocation of the current FY2016/2017 \$5.6 million in funding provided for GME expansion by the state of Indiana is to provide funding to organizations that plan to develop new residency programs in regions of the state that do not currently have residency programs.

Specifically, this funding should be allocated through feasibility grants to organizations that will study the opportunities, challenges, costs, and benefits of developing residency programs and program development grants to those organizations who have decided to move forward with development and have hired a Program Director for the new residency program.

In Tripp Umbach's experience, the time between when a Program Director is hired and when a hospital becomes eligible for CMS funding (i.e., once the first resident begins training) is the most difficult challenge for organizations to address when developing new residency programs. Funding support for organizations to address this challenge will enable new residency programs to be developed in regions of the state that otherwise would not have physician training programs.

Recommended Prioritization of Awarded Grants:

Prioritization of funding applications will be given to the following organizations:

1. Organizations located in rural areas of Indiana
2. Organizations that plan to develop new programs in underserved areas of Indiana
3. Organizations involved in collaborative consortium efforts
4. Organizations that include FQHCs in planning efforts
5. Organizations that include regional agencies, such as the AHEC network, in planning efforts

Recommended Next Steps:

To ensure successful implementation, Tripp Umbach recommends the Board work collaboratively at the state level to finalize policies regarding a fiscal plan of state appropriations for the support of all new and

¹⁶ Medicare limited funding for graduate medical education (GME) to the number of residents a hospital trained in 1996. Congress capped the number of FTEs that a hospital may count at the number that the hospital trained during its most recent cost reporting period that ended on or before Dec. 31, 1996. These caps went into effect in the 1998 cost reporting year.

existing residency programs. Once state approval is granted, Request for Applications (RFA) will need to be finalized and applications solicited.

Additionally, Tripp Umbach recommends continued discussion, coordination, and education about GME statewide. Specifically, aligning statewide GME retention data with funding initiatives to support the development of GME programs and leverage and enhance pipeline efforts. Currently, there is already a foundation, as there are multiple state-led data gathering projects taking place. For instance, the “Ongoing geographic evaluation of Indiana’s health workforce to identify gaps in access to inform Indiana State Office of Primary Care activities”, is being conducted. (Study timeline: April 2014 to March 2019).

Lastly, because local and regional successes in improving healthcare is crucial, it is also recommended the Board engage statewide leadership of local hospitals, non-profit healthcare entities, business communities, etc. on this topic through facilitating regional forums. Collaborating with existing entities such as Indiana’s Rural Health Association as their purpose is to provide opportunities for assessing the strengths and weaknesses of health care systems; identifying needs and problems within the rural settings; and assessing and developing leadership resources.

Project Methodology:

The Tripp Umbach team of experts worked closely with the Board and other stakeholders over a five-month period to develop a plan for the most effective expansion of GME. Early on in the process, the Board established a targeted framework, based upon previously completed studies, related to what types of programs should be eligible for funding. **The following specialties within primary care were identified by the Board as priorities for this initiative:**

- **Emergency Medicine**
- **Family Medicine**
- **General Surgery**
- **Obstetrics and Gynecology**
- **Outpatient Community-Based Internal Medicine**
- **Pediatrics**
- **Psychiatry**

Note: 2016 statewide Post Graduate Year-1 positions in the specialties listed above include¹⁷: 19 Emergency Medicine, 87 Family Medicine, 22 Surgery, 15 Obstetrics and Gynecology, 64 Internal Medicine, 30 Pediatrics, and 11 Psychiatry. Additional positions in combined programs are available in the following programs: 2 Internal Medicine/Family Medicine programs, 14 Internal Medicine/Pediatrics programs, 2 Pediatrics/Emergency Medicine programs, and 2 Pediatrics/Psych/Child Psychiatry programs.

Tripp Umbach completed the following work plan, including a review of relevant data, facilitation of interviews and work sessions, and consultation with national medical education experts and Tripp Umbach clients, to develop recommendations to address the need for an expanded physician workforce in Indiana.

- **Data Analysis:** Tripp Umbach analyzed current and projected statewide health and workforce needs, facilitated statewide and national interviews, conducted peer reviews of national GME

¹⁷ 2016 NRMP Main Residency Match®: Match Rates by Specialty and State.

funding initiatives, and reviewed existing state-level medical education reports/data. (See Appendix X.)

- **Evaluate and Identify Development Opportunities:** An important aspect of the planning process was evaluating and identifying potential areas where residency programs could be established. Tripp Umbach reviewed the HRSA Rural Graduate Medical Education (GME) Analyzer Report¹⁸ and the Indiana Hospital Directory.¹⁹ These tools allowed Tripp Umbach to identify 26 hospitals with 100 or more beds within Indiana that reported NOT receiving Medicare payment support (1997-2016), allowing them to potentially receive federal funding if they begin residency programs. These hospitals are located within nine ‘regions’ where GME expansion opportunities exist. Two regions are currently involved in GME expansion planning efforts, and another region is located in central Indiana, where most of the existing residency programs are located. Therefore, Tripp Umbach focused recommendations relative to areas for new program development in the six remaining regions. (See Appendix X and X.)
- **Evaluate Expansion Opportunities:** Tripp Umbach analyzed existing statewide residency programs in the following specialties: Family Medicine, Psychiatry, Emergency Medicine, General Surgery, Obstetrics and Gynecology, Internal Medicine, and Pediatrics. With guidance from Board members, Tripp Umbach conducted a survey that was sent to statewide Family Medicine Program Directors. (See Appendix X.) The survey provided a way to evaluate the opportunities, challenges, and benefits of expansion of existing programs. Assessing the willingness and readiness of existing programs to expand aided Tripp Umbach in developing residency program expansion estimates. The survey was sent to 12 family medicine Program Directors and results were obtained from 6. When asked, “If the state of Indiana were to provide a granting process that allowed existing residency programs to apply for financial funds to be used toward expansion efforts, would your institution consider applying for these funds and ultimately expanding your program?”, all 6 responded positively. Currently, hospitals throughout Indiana are funding residents beyond their federally funding “cap”. However, survey respondents indicated that without additional funding, it’s unlikely that program expansion or investment will take place.

Recommendations

Tripp Umbach believes that state funding focused on the expansion of primary care residency program development will provide the opportunity to develop an additional 360 new residency positions by 2024, bringing the total positions statewide to 747. (Appendix X.)

¹⁸ The report allows hospitals to find information regarding rural location and any previous training costs that may dictate the ability to receive Medicare Graduate Medical Education payments in the future. Facilities included in this tool are those that have CMS Cost Reports (such as PPS hospitals, Sole Community Hospitals, etc. Critical Access Hospitals are not included). Please note that the determination provided by this tool is not a legal justification to qualify for Medicare Graduate Medical Education (GME) payments. Hospitals desiring to begin a residency training program are advised to speak with their Medicare Administrator Contractor (MAC) to confirm their Medicare resident cap status.

