Rural Residency Training as a Strategy to Address Rural Health Disparities: Barriers to Expansion and Possible Solutions

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ompared to individuals living in urban locations, those in rural areas experience worse health outcomes. ^{1,2} A key contributor to rural-urban disparities is the geographic maldistribution of physicians. With fewer health care professionals available, clinical practice in rural communities demands physicians with skills to care for patients with a wide range of complex health needs.³

While many factors affect the supply and distribution of physicians, graduate medical education (GME) funding is a major determining factor. 4-6 According to the Congressional Research Service, "the size of the federal investment in GME—estimated at \$16 billion in 2015—makes it a policy lever often considered to alter the health care workforce and impact health care access." Unfortunately, the current distribution of GME funds do not align with rural workforce needs. Estimates suggest that almost all (99%) of Medicare spending for GME training goes to programs in urban areas. 5

Studies have also shown that physicians often practice within 100 miles of where they completed residency and that training residents where they are needed in practice is one promising strategy to increase the supply of rural physicians. ^{5,8,9}

Recognizing the rural health crisis and the role that GME investments play in building workforce capacity, Congress appropriated funding for a new Rural Residency Planning and Development Program (RRPD) under the Health Resources and Services Administration (HRSA).^{2,7} In 2019 and 2020, HRSA awarded approximately \$28 million in grants to 38 organizations across 25 states to start rural residency programs in needed specialties, including family medicine, general internal medicine, and general psychiatry.^{10,11}

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Editor's Note: The online version of this article contains definitions of key concepts and terminology used throughout the article.

Despite these investments, rural communities still face significant barriers in developing and sustaining residency programs. This article identifies these barriers and proposes potential solutions. These solutions require action by multiple stakeholders—some are regulatory fixes, while others require Congressional action. Given the complexity of GME organization and financing, we have included definitions of key concepts and terminology used in this article in the online supplementary data. ^{4,12–17}

1. The Current GME Funding Model Has Disadvantaged Rural Programs

The Centers for Medicare & Medicaid Services (CMS) provides the majority of GME funding, accounting for almost 90% of public funding for residency training.⁵ Most hospitals training residents receive direct graduate medical education (DGME) payments to fund Medicare's share of the direct cost of the approved GME program as well as indirect medical education (IME) payments, which are typically twice as large as DGME payments, to help cover the significant indirect costs related to training residents. 12,13,18 Unfortunately, most rural training programs are not reimbursed on equal footing with urban programs despite experiencing similar, if not higher, costs.⁵ Sponsoring rural hospitals, often Sole Community Hospitals, receive higher Medicare patient care payments to account for their lower volume of cases. To compensate for the increased patient care payments, GME payments for these rural hospitals are limited to DGME funding, with IME payments going only for Medicare Advantage patients, leaving most rural hospitals with inadequate IME payments to offset the indirect costs of training residents. Furthermore, rural hospitals often have higher rates of underinsured or uninsured and lower ratios of Medicare volumes compared to other payers, which reduces both DGME and IME payments. The result is lower reimbursement for the costs of GME for rural hospitals compared to urban hospitals. 19-21

An alternative system for GME payment, the Teaching Health Center (THC) program, an innovative model funded by HRSA where residents train in community health centers, has been highly effective in producing graduates that practice in rural and underserved locations, with 55% remaining in these areas after graduation. However, funding is based on periodic appropriation by Congress, rather than an entitlement.

Recommended Action

- Rural hospitals that participate in resident training should be reimbursed by CMS the full amount of per resident costs, currently estimated as at least \$160,000 annually.²⁶
- Future federal training investments should be targeted toward programs or other innovative place-based alternatives to traditional GME funding that yield a high return on investment in rural communities.^{3,4} An example would be increased and long-term funding for the THC program that is not dependent on Congressional appropriations.

2. The GME "Cap" Regulations Have Limited Growth in Rural Training

The Balanced Budget Act of 1997 limited or "capped" the number of allopathic and osteopathic medical residents that would be counted for purposes of calculating Medicare IME and DGME reimbursement, although exceptions were added 2 years later for urban hospitals participating in separately accredited rural training tracks (RTTs). Once an urban hospital establishes an RTT, there is a 5-year window allowing for growth of additional RTTs before the urban hospital's RTT cap is set. 14,15 While this has spurred interest in establishing new RTTs, it has resulted in only a small increase in rural positions, in part because of RTT cap limitations.

