



Topic Brief: Return on Investment for Physician Workforce Training

Date: 1/11/2024

Nomination Number: 1059

Purpose: This document summarizes the information addressing a nomination submitted on June 13th, 2023 ([link to EHC posted topic nomination](#)) through the Effective Health Care Website. This information was used to inform Evidence-based Practice Center (EPC) Program decisions about whether to produce an evidence report on the topic, and if so, what type of evidence report would be most suitable.

Issue: Graduate medical education (GME) comprises a broad range of full-time training programs for health professionals who have already completed their professional degrees. Most GME programs train physicians, but other health professionals (e.g., advanced practice nurses, clinical psychologists, dentists) also may receive training in GME programs. Traditionally, these programs are funded from government sources, with Medicare being the largest single funding source. State government funds also are a source of GME funding via state Medicaid programs. There are no statutory mandates for states to provide GME funding, and some states lack data systems for tracking and evaluating the use of Medicaid GME funds. Because Medicaid GME funding is discretionary, better information about whether the graduates of GME programs pursue clinical careers aligned with meeting the needs of Medicaid programs would be helpful for future funding decisions.

Findings: The scope of this topic met all EHC Program selection criteria and was considered for a technical brief. However, it was not selected.

Background

GME programs for physicians include internships, residencies, and fellowship programs leading to state licensure and specialty board certification. Trainees in GME programs receive salary support, and GME programs also incur expenses for faculty salaries, support staff, and various other costs. The largest source of financial support for GME comes from the federal government through Medicare, the Health Resources & Services Administration (HRSA), the Department of Veterans Affairs (VA), and the Department of Defense (DOD). State governments can choose to fund GME programs in their states, usually through their state Medicaid programs. In 2022, 44 states and the District of Columbia used Medicaid funds to support GME, with an estimated total expenditure of \$7.4 billion (some of these funds are passed through to the states from the federal

government.¹ GME funding provided by Medicaid programs is approximately one-third of the total spent by Medicare for GME and is substantially higher than GME funding provided by the VA, HRSA, or the DOD.²

Medicaid GME payment amounts differ widely from state to state. New York spent \$1.92 billion in 2022, while Hawaii spent \$80 million.¹ States have broad discretion in how the GME funds are used and can designate funding for training programs outside of academic medical centers. Examples of these “non-traditional” training sites are federally qualified health centers and training programs in rural areas. In 2022, 12 states also provided Medicaid funds for GME programs training health professionals other than physicians, which included dentists, podiatrists, nurses, and allied health professionals.¹ Many states provide financial oversight of their GME funding, and some require reporting of what medical specialties receive the GME funding. However, thus far, there has been minimal tracking of the future career trajectories of the trainees whose positions are supported by Medicaid funding.¹

Nomination Summary

The Medicaid Medical Directors Network submitted this nomination via the AHRQ website on June 13, 2023. The nomination highlighted the large outlays made by state Medicaid programs to fund GME and a shortage of information on whether trainees supported by Medicaid funds pursue careers that provide value to the Medicaid programs. The nomination specifically identified an interest in whether graduates of the program work in health professional shortage areas (HPSAs) or Medically Underserved Areas (MUAs) or even accept Medicaid patients in their current practices.

The Scientific Resource Center held a conference call with four Medicaid medical directors on November 8, 2023. On that call, the medical directors identified a particular interest in the career trajectories of health professionals other than physicians, including clinical psychologists, nurse practitioners, physician assistants, and dentists. The participants stated that they would use the findings of an AHRQ report to develop national guidance on GME funding priorities for state Medicaid programs.

Scope

Key questions:

- Which types of postgraduate training programs are supported by funding from state Medicaid programs?
- Does the source of funding for postgraduate training programs influence the practice settings chosen by the graduates of those programs?

Table 1. Questions and PICOTS (population, intervention, comparator, outcome, timing and setting)

Questions	KQ 1 & KQ2
Population	Providers: Graduates of postgraduate training programs in allopathic medicine, osteopathic medicine, physician assistantship, advanced practice nursing, dentistry, or clinical psychology.