¹⁹ <http://www.in.gov/isdh/reports/QAMIS/hosdir/index.htm>

State funding allocation estimates are outlined within each recommendation listed below. State funds would be specifically designated for assessing, developing, and expanding residency training programs. However, Tripp Umbach recognizes that development and expansion of physician training programs will not happen without local hospital and community engagement. Further, to encourage medical school graduates to choose primary care residency programs, the quantity and quality of the community-oriented outpatient training experiences should be enhanced. Community-based programs that are affiliated with the statewide AHEC network, regional medical center(s), and a “hub’ of ambulatory sites such as Federally Qualified Health Centers (FQHCs) will help achieve the goal of producing more primary care physicians for the state of Indiana.

Recommendation 1: Feasibility Planning Grant: The intent of this grant program is to encourage communities to explore opportunities for GME expansion so that the number of first-year residency positions is increased in regions that are in greatest need of additional physicians.

- **Funding Total:** Tripp Umbach recommends the state of Indiana allocate \$75,000 per recipient, up to a maximum of seven recipients, to assess the feasibility of developing new GME programs in the primary care specialties outlined in this report.
 - This grant requires at least a 25% match from recipients. Financial support from the community is instrumental in activating engagement and encouraging accountability.
 - The maximum number of awards is contingent on the amount of funding available. For the purposes of this study, Tripp Umbach estimated that there would be a total of seven awards, for a total cost of \$525,000.
- **Eligibility:** Entities not currently nor previously operating a GME program. Multiple stakeholders within a region and/or potential consortium groups applying for grant will be given preference.
- **Length of Award:** One-time award per applicant.

Tripp Umbach Funding Model for Recommendation #1: Feasibility Planning Grant (Note: Assumes seven feasibility planning grants will be awarded.)

| State Funding for GME Expansion in Indiana | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|-------------------|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Feasibility Planning Grants (requires at least 25% match) | | | | | | | | |
| Maximum funding per recipient | \$ 75,000 | | | | | | | |
| Recipient 1 | \$ 75,000 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Recipient 2 | \$ 75,000 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Recipient 3 | \$ 75,000 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Recipient 4 | \$ 75,000 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Recipient 5 | \$ - | \$ 75,000 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Recipient 6 | \$ - | \$ 75,000 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Recipient 7 | \$ - | \$ 75,000 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Planning Funding Total | \$ 300,000 | \$ 225,000 | \$ - |

Funding support would be provided to investigate the feasibility of developing one or more residency programs. State funds allocated for feasibility planning grants will encourage communities to evaluate the readiness of regional providers to undertake the development of successful, high-quality GME programs. The feasibility planning process will also initiate conversations with the appropriate stakeholders, build a network of necessary partners, and

establish a platform of resources required for residency program accreditation. Regional community representation is vital to ensure successful implementation and long-term sustainability.

Feasibility planning will allow communities to answer the following critical questions:

- Can we meet the core Accreditation Council for Graduate Medical Education (ACGME) requirements to ensure accreditation and high quality programs?
- Where would the program best be located or based?
- Will we need to consider rotations to hospitals and health care entities, such as FQHCs, within or outside of the region to meet accreditation requirements?
- Based on existing physician groups in the region, will we be able to identify qualified and interested physicians to serve as faculty members?
- Are these physicians employed by a health care organization, or are they contracted or independently employed?

Feasibility study findings also present an opportunity to evaluate potential partnerships with medical school(s), regional hospitals, community health centers, FQHCs, and local health care foundations. These partnerships are particularly beneficial for rural communities. For instance, FQHCs deliver comprehensive care to the uninsured, underinsured, and vulnerable patients, regardless of ability to pay. FQHCs can leverage the presence of primary care residents to increase physician capacity and expand the scope of services offered to patients.

Collaboration among a community of stakeholders promotes the development of creative solutions to address the physician workforce shortage in underserved areas. Currently, within the state of Indiana, two regions (Southwestern, IN and Northwest, IN) are participating in Consortium planning efforts to expand GME.

Ultimately, state funding for feasibility planning grants will encourage underserved regions throughout the state to explore the potential for GME expansion.

Recommendation 2: Program Development Grant: The intent of this grant is to financially support efforts to develop new residency programs during the time after a Program Director has been hired but before the first resident begins training. Hospitals are not eligible for federal GME reimbursement until the first resident starts training. Because of this, the program development phase of GME expansion is typically the most difficult challenge faced by entities that are evaluating becoming a teaching facility.

- **Funding Total:** Tripp Umbach recommends that the state of Indiana allocate \$8 million, with \$500,000 as the maximum funding per recipient, dispersed over a 5-year timeframe (2017-2021).
 - The grant requires at least a 25% match from recipients.
 - The grant will be allocated in two payments of \$250,000 in each of two years.

- The maximum number of awards is contingent on the amount of funding available. However, for the purposes of this study, Tripp Umbach estimates that there will be 16 awards.
- **Eligibility:** Entities not currently operating a GME program. **Note:** The Board seeks to prioritize underserved areas of the state and will determine which recipients will receive program grant funding through the application process. Priority will be given to programs addressing the mal-distribution of physicians in the state.
- **Length of Award:** The program development funds are only available to hospitals after they have hired a Program Director but before they are eligible for CMS funds.

Tripp Umbach Funding Model for Recommendation #2: Program Development Grant (Note: Assumes 16 new program development grants will be awarded.)