Another barrier encountered by many rural hospitals that have accepted resident "rotators" from outside programs seeking rural elective rotations has been the inadvertent setting of a "zero" per resident amount (PRA) and/or low cap.²⁷ The PRA is part of the calculation for determining DGME payments that reimburse the resident's stipend, benefits, and other direct training costs.¹³ CMS has assigned a "zero" PRA for these hospitals who did not pay the training

costs or report them on their CMS cost reports because they did not realize they were establishing themselves as "teaching hospitals" by accepting "rotators." This issue has been partially addressed in the Consolidated Appropriations Act of 2021, which should allow some hospitals to reset their GME cap and PRA if it was accidentally triggered or deliberately set by a small number of resident rotators. However, there are still outstanding concerns, including a 5-year time limit on the resetting process that may not be a realistic timeline for many rural hospitals. There is also a lack of clarity about the eligibility of hospitals that have never claimed residents on their cost reports but clearly have a history of resident rotators.²⁷

While the Act creates an additional 1000 funded Medicare GME positions (200 per year for 5 years), which will be distributed through an application process with no less than 10% of positions reserved for rural training, there are caveats that limit its impact. For example, if a hospital receives only 1 FTE, this allocation will not support the full length of training for one resident. The Act also contains changes that promote rural training by removing the requirement for separate accreditation as well as allowing an urban hospital to sponsor additional RTT training sites at any time. However, it still maintains the RTT cap limitation for existing rural locations, even though they may be prime sites for rural position expansion.²⁸

Recommended Action

- The caps for all rural GME positions should be removed to allow for expansion of existing programs and rural training in needed specialties.²¹
- Rural hospitals potentially qualifying for a cap reset should be allowed to qualify for that PRA and cap reset at any time in the future, not just within the next 5 years specified in the Consolidated Appropriations Act of 2021.²⁷
- Rural programs in needed specialties should be prioritized when allocating federal funds for new GME slots.²⁹

3. Rural Training Environments Have Sometimes Struggled to Meet Accreditation Standards Designed for Urban Settings

Most GME programs are located in urban settings with access to more specialists and rotations, greater

hospital volumes, and more resources to subsidize training infrastructure. Although achieving accreditation is still a major hurdle, the Accreditation Council for Graduate Medical Education (ACGME) is making a concerted effort to recognize the unique challenges facing rural programs by considering federal funding language when determining accreditation standards, introducing procedural modifications to optimize the accreditation process, upgrading the Accreditation Data System (ADS) to document place of training, and assisting both specialty review committees and sponsoring institutions to enhance learning and clinical care in rural communities.^{3,5,30–32}

Recommended Action

- The ACGME should continue to support GME development in rural areas by emphasizing potential areas for flexibility in meeting requirements in needed specialties. For example, it should allow alternative leadership experiences for rural program directors and faculty and consider creative resident rotation schedules that maximize working with the health care resources in the rural community.³⁰
- CMS and the ACGME should, when possible, align language and adapt standards with an understanding of each other's regulations to prevent barriers for developing rural programs.

4. Rural Hospitals and Practices Supporting GME Continue to Be Financially Vulnerable

Even before the COVID-19 pandemic, rural hospitals in many states struggled to remain open, with over 130 hospitals in rural America closing since 2010.³³ The problem is most acute in states that did not expand Medicaid, as uninsured care remains the biggest challenge for rural hospital viability.^{34,35} Although it is unclear how much funding goes to rural hospitals, studies suggest that even in states that utilize Medicaid funding for GME, the majority of these dollars go to urban hospitals.^{36,37} Medicaid funding is an attractive funding source for GME because state spending is matched by federal investments.³⁸

Recommended Action

 States should be encouraged to target Medicaid funding for GME training in needed specialties in rural communities.³⁴

The challenges in rural health care and rural GME training have been exacerbated by both the health and

economic impacts of the COVID-19 pandemic.³⁹ Social isolation, deaths from opioid overdose, delayed access to urgent care needs, and increasing homelessness are all taking a larger toll on rural populations.^{31,39} With these added pressures, there has never been a more compelling time to address the barriers to training physicians in rural communities to bolster the rural physician workforce.

