

Examining the Cost Effectiveness of Teaching Health Centers

**Geiger Gibson / RCHN Community Health Foundation
Research Collaborative**

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Candice Chen, MD, MPH

Leighton Ku, PhD, MPH

Marsha Regenstein, PhD

Fitzhugh Mullan, MD

Milken Institute School
of Public Health

THE GEORGE WASHINGTON UNIVERSITY



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community health foundation

About the Geiger Gibson / RCHN Community Health Foundation Research Collaborative

The Geiger Gibson Program in Community Health Policy, established in 2003 and named after human rights and health center pioneers Drs. H. Jack Geiger and Count Gibson, is part of the Milken Institute School of Public Health at the George Washington University. It focuses on the history and contributions of health centers and the major policy issues that affect health centers, their communities, and the patients that they serve.

The RCHN Community Health Foundation is a not-for-profit foundation established to support community health centers through strategic investment, outreach, education, and cutting-edge health policy research. The only foundation in the U.S. dedicated solely to community health centers, RCHN CHF builds on a long-standing commitment to providing accessible, high-quality, community-based healthcare services for underserved and medically vulnerable populations. The Foundation's gift to the Geiger Gibson program supports health center research and scholarship.

Additional information about the Research Collaborative can be found online at <https://publichealth.gwu.edu/projects/geiger-gibson-program-community-health-policy> or at www.rchnfoundation.org.

Executive Summary

The federal and state governments invest over \$15 billion annually to support graduate medical education (GME) programs that train future physicians, but there have been numerous calls to reform the system. The Teaching Health Center Graduate Medical Education (THCGME) program is an innovative GME initiative, begun in 2011, to increase the number of primary care residents training in community-based ambulatory care sites, particularly in medically underserved settings. Authorization and funding for the program expire September 30, 2019. The President's proposed FY2020 budget includes mandatory funding to continue THCs for an additional two years.¹

Definitive research about the long-term cost savings associated with the THCGME program is not yet available. But it is possible to identify areas where Teaching Health Center (THC) training can be expected to produce savings. During residency training, THC residents provide patient care in medically underserved settings. Based on recent research demonstrating overall health care cost savings when patients are served in community health centers, the patient care provided by THC residents could yield up to \$288 million in Medicaid and Medicare savings between 2019 and 2023. After residency training, evidence demonstrates that physicians who trained in cost-efficient geographic areas continue to provide lower-cost care in their post-residency practice. In community health centers, five classes of THC graduates could yield up to \$238 million in Medicare savings and \$1.2 billion in Medicaid savings over 5 years, from 2019 to 2023. The THCGME program has the potential to yield up to \$1.8 billion in public program savings – an estimated \$1.5 billion in Medicaid savings and \$284 million in Medicare savings – over the 5-year 2019-2023 time period.

Background

Numerous parts of the U.S. continue to face primary care workforce shortages that jeopardize health care access, quality, and cost effectiveness. An estimated 79 million people live in primary care Health Professional Shortage Areas (HPSAs), 58 million live in dental HPSAs, and 115 million live in mental health HPSAs.²

Graduate medical education (GME) is a critical determinant of the U.S. physician workforce – determining the overall number of physicians, as well as whether they serve as

primary care physicians (whose shortages are particularly acute), or as specialists. Residencies also influence where they will practice,³ including whether they practice in rural and/or underserved communities.^{4,5} Government's investment in GME is significant. In 2015, Medicare provided over \$10 billion in GME payments to teaching hospitals; Medicaid GME provided over \$4.2 billion; the Department of Veterans Affairs invested nearly \$1.5 billion; and Children's Hospital GME provided nearly \$250 million.⁶

¹ Office of Management and Budget. (2019). A Budget for a Better America. Washington, DC.

² Health Services and Resources Administration. (2019). Shortage Areas. Available at <https://data.hrsa.gov/topics/health-workforce/shortage-areas>