| State Funding for GME Expansion in Indiana | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|-------------|-------------|-------------|
| Program Development Grants (requires at least 25% match; recipients eligible when Program Director hired) | | | | | | | | |
| Maximum funding per recipient | \$ 500,000 | | | | | | | |
| New Program 1 (6 new PGY1 positions for each of 3 years, starting in 2018) | \$ 250,000 | \$ 250,000 | | \$ - | \$ - | \$ - | \$ - | \$ - |
| New Program 2 (6 new PGY1 positions for each of 3 years, starting in 2018) | \$ 250,000 | \$ 250,000 | | \$ - | \$ - | \$ - | \$ - | \$ - |
| New Program 3 (6 new PGY1 positions for each of 3 years, starting in 2019) | \$ 250,000 | \$ 250,000 | | \$ - | \$ - | \$ - | \$ - | \$ - |
| New Program 4 (6 new PGY1 positions for each of 3 years, starting in 2019) | \$ 250,000 | \$ 250,000 | | \$ - | \$ - | \$ - | \$ - | \$ - |
| New Program 5 (6 new PGY1 positions for each of 4 years, starting in 2020) | \$ - | \$ 250,000 | \$ 250,000 | \$ - | \$ - | \$ - | \$ - | \$ - |
| New Program 6 (6 new PGY1 positions for each of 4 years, starting in 2020) | \$ - | \$ 250,000 | \$ 250,000 | \$ - | \$ - | \$ - | \$ - | \$ - |
| New Program 7 (6 new PGY1 positions for each of 4 years, starting in 2020) | \$ - | \$ 250,000 | \$ 250,000 | \$ - | \$ - | \$ - | \$ - | \$ - |
| New Program 8 (6 new PGY1 positions for each of 4 years, starting in 2020) | \$ - | \$ 250,000 | \$ 250,000 | \$ - | \$ - | \$ - | \$ - | \$ - |
| New Program 9 (6 new PGY1 positions for each of 3 years, starting in 2021) | \$ - | \$ - | \$ 250,000 | \$ 250,000 | \$ - | \$ - | \$ - | \$ - |
| New Program 10 (6 new PGY1 positions for each of 3 years, starting in 2021) | \$ - | \$ - | \$ 250,000 | \$ 250,000 | \$ - | \$ - | \$ - | \$ - |
| New Program 11 (6 new PGY1 positions for each of 3 years, starting in 2022) | \$ - | \$ - | \$ - | \$ 250,000 | \$ 250,000 | \$ - | \$ - | \$ - |
| New Program 12 (6 new PGY1 positions for each of 3 years, starting in 2022) | \$ - | \$ - | \$ - | \$ 250,000 | \$ 250,000 | \$ - | \$ - | \$ - |
| New Program 13 (6 new PGY1 positions for each of 3 years, starting in 2022) | \$ - | \$ - | \$ - | \$ 250,000 | \$ 250,000 | \$ - | \$ - | \$ - |
| New Program 14 (6 new PGY1 positions for each of 3 years, starting in 2022) | \$ - | \$ - | \$ - | \$ 250,000 | \$ 250,000 | \$ - | \$ - | \$ - |
| New Program 15 (6 new PGY1 positions for each of 4 years, starting in 2021) | \$ - | \$ - | \$ 250,000 | \$ 250,000 | \$ - | \$ - | \$ - | \$ - |
| New Program 16 (6 new PGY1 positions for each of 4 years, starting in 2021) | \$ - | \$ - | \$ 250,000 | \$ 250,000 | \$ - | \$ - | \$ - | \$ - |
| Development Funding Total | \$ 1,000,000 | \$ 2,000,000 | \$ 2,000,000 | \$ 2,000,000 | \$ 1,000,000 | \$ - | \$ - | \$ - |

During new program development, organizations must work to fulfill the accreditation requirements established by ACGME, recruit core faculty, write program curricula, and identify and prepare faculty to teach residents. The costs of this transition are significant, often reaching millions of dollars. Most program development costs are incurred prior to eligibility for federal funding. State funds will provide financial support for space, recruitment expenses, faculty and staff compensation, and resident salary and benefits.

Accreditation by ACGME is required for a hospital to become eligible for Medicare GME reimbursement.²⁰ Two levels of accreditation must occur: one for the sponsoring institution of GME program(s) and one for each residency program. Accreditation requirements vary by type of program.

Once a program becomes accredited, the amount of GME reimbursement a hospital receives is determined by formulas established by Medicare. Under the current Medicare regulations, new teaching hospitals have a five-year period, starting when the first resident begins training, before a permanent hospital-specific federal funding ‘cap’ is established. Only hospitals that have not

²⁰ Medicare: Direct GME Payments (DGME) offset a portion of the direct costs associated with training physicians (resident stipends and benefits, faculty teaching, GME office overhead costs, etc.) Indirect GME (IME) Payments are used to maintain the state-of-the-art facilities and equipment and specialized services (e.g., advanced cancer care) that are critical to the environment in which health professionals must be trained.

trained residents in the past (often referred to as “virgin” or “naïve” hospitals) are able to establish new funding caps, and it is very difficult for existing teaching hospitals to expand their existing funding caps.

Tripp Umbach estimates that most, if not all, of the new programs included in the projections used for this study will eventually be able to receive federal GME funding. Therefore, funds associated with program development grants will only be available until residents begin training programs, when hospitals become eligible for federal funding.

Program development grant funds can be used to support any costs that the ACGME and the state allow, including hiring GME program faculty and staff, renovating facilities, and paying for new equipment to support the residency program.

Recommendation 3: New/Expanded Residency Position Funding: The intent of this funding is to provide support for existing GME programs that intend to expand beyond their cap the number of residency positions, or to sponsoring institutions²¹ that intend to establish a new GME program. It is recommended the Board prioritize the allocation of GME positions among specialties, geographies, and training sites that best respond to regional needs and shortages areas.

- **Funding Total:** Tripp Umbach recommends that state of Indiana allocate \$45,000 per new resident position to new and expanded programs during the time period 2018 through 2024. Tripp Umbach estimates that this funding will equal \$61.4 million in total. **Note:** Tripp Umbach recommends that the state of Indiana continue providing \$45,000 per resident for all funded positions beyond 2024 to ensure the sustainability of new and expanded programs and avoid any program closures. This would be a total of \$16.2 million dollars annually.
- **Eligibility:** GME programs that have developed new or expanded residency positions to address identified physician workforce needs.
 - **Existing GME programs:** Expanded residency positions must be accredited by ACGME. The expanded positions must be filled to receive the funds. **Programs must also submit data, using a three-year rolling average, that proves that 30% of graduates practice in Indiana.**
 - **New GME Programs:** The sponsoring institution must establish a new GME program that is accredited by the ACGME. The newly established positions must be filled to receive the funds.

²¹ The Accreditation Council for Graduate Medical Education (ACGME) defines a GME sponsoring institution as an “organization (or entity) that assumes the ultimate financial and academic responsibility for a program of GME. The sponsoring institution has the primary purpose of providing educational programs and/or health care services (e.g., a university, a medical school, a hospital, a school of public health, a health department, a public health agency, an organized health care delivery system, a medical examiner’s office, a consortium, an educational foundation)”.