Interventions	Funding for postgraduate training program positions by state Medicaid programs.
Comparators	Funding for postgraduate training program positions by Medicare, the Department of Veterans Affairs, or other sources.
Outcomes	Specialty designation of training program positions, specialty choice of program graduates, practice settings of graduates, proportion of Medicaid patients in graduates' practices.
Timing	Provider outcomes measured at least 12 months after graduation from the training program.
Setting	Training programs in hospital and/or outpatient settings.

Summary of Literature Findings

Medline/Ovid, and Prospero searches yielded 514 citations. Of these, 25 were judged relevant by title and abstract screening. After a review of the full-text publications, nine were included in the final set of relevant studies. No systematic reviews were identified in the searches. The gray literature search identified ten reports from governmental and professional organizations that were not included in the Medline/Ovid search results. These gray literature reports provided some background and contextual information but were not judged directly relevant to the topic's key questions.

The nine relevant studies had observational study designs that used existing data sources, written surveys, or structured interviews of key informants. Three studies examined priorities and numbers of trainees served in residency programs across multiple medical specialties,³⁻⁵ while two studies examined the career trajectories of graduates of family medicine residency programs.^{6,7} Three studies examined the career outcomes of the graduates of dental residencies.⁸⁻¹⁰ One study reported the career outcomes of graduates of a physician assistant residency program.¹¹ The search yielded no studies providing career outcome data for individuals who had participated in nurse practitioner, podiatry, or clinical psychology post-graduate training programs.

The topic nominators identified rural populations and urban residents covered by Medicaid as priority groups. These groups often receive care in HPSAs or MUAs, and there is a substantial health policy interest in increasing the supply of health professionals in these areas. There has been a particular interest in augmenting family medicine residencies in rural areas, because family medicine physicians comprise a large share of the physician workforce in rural communities. While most family medicine residency programs are located in large or medium-sized cities, many rural-based residencies have operated successfully for over 25 years. Meyers and colleagues⁷ conducted a retrospective cohort study of the career trajectories of the graduates of 29 rural-based family medicine residencies that were matched to geographically adjacent residencies located in larger cities. The graduates of the rural programs had a 3-fold greater probability of pursuing careers in rural locations than graduates of the urban programs. In

another study of a single rural family medicine residency, 74% of its graduates pursued careers in rural locations.⁶ These results suggest that the expansion of rural-based GME programs could foster an increase in the supply of health professionals in rural parts of the United States.

While family medicine is unique, in that nearly all of its GME graduates pursue primary care careers, internal medicine, and pediatrics are other medical specialties contributing to the primary care workforce. Three studies have examined temporal trends in the number of U.S. training positions in pediatrics, internal medicine (IM), and family medicine (FM). In a study using a database compiled by the Accreditation Council for Graduate Medical Education, total residency positions in pediatrics, IM, and FM in 2001-2010 were compared to these numbers in 2011-2019.³ The rate of increase for all three specialties was significantly higher in the second period, a result that the authors attributed to provisions of the Affordable Care Act to increase training of primary care physicians. Another study using a different national database for 2012-2019 found that the most significant increase in GME positions was in FM, while the smallest increase was in pediatrics.⁴

Several other studies examined different aspects of GME training for physicians and other health professionals. A study examining GME positions funded by the VA provided data on a 2014 initiative to increase the number of VA-based GME trainees nationally by 1500 positions. This initiative prioritized locating the positions in smaller and rural-based VA facilities.⁵ Forty-two percent of the new positions were in primary care specialties. Another study used the American Dental Association's Masterfile (a national practitioner database) to evaluate the demographics and training backgrounds of dentists who care for Medicaid patients or work in federally-qualified health centers.¹⁰ The study found that these dentists were more likely to have previously held GME positions in dental residencies funded by HRSA initiatives or community-based sites. Another study surveyed a national sample of individuals holding dental residency GME positions.⁸ Only 4.1% of the respondents reported an interest in pursuing a practice in a rural location. The respondents also indicated the need for significant financial incentives to enhance their interest in relocating to a rural location. Another study compared the demographic characteristics of dentists in primary care or specialty residency positions.⁹ The residents in the primary care programs were more likely to be female and/or members of under-represented minority groups. One small study examined the post-training employment of 16 graduates of a VA-based residency program for physician assistants.¹¹ Fifty-six percent of the program graduates stayed in the VA system for future employment. While this is the only study examining the training of physician assistants, its results are consistent with the findings of other health professional groups.