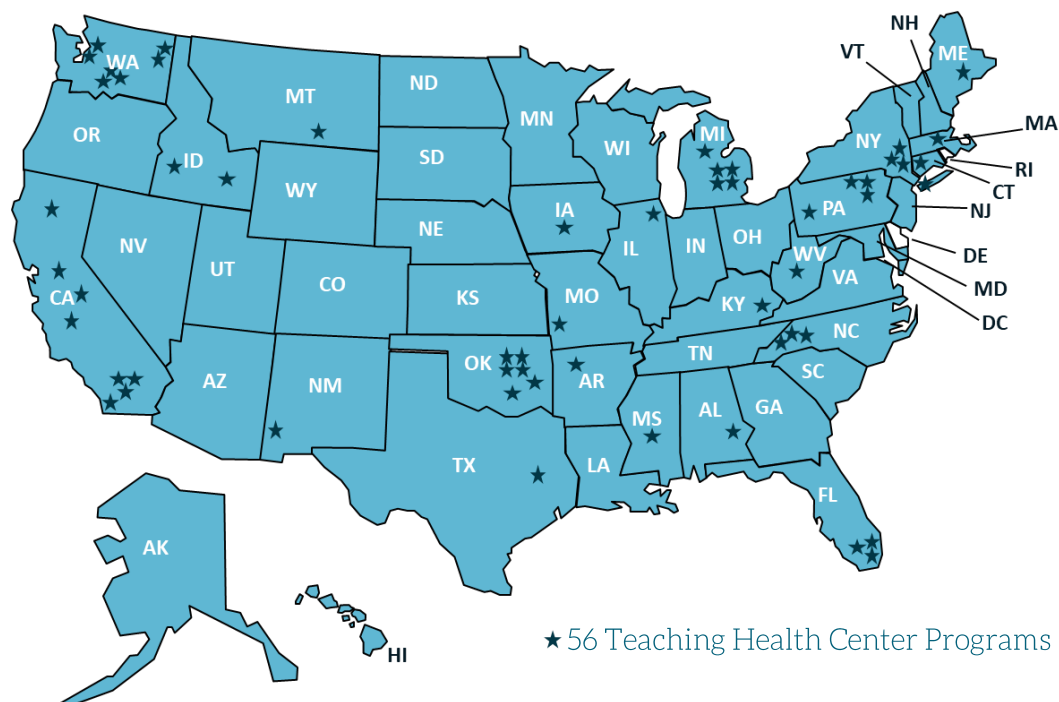
³ Seifer, S.D., Vranizan, K., & Grumbach, K. (2005). Graduate Medical Education and Physician Practice Location. Implications for Physician Workforce Policy. *JAMA* 274(9):685-91.

⁴ Goodfellow, A., Olloa, J.G., Dowling, P.T., Talamantes, E., Chheda, S., Bone, C., et al. (2016). Predictors of Primary Care Physician Practice Location in Underserved Urban or Rural Areas in the United States: A Systematic Literature Review. *Acad Med.* 91(9):1313-21.

⁵ Phillips, R.L., Petterson, S., & Bazemore, A. (2013). Do Residents who Train in Safety Net Settings Return for Practice? *Acad Med.* 88(12):1934-40.

⁶ Government Accountability Office. (2018). Physician Workforce: HHS Needs Better Information to Comprehensively Evaluate Graduate Medical Education Funding (GAO-18-240).

Figure 1. Locations of Teaching Health Center Programs (2019)



Source: Health Resources and Services Administration. March 6, 2019. Find Grants. <https://data.hrsa.gov/hdw/tools/findgrants.aspx>

Despite these investments, physician workforce challenges persist. The Medicare Payment Advisory Commission, National Academy of Medicine, and the President have called for GME reform to increase transparency, accountability, and effectiveness of this public investment.^{7,8,9}

The Teaching Health Center Graduate Medical Education (THCGME) program is an innovative GME initiative begun in 2011 and supported by the Health Resources and Services Administration (HRSA). The THCGME program supports post-graduate medical and dental residency programs based in ambulatory care settings in underserved areas, particularly in community health centers. In contrast to the standard approach of residencies based in urban hospital settings, the program aims to train primary care physicians and dentists to practice cost-effective ambulatory care in medically underserved rural or urban communities. The

program’s goal is to help these physicians and dentists remain in medically underserved communities, continuing to furnish care after they complete their training. Current authorization and funding for THCGME expires on September 30, 2019. The President’s proposed FY2020 budget includes mandatory funding to continue THCs for an additional two years.¹⁰

Currently 56 Teaching Health Centers (THCs) in 23 states train residents in the primary care specialties of family medicine, internal medicine, pediatrics, psychiatry, OB-GYN, and dentistry (**Figure 1**). The program shows promising early outcomes. By 2018, the THCGME program had graduated 880 primary care physicians and dentists, of whom 64 percent were practicing in primary care (compared to a national average of 33 percent of physicians), while 58 percent were practicing in medically underserved or rural communities.¹¹

⁷ Medicare Payment Advisory Commission. (2010). *Aligning Incentives in Medicare*.

⁸ Institute of Medicine. (2014). *Graduate Medical Education that Meets the Nation’s Health Needs*.

⁹ Office of Management and Budget. (2018). *An American Budget*. Washington, DC.

¹⁰ Office of Management and Budget. (2019). *A Budget for a Better America*. Washington, DC.

¹¹ Health Resources and Services Administration. *Teaching Health Center Graduate Medical Education Program: Academic Year 2016-2017*. Available at <https://bhw.hrsa.gov/sites/default/files/bhw/health-workforce-analysis/program-highlights/THCGME-program-2017.pdf>

Research about the long-term savings associated with the THC program is not yet available. This report examines ways that THC residents, both during and after the completion of their training, can reduce Medicaid and Medicare costs.

Approach

Savings Produced by THC Residents During Training at Health Centers. Research shows that, as a result of the high quality primary and preventive care furnished by health centers, patients who receive the majority of their ambulatory care in community health center settings have lower annual overall medical expenditures, particularly hospital care expenditures, than similar patients receiving care in other settings.^{12,13,14,15} Recent research estimated per-person savings for patients served in community health centers at \$627 per child and \$529 per adult in 2011-12, compared to similar patients served in alternate ambulatory care settings.¹⁵ We use these estimates to compute Medicaid and Medicare savings that are generated by THC resident physicians during their residency training time at community health centers (or similar ambulatory care settings that also host THC).