Tripp Umbach Funding Model for Recommendation #3: New/Expanded Residency Position Funding
 (Note: Assumes that 10 existing GME primary care programs will expand by two residents and that 16 new GME primary care programs will be established Based on statewide need, assumes existing program expansion takes place in 2018 at eight three-year primary care residency programs (FM, IM, EM, and/or Peds) and two four-year residency programs (Psych and/or OB/GYN), and new program expansion takes place at different times (start date noted below for each program) at eight three-year primary care residency programs and six four-year residency programs.)

| State Funding for GME Expansion in Indiana | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|-------------|---------------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|
| New and Expanded Residency Position Program (requires at least 25% match; funding may only cover costs not covered by federal funding) | | | | | | | | |
| Maximum funding per resident position | \$ 45,000 | | | | | | | |
| Existing Program 1 (2 new PGY1 positions for each of 3 years) | \$ - | \$ 90,000 | \$ 180,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 |
| Existing Program 2 (2 new PGY1 positions for each of 3 years) | \$ - | \$ 90,000 | \$ 180,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 |
| Existing Program 3 (2 new PGY1 positions for each of 3 years) | \$ - | \$ 90,000 | \$ 180,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 |
| Existing Program 4 (2 new PGY1 positions for each of 3 years) | \$ - | \$ 90,000 | \$ 180,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 |
| Existing Program 5 (2 new PGY1 positions for each of 3 years) | \$ - | \$ 90,000 | \$ 180,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 |
| Existing Program 6 (2 new PGY1 positions for each of 4 years) | \$ - | \$ 90,000 | \$ 180,000 | \$ 270,000 | \$ 360,000 | \$ 360,000 | \$ 360,000 | \$ 360,000 |
| Existing Program 7 (2 new PGY1 positions for each of 3 years) | \$ - | \$ 90,000 | \$ 180,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 |
| Existing Program 8 (2 new PGY1 positions for each of 3 years) | \$ - | \$ 90,000 | \$ 180,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 |
| Existing Program 9 (2 new PGY1 positions for each of 3 years) | \$ - | \$ 90,000 | \$ 180,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 | \$ 270,000 |
| Existing Program 10 (2 new PGY1 positions for each of 4 years) | \$ - | \$ 90,000 | \$ 180,000 | \$ 270,000 | \$ 360,000 | \$ 360,000 | \$ 360,000 | \$ 360,000 |
| New Program 1 (6 new PGY1 positions for each of 3 years, starting in 2018) | \$ - | \$ 270,000 | \$ 540,000 | \$ 810,000 | \$ 810,000 | \$ 810,000 | \$ 810,000 | \$ 810,000 |
| New Program 2 (6 new PGY1 positions for each of 3 years, starting in 2018) | \$ - | \$ 270,000 | \$ 540,000 | \$ 810,000 | \$ 810,000 | \$ 810,000 | \$ 810,000 | \$ 810,000 |
| New Program 3 (4 new PGY1 positions for each of 3 years, starting in 2019) | \$ - | \$ - | \$ 180,000 | \$ 360,000 | \$ 540,000 | \$ 540,000 | \$ 540,000 | \$ 540,000 |
| New Program 4 (4 new PGY1 positions for each of 3 years, starting in 2019) | \$ - | \$ - | \$ 180,000 | \$ 360,000 | \$ 540,000 | \$ 540,000 | \$ 540,000 | \$ 540,000 |
| New Program 5 (4 new PGY1 positions for each of 4 years, starting in 2020) | \$ - | \$ - | \$ - | \$ 180,000 | \$ 360,000 | \$ 540,000 | \$ 720,000 | \$ 720,000 |
| New Program 6 (4 new PGY1 positions for each of 4 years, starting in 2020) | \$ - | \$ - | \$ - | \$ 180,000 | \$ 360,000 | \$ 540,000 | \$ 720,000 | \$ 720,000 |
| New Program 7 (6 new PGY1 positions for each of 4 years, starting in 2020) | \$ - | \$ - | \$ - | \$ 270,000 | \$ 540,000 | \$ 810,000 | \$ 1,080,000 | \$ 1,080,000 |
| New Program 8 (6 new PGY1 positions for each of 4 years, starting in 2020) | \$ - | \$ - | \$ - | \$ 270,000 | \$ 540,000 | \$ 810,000 | \$ 1,080,000 | \$ 1,080,000 |
| New Program 9 (6 new PGY1 positions for each of 3 years, starting in 2021) | \$ - | \$ - | \$ - | \$ - | \$ 270,000 | \$ 540,000 | \$ 810,000 | \$ 810,000 |
| New Program 10 (6 new PGY1 positions for each of 3 years, starting in 2021) | \$ - | \$ - | \$ - | \$ - | \$ 270,000 | \$ 540,000 | \$ 810,000 | \$ 810,000 |
| New Program 11 (6 new PGY1 positions for each of 3 years, starting in 2022) | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 270,000 | \$ 540,000 | \$ 810,000 |
| New Program 12 (6 new PGY1 positions for each of 3 years, starting in 2022) | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 270,000 | \$ 540,000 | \$ 810,000 |
| New Program 13 (6 new PGY1 positions for each of 3 years, starting in 2022) | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 270,000 | \$ 540,000 | \$ 810,000 |
| New Program 14 (6 new PGY1 positions for each of 3 years, starting in 2022) | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 270,000 | \$ 540,000 | \$ 810,000 |
| New Program 15 (6 new PGY1 positions for each of 4 years, starting in 2021) | \$ - | \$ - | \$ - | \$ - | \$ 270,000 | \$ 540,000 | \$ 810,000 | \$ 1,080,000 |
| New Program 16 (6 new PGY1 positions for each of 4 years, starting in 2021) | \$ - | \$ - | \$ - | \$ - | \$ 270,000 | \$ 540,000 | \$ 810,000 | \$ 1,080,000 |
| New and Expanded Residency Position Total | \$ - | \$ 1,440,000 | \$ 3,240,000 | \$ 5,940,000 | \$ 8,460,000 | \$ 11,520,000 | \$ 14,580,000 | \$ 16,200,000 |

State GME Annual and Total Funding Year 1-8

| State Funding for GME Expansion in Indiana | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--|---------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|
| GME Total Annual Funding | \$ 1,300,000 | \$ 3,665,000 | \$ 5,240,000 | \$ 7,940,000 | \$ 9,460,000 | \$ 11,520,000 | \$ 14,580,000 | \$ 16,200,000 |
| Total Funding (Year 1-8) | \$ 69,905,000 | | | | | | | |

Total New Residency Positions

| 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|------|------|------|------|------|------|------|------|
| 0 | 32 | 72 | 132 | 188 | 256 | 324 | 360 |

Total Graduating Physicians by 2025: 288

General Information Required for Funding:

For each eligible existing, new, or planned GME program for which funding is being requested, provide general information on the residency program, including:

- Name of Eligible Program
- Whether Program Received a Planning Grant Award
- Type of Award Requested (Expanded Positions or New Program)
- Program Specialty and Length
- Original Accreditation Date (for existing programs), or Accreditation Application Date and Expected Start Date (for new programs)
- Program Location (City, Zip Code, and County)
- Name of Major Participating Site
- List of partners, if any

Note: Tripp Umbach acknowledges that specific program costs may be difficult to identify. However, Tripp Umbach recommends that each program that is awarded state funding be required to provide the Board with data related to the costs of operating the residency program and any funding other than the funding outlined in this report, including both DME and IME payments.