This entire group of studies tends to show that GME programs generally achieve their desired outcomes. Trainees in rural-based programs tend to pursue careers in rural areas, and trainees who work in programs that serve Medicaid patients are more likely to provide care to Medicaid patients in their subsequent careers. However, the studies do not directly address the impact of Medicaid funding for GME positions. A more thorough literature search covering a longer time period may be useful for solidifying conclusions that may be informative for planning future Medicaid expenditures for GME.

Assessment Methods

The Medline and Prospero databases were searched for the period January 1, 2018 through December 20, 2023. A gray literature search was also performed using conventional web searching approaches. One reviewer then screened the titles and abstracts of each citation for relevance to the key questions listed above. If the first reviewer needed clarification as to relevance, a second reviewer screened the citation. The final judgment on relevance was then resolved by discussion between the two reviewers.

See Appendix A.

References

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Appendix A: Methods

We assessed the nomination for priority for a systematic review or other AHRQ Effective Health Care report with a hierarchical process using established selection criteria. Assessment of each criterion determined the need to evaluate the next one. See Appendix B for detailed description of the criteria.

Appropriateness and Importance

We assessed the nomination for appropriateness and importance.

Desirability of New Review/Absence of Duplication

We searched for high-quality, completed or in-process evidence reviews published in the last six years on the questions of the nomination from these sources:

- AHRQ: Evidence reports and technology assessments
 - AHRQ Evidence Reports <https://www.ahrq.gov/research/findings/evidence-based-reports/index.html>
 - EHC Program <https://effectivehealthcare.ahrq.gov/>
 - US Preventive Services Task Force <https://www.uspreventiveservicestaskforce.org/>
 - AHRQ Technology Assessment Program <https://www.ahrq.gov/research/findings/ta/index.html>
- US Department of Veterans Affairs Products publications
 - Evidence Synthesis Program <https://www.hsrd.research.va.gov/publications/esp/>
 - VA/Department of Defense Evidence-Based Clinical Practice Guideline Program <https://www.healthquality.va.gov/>
- Cochrane Systematic Reviews <https://www.cochranelibrary.com/>
- University of York Centre for Reviews and Dissemination database <https://www.crd.york.ac.uk/CRDWeb/>
- PROSPERO Database (international prospective register of systematic reviews and protocols) <http://www.crd.york.ac.uk/prospéro/>
- PubMed <https://www.ncbi.nlm.nih.gov/pubmed/>
- Campbell Collaboration <http://www.campbellcollaboration.org/>
- Joanna Briggs Institute <http://joannabriggs.org/>

Feasibility of New Evidence Review

Date search completed: 12/20/2023

Synthesis product: Systematic review

Study designs (LIMITS: SRs/MAs: 6 years; English; Human | Other designs: 6 years; English; Human)

Search sources:

[PROSPERO](#)

[PubMed](#)/Ovid MEDLINE ALL (incl. Cochrane CDSR/Joanna Briggs Institute reviews)

All Search Strategies:

Ovid MEDLINE ALL <1946 to December 19, 2023>

Date searched: December 20, 2023

1 Education, Nursing, Graduate/ or Education, Medical, Graduate/ or "Fellowships and Scholarships"/ or "Internships and Residency"/ (49483)

2 (((graduate* or postgraduat* or "post-graduate") adj5 (medicine or train*)) or GME or fellow\$1 or fellowship\$1 or intern\$1 or internship\$1 or resident\$1 or residenc*).ti,kf. (88921)

3 Journal of Graduate Medical Education.jt. (2553)

4 or/1-3 (126531)

5 (Medicaid/ or Medicare/ or "United States Health Resources and Services Administration"/ or "United States Department of Veterans Affairs"/) and (Financing, Government/ or Training Support/ or (accountab* or "block grant\$1" or DGME or endow* or expend* or financ* or fiscal* or funded or funding or IME or incentiv* or invest* or payer* or payment\$1 or polic\$3 or reform* or restructur* or sponsor* or subsidiz* or support* or underwrit*).ti,ab,kf.) (30852)