References

- United States Census Bureau. One in Five Americans Live in Rural Areas. Published August 9, 2017. https:// www.census.gov/library/stories/2017/08/rural-america. html. Accessed June 8, 2021.
- 2. US Department of Health and Human Services. Rural Action Plan. https://www.hhs.gov/sites/default/files/hhs-rural-action-plan.pdf. Accessed June 8, 2021.
- Council on Graduate Medical Education. Special Needs in Rural America: Implications for Healthcare Workforce Education, Training, and Practice. https:// akastage-www.hrsa.gov/sites/default/files/hrsa/ advisory-committees/graduate-medical-edu/ publications/cogme-issue-brief-july-2020.pdf. Accessed June 8, 2021.
- Meyers P, Wilkinson E, Petterson S, et al. Rural workforce years: quantifying the rural workforce contribution of family medicine residency graduates. *J Grad Med Educ*. 2020;12(6):717–726. doi:10.4300/ JGME-D-20-00122.1
- United States Government Accountability Office.
 Physician Workforce: HHS Needs Better Information to Comprehensively Evaluate Graduate Medical Education Funding. https://www.gao.gov/assets/700/ 690581.pdf. Accessed June 8, 2021.
- 6. Eden J, Berwick D, Wilensky G, Committee on the Governance and Financing of Graduate Medical Education, Board on Health Care Services. Background on the Pipeline to the Physician Workforce. In: Graduate Medical Education That Meets the Nation's Health Needs. Washington, DC: National Academies Press; 2014.
- Heisler EJ, Mendez BHP, Mitchell A, Panangala SV, Villagrana MA. Federal Support for Graduate Medical Education: An Overview. https://eric.ed.gov/? id=ED593507. Accessed June 8, 2021.
- Goodfellow A, Ulloa JG, Dowling PT, et al. Predictors of primary care physician practice location in underserved urban and rural areas in the United States: a systematic literature review. *Acad Med*. 2016;91(9):1313–1321. doi:10.1097/ACM. 0000000000001203
- 9. Fagan EB, Finnegan SC, Bazemore A, Gibbons C, Petterson S. Migration after family medicine residency:

- 56% of graduates practice within 100 miles of training. *Am Fam Physician*. 2013;88(10):704.
- 10. US Department of Health and Human Services. HHS awards \$20 million to 27 organizations to increase the rural workforce through the creation of new rural residency programs. HHS.gov. Published July 18, 2019. https://www.hhs.gov/about/news/2020/08/20/hhs-awards-over-35-million-to-increase-access-to-high-quality-health-care-in-rural-communities.html. Accessed June 8, 2021.
- 11. US Department of Health and Human Services. HHS Awards over \$35 million to Increase Access to High Quality Health Care in Rural Communities. HHS.gov. Published August 20, 2020. https://www.hhs.gov/about/news/2020/08/20/hhs-awards-over-35-million-to-increase-access-to-high-quality-health-care-in-rural-communities.html. Accessed June 8, 2021.
- Centers for Medicare and Medicaid Services. Direct Graduate Medical Education (DGME). Published December 22, 2020. https://www.cms.gov/Medicare/ Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/ DGME. Accessed June 8, 2021.
- 13. Nguyen NX, Sheingold SH. Indirect medical education and disproportionate share adjustments to Medicare inpatient payment rates. *Medicare and Medicaid Res Rev.* 2011;1(4):001.04.a01. doi:10.5600/mmrr.001.04.a01
- 14. Balanced Budget Act, PL 105-133 (1997). https://www.congress.gov/116/bills/hr133/BILLS-116hr133enr.pdf.
- 15. Balanced Budget Refinement Act, PL 106-113 (1999). https://www.congress.gov/116/bills/hr133/BILLS-116hr133enr.pdf.
- CMS Rural Training Track Rules. 42 C.F.R. §413.79 (2011). https://www.govinfo.gov/content/pkg/CFR-2011-title42-vol2/xml/CFR-2011-title42-vol2-sec413-79.xml.
- 17. Longenecker R. Rural medical education programs: a proposed nomenclature. *J Grad Med Educ*. 2017;9(3):283–286. doi:10.4300/JGME-D-16-00550.1
- 18. Pauwels J, Weidner A. The cost of family medicine residency training: impacts of federal and state funding. *Fam Med.* 2018;50(2):123–127. doi:10.22454/FamMed.2018.844856
- Rural Health Information Hub. What are the benefits of CAH Status? https://www.ruralhealthinfo.org/topics/ critical-access-hospitals#benefits. Accessed June 8, 2021.
- Flex Monitoring Team. CAH Financial Indicators Report: Summary of Indictor Medians by State. https:// www.flexmonitoring.org/sites/flexmonitoring.umn.edu/ files/media/fmt-ds-31-2020-1.pdf. Accessed June 8, 2021.
- 21. Gardner C, Tester J, Hyde-Smith C. S.289: Rural Physician Workforce Production Act of 2019. https://