In addition to data related to costs and funding, programs should provide the Board and state with data related to funding and outcomes. Programs receiving state funding should be held accountable for physician workforce outcomes as a requirement for funding. Outcomes could include the number of graduates who remain in the state to practice, the number who enter needed specialties, and the number who practice in underserved rural and urban settings.

Tripp Umbach also believes that the statewide GME Board must continue to provide guidance to the state. Tripp Umbach recommends continued discussion, coordination, and education about GME on a state level. Specifically, once state approval is granted, Request for Applications (RFA) will need to be finalized and applications solicited.

Finally, Tripp Umbach believes that innovative funding models such as all-payer, third-party payer, and state Medicaid for GME should be further evaluated. These models could be specifically designed to be responsive to the state’s physician workforce needs. For instance, Medicaid programs are not required to provide support for GME, but if they do, they are eligible for matching federal funds (e.g., states are able to collect federal funds for approved medical education expenditures). States have control over many aspects of health care delivery, including decisions about Medicaid expansion. Medicaid is one of the main policy levers leadership can use to shape health care delivery at a state level. However, further evaluation is required, as complexities do exist regarding effectively using Medicaid GME funding to target GME expansion.²² Tripp Umbach recommends that the state of Indiana further analyze peer markets that are effectively using Medicaid GME funding for GME expansion. (Appendix X.)

Conclusions

Although significant challenges exist, state policymakers can act to measurably improve Indiana’s health care access issues. Ultimately, the potential to expand GME and more effectively shape a physician workforce responsive to Indiana’s population health needs does exist. There is no doubt that the

²² Spero JC, Fraher EP, Ricketts TC, Rockey PH. GME in the United States: A Review of State Initiatives. Cecil G. Sheps Center for Health Services Research, The University of North Carolina at Chapel Hill. September 2013.

implementation of these action items will require collective focus and commitment from statewide leadership. State funding will be the foundational element that ignites long-term results.

Throughout the planning process, it was acknowledged that commitment is evident and leadership is excited for what the future holds. However, opportunity is and will continue to be missed if Indiana does not devise an efficient system that encourages and incentivizes institutions to partake in training.

Associated Impact of GME

A state is unlikely to get a good return on investment for dollars spent on UME without corresponding increases in GME positions. Physicians who complete both UME and GME training in the same state are far more likely to remain in-state than those who just complete just UME or GME in the state. The state of Indiana’s current investment made toward UME has shown positive results. According to 2014 AAMC data, 51.8% of the 10,105 active physicians who graduated from an MD or DO-granting institution in Indiana stayed in the state to practice. However, that percentage increases significantly, when physicians complete both UME and GME in the state. Out of the 4,733 active physicians who graduated from an MD- or DO-granting institution in Indiana in 2014 and completed residency training in the state, 76.9% remained in the state to practice.

Elements of a favorable impact associated with GME include, but are not limited to the following: better quality of care; increased patient care and coverage; increased physician satisfaction and retention; the opportunity to care for otherwise underserved populations; broad education and professional development beyond GME; reduction in recruitment costs via retention of graduates; community service projects; national grant funding; national recognition via research and publications; and increase in public opinion, value, and prestige (market differentiation).²³

Ultimately, with the development of residency programs, entities throughout Indiana will serve as a learning environment and will provide support and resources to enable medical educators and residents to excel. By providing financial support to entities that will be training residents for medical practice, Indiana will play a major role in transforming Indianans health care. Of equal importance, bringing new doctors with new ideas into regional health care facilities will enhance their ongoing efforts to provide cutting edge health care.

Furthermore, GME programs are important drivers of health care quality, access, and economic development. In addition to increasing access to high quality primary care, Tripp Umbach estimates that each resident in a community-based residency program generates \$200,000 in annual economic benefits to the community while completing the program, and \$1.5 million in economic benefits every year that he or she remains in the area to practice after training. This impact represents “fresh” dollars in the local economy.

²³ Howley L, Hall MN. Returns on the GME investment: perspectives on the costs & benefits of resident education. <https://www.acgme.org/acgmeweb/Portals/0/PDFs/2015%20AEC/Presentations/SES075.pdf>. Accessed August 10, 2015.

Physician Workforce: Communities within 100 miles of a primary care residency program have significantly more physicians per capita than similar communities without such programs. Residency programs often require the recruitment of specialists who train residents as well as provide clinical services not available in the community before the formation of the residency program.

Cost Savings to Taxpayers: Because most primary care residents train at clinics serving low-income populations, newly created residency programs increase access to care for underinsured patients. In addition, residents who practice in underserved communities generate approximately \$3.6 million in savings due to better care coordination and a decrease in unnecessary hospitalizations.

There are several training models to consider when expanding GME:

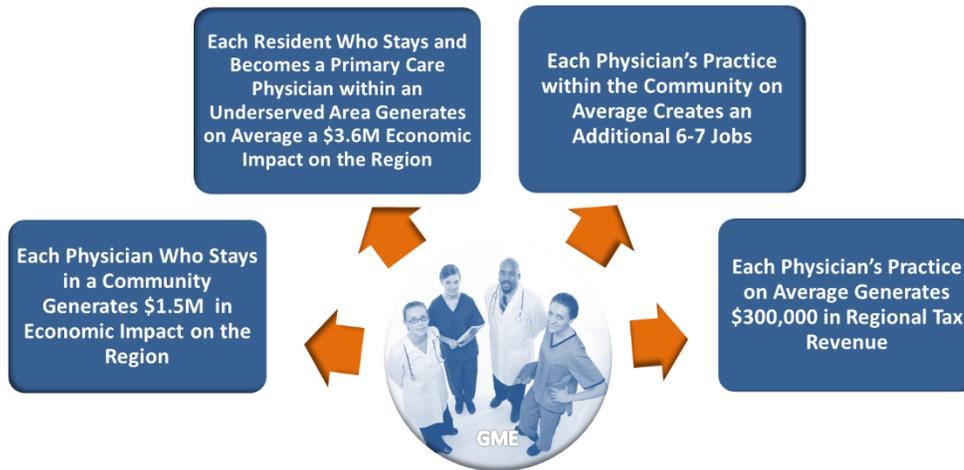
- **Independent Programs:** Independent (non-Academic Medical Center (AMC)) sponsored and operated
- **Independent, but Academic Medical Center Affiliated:** AMC does not operate site or sponsor residency
- **Academic Medical Center Sponsored:** AMC sponsors residency but operated independently
- **Academic Medical Center Sponsored & Operated:** AMC owns and operates clinical sites

Stronger Hospitals: Hospitals save an average of \$75,000 in recruitment costs for every resident they hire, enabling investment in other efforts related to patient care and community health programs. Hospitals with primary care residency programs also have lower utilization of emergency care by uninsured patients due to clinics that are staffed by residents, resulting in millions of dollars of savings in uncompensated care. Finally, revenue from health insurance companies to hospitals may increase due to higher quality outcome measures anticipated from clinical operations which integrate residents into quality outcome programs.