6 ((federal* or government* or Medicaid or Medicare or national or nationwide or nationally or public or regional* or state or statewide or "United States" or "U.S." or veteran or Alabama* or Alaska* or Arizona* or Arkansa* or California* or Colorad* or Connecticut* or Delaware* or "District of Columbia" or Florid* or Georgia\$1 or Hawaii* or Idaho* or Illinois* or Indiana* or Iowa* or Kansa\$3 or Kentuck* or Louisian* or Maine* or Maryland* or Massachusetts* or Michigan* or Minnesota* or Mississippi* or Missouri* or Montana* or Nebraska* or Nevada* or "New Hampshire*" or "New Jersey*" or "New Mexic\$3" or "New York*" or "North Carolin*" or "North Dakota*" or Ohio* or Oklahoma* or Oregon* or Pennsylvania* or "Rhode Island*" or "South Carolina*" or "South Dakota*" or Tennessee* or Texas or Texan\$1 or Utah* or Vermont* or Virginia* or Washington* or "West Virginia*" or Wisconsin* or Wyoming) adj4 (accountab* or "block grant\$1" or DGME or endow* or expend* or financ* or fiscal* or funded or funding or incentiv* or invest* or payer* or payment\$1 or polic\$3 or reform* or sponsor* or subsidiz* or support* or underwrit*).ti,ab,kf. (196521)

7 or/5-6 (215753)

8 Career Choice/ or General Practitioners/ or Health Workforce/ or "Health Services Needs and Demand"/ or Medically Underserved Area/ or exp Medicine/ or exp Rural Health Services/ or Professional Practice Location/ or Urban Health Services/ or Veterans Health Services/ (1363940)

9 (choice or distribut* or "general practitioner\$1" or geograph* or location or practice\$1 or "primary care" or rural or shortage\$1 or specialt\$3 or supply or underrepresent* or under-represent* or setting\$1 or underserved or urban or workforce).ti,ab,kf. (4508579)

10 or/8-9 (5545229)

11 and/4,7,10 (1686)

12 11 or "rural training track".ti,ab,kf. (1701)

13 12 not (Africa or Australia* or Canada or Canadian or China or Chinese or India or Japan* or Turkey*).ti,jw. (1560)

14 limit 13 to english language (1528)

15 limit 14 to yr="2018 - 2024" (495)

Search sources:

[Google \(gray literature search\)](#)

Keyword terms: Graduate Medical Education (GME). Direct Graduate Medical Education (DGME), Indirect Medical Education (IME), residency, fellowship.

Value

We assessed the nomination for value. We considered whether or not the clinical, consumer, or policymaking context had the potential to respond with evidence-based change, if a partner organization would use this evidence review to influence practice, and if the topic supports a priority area of AHRQ or the Department of Health and Human Services.

Appendix B. Selection Criteria Assessment

Selection Criteria	Assessment
<ul style="list-style-type: none"> • Appropriateness 	
1a. Does the nomination represent a health care drug, intervention, device, technology, or health care system/setting available (or soon to be available) in the U.S.?	Yes
1b. Is the nomination a request for an evidence report?	Yes
1c. Is the focus on effectiveness or comparative effectiveness?	Yes
1d. Is the nomination focus supported by a logic model or biologic plausibility? Is it consistent or coherent with what is known about the topic?	Yes
<ul style="list-style-type: none"> • Importance 	
2a. Represents a significant disease burden; large proportion of the population	Yes. The supply of qualified health professionals is essential for the functioning of the U.S. healthcare system, and GME provides essential training for new health professionals. There are ongoing shortages of health professionals in important areas, including primary care services, services for indigent populations, and services in rural regions, despite more than \$30 billion in annual expenditures for GME. Strategies for improving functioning of GME activities is important for optimizing future workforce development. State Medicaid programs are important stakeholder and funders of GME.
2b. Is of high public interest; affects healthcare decision making, outcomes, or costs for a large proportion of the US population or for a vulnerable population	Yes. As of September 2023, 81,408,432 individuals were enrolled in Medicaid and 7,006,341 individuals were enrolled in CHIP.
2c. Incorporates issues around both clinical benefits and potential clinical harms	Not applicable
2d. Represents high costs due to common use, high unit costs, or high associated costs to consumers, to patients, to health care systems, or to payers	No
<ul style="list-style-type: none"> • Desirability of a New Evidence Review/Absence of Duplication 	
3. A recent high-quality systematic review or other evidence review is not available on this topic	No systematic reviews were identified.
<ul style="list-style-type: none"> • Impact of a New Evidence Review 	
4a. Is the standard of care unclear (guidelines not available or guidelines inconsistent, indicating an information gap that may be addressed by a new evidence review)?	Not applicable
4b. Is there practice variation (guideline inconsistent with current practice, indicating a potential implementation gap and not best addressed by a new evidence review)?	Not applicable