- www.congress.gov/116/bills/s289/BILLS-116s289is. pdf. Accessed June 8, 2021.
- Barclift SC, Brown EJ, Finnegan SC, Cohen ER, Klink K. Teaching health center graduate medical education locations predominantly located in federally designated underserved areas. *J Grad Med Educ*. 2016;8(2):241–243. doi:10.4300/JGME-D-15-00274.1
- 23. Chen C, Chen F, Mullan F. Teaching health centers: a new paradigm in graduate medical education. *Acad Med.* 2012;87(12):1752–1756. doi:10.1097/ACM. 0b013e3182720f4d
- 24. RCHN Community Health Foundation. Chen C, Ku L, Regenstein M, Mullan F. Examining the Cost Effectiveness of Teaching Health Centers. http://gwhpmmatters.com/sites/default/files/2019-03/Examining%20the%20Cost%20Effectiveness%20of%20Teaching%20Health%20Centers%20%28Chen%2C%20Ku%2C%20Regenstein%2C%20Mullan%29%20Mar%2021%2C%202019.pdf. Accessed June 8, 2021.
- 25. National Center for Health Workforce Analysis. Teaching Health Center Graduate Medical Education Program. https://bhw.hrsa.gov/sites/default/files/ bureau-health-workforce/funding/teaching-med-edu-2019.pdf. Accessed June 8, 2021.
- 26. Health Resources and Services Administration. Report to Congress: Teaching Health Center Graduate Medical Education Direct and Indirect Training Expenses Report. https://bhw.hrsa.gov/sites/default/files/bureauhealth-workforce/about-us/reports-to-congress/reportto-congress-thcgme-2019.pdf. Accessed June 8, 2021.
- 27. Consolidated Appropriations Act of 2021, PL 116-260 \$131 (2020). https://www.congress.gov/116/bills/hr133/BILLS-116hr133enr.pdf.
- 28. Consolidated Appropriations Act of 2021, PL 116-260 §127 (2020). https://www.congress.gov/116/bills/hr133/BILLS-116hr133enr.pdf.
- 29. Consolidated Appropriations Act of 2021, PL 116-260 §126 (2020). https://www.congress.gov/116/bills/hr133/BILLS-116hr133enr.pdf.
- Meeting Minutes of the Council on Graduate Medical Education (COGME). Rural Workforce and Training in the Face of the COVID-19 Pandemic. https://www.hrsa. gov/sites/default/files/hrsa/advisory-committees/ graduate-medical-edu/meetings/20200717/cogmeminutes-july-2020.pdf. Accessed June 8, 2021.
- 31. Weiss KB, McDougal L, Foster Johnson P. ACGME and Rural Graduate Medical Education. Presented at the: Council on Graduate Medical Education Public Meeting; July 17, 2020. https://www.hrsa.gov/sites/default/files/hrsa/advisory-committees/graduate-medical-edu/meetings/20200717/ACGME-Rural-GME.pdf. Accessed June 8, 2021.
- 32. Accreditation Council for Graduate Medical Education. Medically Underserved Areas and Populations. https://

- www.acgme.org/What-We-Do/Accreditation/ Medically-Underserved-Areas-and-Populations/. Accessed June 8, 2021.
- 33. Sheps Center for Health Services Research. Rural Hospital Closures. https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures/. Accessed June 8, 2021.
- 34. Lindrooth RC, Perraillon MC, Hardy RY, Tung GJ. Understanding the relationship between medicaid expansions and hospital closures. *Health Aff* (*Millwood*). 2018;37(1):111–120. doi:10.1377/hlthaff. 2017.0976
- 35. The Chartis Center for Rural Health. Topchik M, Gross K, Pinette M, Brown T, Balfour B, Kein H. The Rural Health Safety Net Under Pressure: Rural Hospital Vulnerability. https://www.ivantageindex.com/wp-content/uploads/2020/02/CCRH_Vulnerability-Research_FiNAL-02.14.20.pdf. Accessed June 8, 2021.
- 36. Association of American Medical Colleges. Medicaid Graduate Medical Education Payments: Results From the 2018 50-State Survey. https://store.aamc.org/ downloadable/download/sample/sample_id/284/. Accessed June 8, 2021.
- 37. Sheps Center for Health Services Research. State-based approaches to reforming Medicaid-funded graduate medical education. https://www.shepscenter.unc.edu/workforce_product/state-based-approaches-reforming-medicaid-funded-graduate-medical-education/. Accessed June 8, 2021.
- 38. American Academy of Family Physicians. Henderson TM. Medicaid Topics: Funding of Graduate Medical Education. https://www.aafp.org/dam/AAFP/documents/advocacy/coverage/medicaid/ES-MedicaidFundingofGraduateMedicalEducation-121305.pdf. Accessed June 8, 2021.

 Centers for Disease Control and Prevention. Rural Communities. COVID-19 and Your Health. https:// www.cdc.gov/coronavirus/2019-ncov/need-extraprecautions/other-at-risk-populations/ruralcommunities.html. Accessed June 8, 2021.



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