While physicians are the key to providing quality patient care, they also drive economic development and job creation in their communities and are essential to the financial viability of the regions in which they practice – all factors which should be taken into account when considering the costs and benefits of physician recruiting.²⁴ Economic impacts include the generation of business volume, tax revenue, and jobs due to the spending of new residency programs, residents, faculty, staff, and physicians who establish practice in Indiana after completing residency training in the state. Health care and economic benefits associated with expanding the physician workforce depend in large part to developing strong residency programs close to where medical students graduate.

Ultimately, residents and new physicians represent fresh dollars in the local economy.

²⁴ Merritt Hawkins. A Fact Sheet Examining the Economic Contribution Physicians Make to Their Communities and to Their Affiliated Hospitals.



Tripp Umbach estimates that each medical resident in a community-based residency program generates \$200,000 in annual economic benefits to their community while in their program and \$1.5 million in economic benefits every year when they remain in the area to practice after training. In Indiana, the potential annual economic impact in 2025 on the state due to the presence of physicians who are projected to graduate from expanded and or newly developed programs and remain in the state to practice would be \$332 million.²⁵ That impact will continue to grow as additional physicians graduate each year.

²⁵ Tripp Umbach’s economic impact estimates are based on the assumption that by 2025, 288 physicians will have graduated from new or expanded residency programs projected for this study, and that 76.9% of these physicians will remain in the state to practice, based upon 2014 AAMC data that indicates that 76.9% active physicians remained in the state to practice after completing UME and GME in Indiana.

Background

Currently, hospitals throughout Indiana are funding residents beyond their federally funded cap. Medicare remains the primary formal financier of programs, contributing a majority of all tax-financed support. Other federal payors include Medicaid, the U.S. Department of Veterans Affairs, the U.S. Department of Defense, and the Bureau of Health Professions.²⁶ A majority of Indiana's teaching hospitals/training entities have stated that without additional alternative funding it's unlikely they'll be able to add residents or make any further investments in programs. **Opportunity is and will continue to be missed if Indiana does not devise an efficient system that encourages and incentivizes institutions to participate in residency training.**

Indiana as a state faces challenges in terms of physician workforce. The aging physician workforce is worrisome. More physicians are nearing retirement at the same time that an aging population is increasing demands on the health care system. According to data supplied by The Robert Graham Center²⁷, Indiana will need an additional 817 primary care physicians by 2030, a 20% increase compared to the state's current (as of 2010) 3,906 PCP workforce.²⁸ 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).

²⁶ Young JQ, Coffman JM. Overview of graduate medical education. Funding streams, policy problems, and options for reform. *West J Med.* 1998;168(5):428-436.

²⁷ The Robert Graham Center aims to improve individual and population healthcare delivery through the generation or synthesis of evidence that brings a family medicine and primary care perspective to health policy deliberations from the local to international levels.

²⁸ Primary care use was estimated with 2010 Medical Expenditure Panel Survey (MEPS) data. Current active PCPs within Indiana were identified using the 2010 American Medical Association (AMA) Masterfile, adjusting for retirees and physicians with a primary care specialty but not practicing in primary care settings. Indiana population projections are from those produced by the state based on the 2010 Census.

More specifically, health professions workforce shortages are exacerbated in rural and urban underserved areas, where communities struggle to attract and retain well-trained clinicians. Data has shown that individuals in underserved areas experience worse health outcomes and higher rates of hospitalizations for common conditions, especially in rural communities. Medical students from predominantly rural areas who are forced to pursue residency training elsewhere because of lack of training opportunities in their region are often exposed to urban, hospital-based care in other areas and states. Typically, little incentive to return to their rural home-base to practice is provided to these students.

Ultimately, the overall shortage in residency positions means fewer Indiana medical students have the opportunity to remain in the state to complete their training and to eventually practice medicine.

Nationally, GME programs in rural and low-income urban areas do exist and they are training doctors in community-based medicine, hoping they'll practice in underserved communities. Community-based medical education (CBME) is the delivery of medical education in a specific social context. Learners become a part of social and medical communities where their learning occurs.²⁹ But there are a limited number of such programs and sustainable funding is scarce. Residency programs play a significant role in shaping the medical workforce and residents play a crucial role to helping meet the need to treat the poor or uninsured.

Currently, 16 primary care residency programs are located in central Indiana (i.e., five family medicine, two psychiatry, one emergency medicine, two general surgery, two OB/GYN, two internal medicine, and two pediatric programs). According to a 2014 report from The Trustees of Indiana University, of the respondents who chose Indiana as their primary practice location, a majority planned to practice in the central Indiana region, followed by South Bend and Terra Haute.³⁰ A critical element of improving population health in underserved areas is the adequacy and distribution of the primary care physician supply.³¹

“Many complex challenges are facing the physician workforce in the United States, including a rapid consolidation of health systems, new ways of organizing health care delivery, alternative payment models,

Glossary of Terms:

Graduate Medical Education (GME):

A period of required training after medical school during which a physician qualifies for licensure to practice independently. Takes place primarily in supervised clinical care settings.

Resident: A physician who has graduated from medical school and is completing training required for independent practice in a chosen specialty.

Residency: A GME program that educates physicians who have graduated from medical school for independent practice. Residency programs usually last 3-7 years, depending on medical specialty, and are subject to national regulation and accreditation standards.

Rural Training Track (RTT): A GME program that specifically prepares residents for rural practice in primary care. The most frequent structure is the “1-2 program,” in which the resident spends the first year in an urban/large hospital academic setting, and the remaining two years in a rural setting under the supervision of practicing rural physicians.

²⁹ Kelly L, Walters L, Rosenthal D. Community-based medical education: Is success a result of meaningful personal learning experiences?. *Educ Health* 2014;27:47-50

³⁰ All 82 residents graduating from Indiana Family Medicine residency programs responded to the exit survey.