<ul style="list-style-type: none"> • Primary Research 	
<p>5. Effectively utilizes existing research and knowledge by considering:</p> <ul style="list-style-type: none"> - Adequacy (type and volume) of research for conducting a systematic review - Newly available evidence (particularly for updates or new technologies) 	<p><i>Size/scope of review:</i> total 9 studies across the key questions in last six years</p> <p>The evidence base is relatively small and indirectly related to the key questions. A Technical Brief could elucidate the broader issues and trends that are related to the key questions.</p>
<ul style="list-style-type: none"> • Value 	
<p>6a. The proposed topic exists within a clinical, consumer, or policy-making context that is amenable to evidence-based change and supports a priority of AHRQ or Department of Health and Human Services</p>	<p>Yes.</p>
<p>6b. Identified partner who will use the systematic review to influence practice (such as a guideline or recommendation)</p>	<p>Yes. 56 members of the MMDN represent all 50 states, the District of Columbia and all U.S. territories</p>

Abbreviations: AHRQ=Agency for Healthcare Research and Quality; CHIP=Children’s Health Insurance Program; GME=Graduate Medical Education; MMDN=Medicaid Medical Directors Network

Appendix C. Topic Nomination

1059 Return on Investment for Physician Workforce Training Topic Nomination

A topic nomination was submitted on the EHC website:

Submitted on Tuesday, June 13, 2023 - 17:06

Submit a Topic for a New Evidence Review

1. What is the decision or change (e.g., clinical topic, practice guideline, system design, delivery of care) you are facing or struggling with where a summary of the evidence would be helpful?

What is the return on Medicaid investment in physician workforce training? Annually, an estimated \$1 billion is paid to hospitals, clinics, and physician faculty groups to teach and graduate young physicians. The exact amount invested is unknown. The heterogeneity among states is speculated and yet to be determined. How the variety of graduating physician specialties matches to the health needs of Medicaid population is undefined. To what extent GME investments relate to graduate retention in the state is unknown. Whether the Medicaid-supported trainees work in health profession shortage areas (HPSAs) or Medically Underserved Area (MUA) has yet to be defined. To what extent the graduates accept Medicaid patients in their practice is unknown.

2. Why are you struggling with this issue?

There is increasing scrutiny on using Medicaid as a pass-through for funding hospitals, especially safety net hospitals. There is also increased accountability and transparency at the state government level on where tax-payer money is going.

3. What do you want to see changed? How will you know that your issue is improving or has been addressed?

If state Medicaid ROI in GME is high, then there would be higher confidence in the practice of using IME payments in State Plan Amendments and 438.6(c) funding through statewide Medicaid Managed Care payments.

If state Medicaid ROI in GME is low, then there would be need to be a reckoning. Corrective actions would be informed by the details of where the ROI worked best and least.

4. When do you need the evidence report?

Thu, 06/13/2024

5. What will you do with the evidence report?

The MMDN would devise recommendations to CMS and state Medicaid programs on how to increase ROI in physician workforce development that better addresses the needs of Medicaid

recipients.

Also, to provide more context for the date above, it would be ideal to have a report within 12 to 24 months.

Optional Information About You

What is your role or perspective?

Clinician administrator

If you are you making a suggestion on behalf of an organization, please state the name of the organization

Florida Medicaid

May we contact you if we have questions about your nomination?

Yes

Full Name

Chris Cogle

Title

Chief Medical Officer

Email Address

Christopher.Cogle@ahca.myflorida.com

Form Type

Topic Nomination

The results of this submission may be viewed at:

https://effectivehealthcare.ahrq.gov/admin/structure/webform/manage/topic_nomination_form/submission/1968