³¹ Basu J, Clancy C. Racial disparity, primary care, and specialty referral. *Health Serv Res* 2001;36(6 Pt 2):64–77. [PubMed: 16148961].

malpractice reforms, and various initiatives to increase access, improve quality, and lower costs. When facing so many challenges, it is tempting to overlook the need to plan for the number, specialty mix, and geographic distribution of the future physician workforce. For highly specialized fields, a national perspective on training is logical. Highly specialized fields like neurosurgery, cardiac surgery, and pediatric subspecialties require large patient volumes that are only available at Academic Health Centers in metropolitan areas, and recruitment for these specialties tends to draw from a national pool. However, for core specialties, particularly general adult primary care, general surgery, and psychiatry, the market is local. These positions are needed across a wide variety of settings and training programs and rotations can be placed in a broader geographical area within the state.”³²

Indiana, like other states, displays mal-distribution of physicians which results in pockets of the state, particularly in more rural areas, lacking primary care physicians. Newton County, which features the worst PCP ratio by far – 14,087:1 – is in northwest Indiana and is included in the Chicago metropolitan area. Warren County, the 2nd worst ranked, is a rural county in western Indiana that features the lowest population density in the state and, like Newton County, only has one primary care physician. However, among the best ranked counties are Boone County (496:1) and Hamilton County (711:1), both of which are located in central Indiana. Hamilton County is included in the Indianapolis metro area. For instance, it can be difficult to determine the “right” number of residents needed in different specialties. Developing state strategies can become challenging when using national data sources to benchmark your state’s physician-to-population ratios as national data average ratios do not account for the mal-distribution of providers. **Alternative funding sources are imperative to be used toward incentivizing and aiding rural and community-based entities to partake in training Indiana’s future workforce.**

National Gridlock

Since 1997, there has been a steady stream of federal government proposals to significantly cut funding for GME, including the Medicare Payment Advisory Commission (MedPAC) 2010 report, the 2011 Joint Committee on Deficit Reduction (“Super Committee”), the Simpson-Bowles Commission, and the Obama administration’s 2013 budget³³. Nationally, within congress, a bill that would increase Medicare-funded residency slots for hospitals continues to be circulated. The bill, The Resident Physician Shortage Reduction Act, would add 3,000 new slots each year from 2017 to 2021, for a total of 15,000 new slots. However, Len Marquez, director of government relation for the Association of American Medical Colleges (AAMC), said the legislation (sponsored by Sen. Bill Nelson, D-FL.) has been introduced before and because it requires more funding it faces a gridlock in Congress. Marquez recently stated, “You can train as many doctors as you want, but Medicare will only support a certain number at your hospital.” About twenty years ago, legislators decided to limit the number of residents Medicare helped subsidize to curb associated costs, so ultimately, the number of residents a hospital was teaching at the end of 1996 is the cap that hospital is limited to today.

³² Spero JC, Fraher EP, Ricketts TC, Rockey PH. GME in the United States: A Review of State Initiatives. Cecil G. Sheps Center for Health Services Research, The University of North Carolina at Chapel Hill. September 2013.

³³ Holt KD, Miller RS, Philibert I, Nasca TJ. Effects of potential federal funding cuts on graduate medical education: results of a survey of designated institutional officials. *J Grad Med Educ.* 2014;6(1):183-188. Holt KD, Miller RS, Philibert I, Nasca TJ. Patterns of change in ACGME-accredited residency programs and positions: implication for the adequacy of GME positions and supply of physicians in the United States. *J Grad Med Educ.* 2014;6(2):399-403.

There are 105,341 residents training at hospitals across the country in the 2016-2017 school year, according to the ACGME. **Indiana currently has more medical school graduates than first year residency positions, so some Indiana medical students will be forced to leave the state to find a residency and or not match to one at all.**

Medical Education's Primary Care Emphasis

Over the past years, new and existing medical schools have responded to the impending physician shortage by increasing the number of graduates with the MD or DO degree by approximately 30%. Increases in class size at Indiana University School of Medicine and the development of a new Osteopathic medical school at Marian University are good examples of recent increases in the number of Indiana medical students. These factors, along with national trends, have created a need for a corresponding increase in residency programs.

Indiana's two medical schools promote educational excellence that is beneficial to the state's health care delivery system. **While GME is important in setting a physician's career course, increased emphasis on primary care by medical schools is also a common starting point.** This is being done through opening of new medical schools with novel curricula with earlier integration of clinical experiences. Another expanding source of primary care physicians is the rapid growth of osteopathic medical schools that stress primary care career paths. Also, existing allopathic schools are exposing medical students to primary care at an early stage.³⁴ Ultimately, through targeted curriculum interventions and recruitment, medical schools can play an active role in alleviating the physician shortage in underserved areas.

Indiana University School of Medicine (IUSM) extensive history in medical education provides resources to current and potential statewide partners. Specifically, the presence of regional medical campuses provides a pre-existing administrative infrastructure to support the development of new residency programs. **IUSM currently has** nine regional medical campuses statewide (i.e., Bloomington, Evansville, Fort Wayne, Indianapolis, Muncie, Northwest Gary, South Bend, Terre Haute, and West Lafayette). IUSM also has over 2,000 full-time faculty, over 3,000 volunteer faculty and more than 50 affiliated hospitals and clinics.

Tripp Umbach facilitated high-level analysis of effective best practices on encouraging and promoting medical students to complete a primary care residency in their home state of medical school training. For instance, a rural track (RT) is a program within an existing school of medicine designed to identify, admit, nurture and educate students who have a declared interest in future rural practice with the goal of increasing the number of graduates who enter and remain in rural practice. The major RT curriculum element in the clinical years is lengthy rural clinical experience. Longer rural experience is positively related to rural practice choice. Successful programs focus on providing community-based, clinical education to students of rural origin who are interested in primary care, particularly Family Medicine.³⁵ Based on research conducted by the National Rural Health Association in 2013, 18 programs that have

³⁴ Fodeman, J., & Factor, P. (2015). Solutions to the primary care physician shortage. *The Am J Med*, 128(8), 800-801.

³⁵ US Medical School Rural Track Policy Brief. September 2013, administered by the National Rural Health Association.

been able to track students' practice location report that an average of 44% of their graduates practice in a rural area (Range: 20% to 73%).³⁶

The Rural Medicine Program at the IUSM – Terre Haute (IUSM-TH) is an example of a targeted curriculum intervention. The Rural Medicine Program's student body represents 35 of the 92 Indiana counties and 23 colleges and universities. Through the Richard G. Lugar Center for Rural Health and other initiatives, Terre Haute has taken a lead in helping meet the regional and state need for primary care doctors in rural settings.

In January 2010, **Marian University** announced the creation of a new osteopathic medical school in Indiana. In August 2013, the **Marian University College of Osteopathic Medicine (MU-COM)** became Indiana's first medical school in 110 years. MU-COM is scheduled for its Final Provisional Accreditation Site Visit in February 2017. MU-COM expects to receive Full Accreditation in May of 2017 when it graduates its inaugural class. **MU-COM provides a quality professional education program emphasizing training in primary care.** MU-COM is excited about statewide partnership opportunities and has made a commitment to actively support and encourage hospitals in Indiana and surrounding states in the expansion of GME by helping to create new programs and by assisting existing residency and fellowship programs add positions.

Ultimately, Indiana's two medical schools, working collaboratively through various statewide partnerships, along with expanded GME, will develop the physician leadership needed to address the health needs of vulnerable populations throughout Indiana.

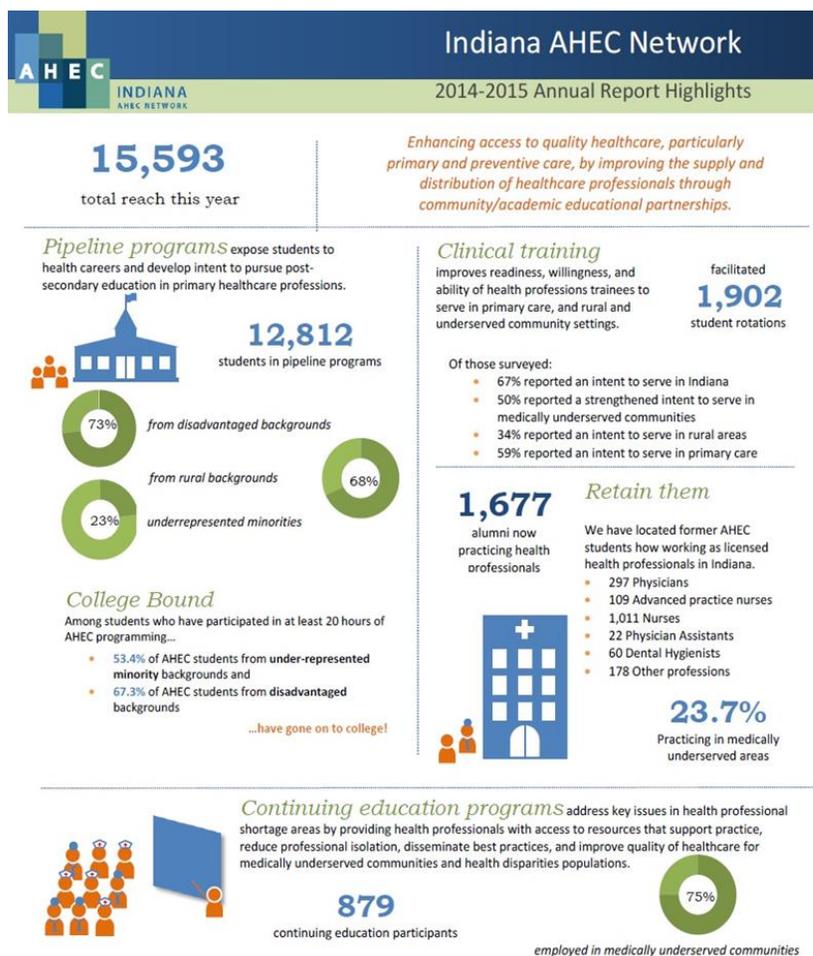
³⁶ US Medical School Rural Track Policy Brief. September 2013, administered by the National Rural Health Association.

Bolster the Primary Care Pipeline

People are not moved by data alone, but by values and connections to others. **Selecting the right individuals who can integrate into the practice setting and local community is critical and can be challenging.** However, entities throughout Indiana are working to do just this. For instance, the Indiana Primary Health Care Association (IPHCA) and the Indiana Rural Health Association are diligently working to get students in rural communities interested in medicine at an early age and guide them along through medical school.

More specifically, Tripp Umbach recommends the state's area health education centers (AHEC's) need to be adequately structured and supported to: (a) provide recruitment and retention services in rural areas; (b) assist in locating reasonable housing for student and resident preceptorships; and (c) provide practice support services to providers and communities. Indiana's eight regional AHEC's provide the framework to identify community resources in an effort to engage the residents and their family members in aspects of community life outside the medical practice environment. The Indiana AHEC network's mission is to, Improve the health of Indiana by recruiting, educating, and retaining health care professionals in underserved communities. This is accomplished via three goals including: 1. K-16 pipeline programming, 2. community-based experiential clinical education, and 3. continuing professional development.

By Indiana introducing the areas where there are acute shortages during the UME phase and providing GME program opportunities in these same areas through state funding, doctors are more likely to stay in that community. According to most career development theories, career outcomes are determined by the dynamic relationship between persons and their experiences³⁷. For instance, national data has proven



³⁷ Osipow SH. Convergence in theories of career choice and development: Review and prospect. J Vocat Behav. 1990;36:122-131.

that training in federally qualified health centers and rural health centers is associated with a greater likelihood of practicing in these settings after residency³⁸.

In 2014/15, Indiana's AHEC network health professions trainees received clinical education/training at 30 medically underserved sites around Indiana; 16 (53%) of which were located in rural Indiana and 9 (30%) were in Federally Qualified Health Centers.

Based on statewide and national-level feedback obtained during this planning process, Tripp Umbach believes that Indiana's AHEC network can enhance and leverage support to the statewide effort to expand and develop GME through its involvement with clinical education in conjunction with their pipeline efforts. There could be potential opportunities for supporting residency rotations that may occur in tandem with UME rotations that take place at the same sites/locations. It would be optimal to develop these sites as community 'hubs' for UME rotations in close proximity to the continuity sites³⁹ for residency education, that are an ACGME requirement. This would provide an opportunity for medical students to shadow and work with the residents as they run their clinic's and ultimately become interested in matching to that residency. Likewise, pipeline activities could be coordinated in the aforementioned selected areas to allow future candidates (i.e., K-16) to be mentored by both Indiana medical students and residents. Further down the road, an AHEC-led or supported infrastructure could support and develop the teaching skills of preceptors.

Lastly, through collaborative partnerships and efforts that are established with state support, Indiana has the opportunity to truly 'Bolster the Primary Care Pipeline'.

³⁸ Characteristics and Distribution of Graduate Medical Education Training Sites: Are We Missing Opportunities to Meet U.S. Health Workforce Needs? Janice Blanchard, MD, PhD, Stephen Petterson, PhD, Andrew Bazemore, MD, MPH, Kayla Watkins, MPH, and Fitzhugh Mullan, MD.

³⁹ Resident-run integrated care setting.