THC Post-Residency Practice Savings. Research shows that physicians who have been trained to be more cost-efficient during their residencies continue to be more cost-efficient after residency. Physicians whose residencies occurred in low-spending areas compared to high-spending areas have 7 percent lower average Medicare spending per beneficiary (an estimated \$522 difference per patient per year in 2011) later in their careers. (These estimates controlled for patient, community, and physician characteristics, including whether the physicians' eventual practice areas were high- or low-spending areas¹⁶). We use these data to estimate savings after THC residents graduate and go on to practice in communities.

After the initial investment in training residents, further return on investment can occur if physicians continue to practice in the cost-effective manner learned at health centers in low-cost underserved areas. Thus, THCs can continue to provide a return on investment for many years, even once the residency period itself has concluded (and the costs of training have been incurred).

Results

Savings Produced by THC Residents During Training at Health Centers

The initial savings related to the THC program occur while the residents are in training and providing patient care in community health centers. This is the period during which THC funds are actively supporting their training and residency programs. We estimated cost savings related to 500,000 primary care patient encounters provided by THCGME residents during the AY 2017-2018 time period.¹¹ The total number of patients and related cost savings are estimated as follows:

1. Total number of patients seen by THCGME residents was calculated based on 2017 national health center staffing and utilization data¹⁷ that reported total physician clinic visits to patient ratio of 3.25 (number of patients = $500,000/3.25 = 153,846$ patients).
2. Annual savings associated with THC-resident patient care are estimated separately for children and adults (\$627 per child; \$529 per adult). The distribution of child and adult patients is based on 2017 national health center patient demographic data. The child and adult savings are added to estimate total annual savings. Per person savings are inflation-adjusted to 2019 dollars using the CPI-U (Consumer Price Index for All Urban Consumers).

12 Richard, P., Ku, L., Dor, A., Tan, E., Shin, P., & Rosenbaum, S. (2012) Cost Savings Associated with the Use of Community Health Centers. *J Ambul Care Manage.* 35(1):50-9.

13 Falik, M., Needleman, J., Wells, B.L., & Korb, J. (2001). Ambulatory Care Sensitive Hospitalizations and Emergency Visits: Experiences of Medicaid Patients Using Federally Qualified Health Centers. *Medical Care*, 39(6), 551-561.

14 Nocon, R.S., Lee, S.M., Sharma, R., et al. (2016). Health Care Use and Spending for Medicaid Enrollees in Federally Qualified Health Centers Versus Other Primary Care Settings. *Am J Public Health*, 106(11): 1981-1989.

15 Bruen, B. & Ku, L. (2019). The Effects of Community Health Center Care on Medical Expenditures for Children and Adults. *J Amb Care Manage*, 42(2):128-37.

16 Chen, C., Petterson, S., Phillips, R., Bazemore, A., & Mullan, F. (2014). Spending Patterns in Region of Residency Training and Subsequent Expenditures for Care Provided by Practicing Physicians for Medicare Beneficiaries. *JAMA*, 312(22):2385-93.

17 HRSA. 2017 National Health Center Data. Mar. 6. 2019. Retrieved from: <https://bphc.hrsa.gov/uds/datacenter.aspx>

3. Medicaid and Medicare savings are estimated based on the insurance profile of community health center patients nationally in 2017, who were predominantly covered by public programs - 49 percent Medicaid and 9 percent Medicare. To be conservative, we are not presenting private insurance or other savings, but expect private savings as well.
4. This suggests that the THCGME program could lead to more than \$57.5 million in Medicaid and Medicare savings in 2019 (\$48.3 million in Medicaid savings and \$9.2 million in Medicare savings), as well as substantial private insurance savings.
5. If THCGME is reauthorized, then over five years, the THC program could yield up to \$288 million in Medicaid and Medicare savings (\$241.4 million in Medicaid savings and \$46.2 million in Medicare savings) just during the period when residents are in training.
4. Medicare savings are estimated based on the 2017 payer distribution for community health center patients nationally (9 percent Medicare).
5. We also calculate potential Medicaid savings if the level of savings is the same for the Medicaid population as the Medicare population. Medicaid savings are estimated based on 2017 national health center data (49 percent Medicaid).
6. Five-year savings are estimated based on graduating consecutive cohorts of physicians and estimating cost savings for the remainder of the 2019-2023 five-year period (e.g. one graduate cohort in 2019 will provide 5 years of savings from 2019 to 2023, while a new graduate cohort in 2020 will provide 4 years of savings; etc.)
7. The first year of THC graduates trained in low-spending systems rather than high-spending systems could result in total annual medical savings of up to \$169 million in 2019, including both publicly and privately insured patients.
8. In community health centers, five consecutive cohorts of THC graduates could result in up to \$238 million in Medicare savings over 5 years, from 2019 to 2023.
9. If the same level of savings from training in low-spending settings were seen for Medicaid patients, the THC program could save Medicaid up to \$1.2 billion over 5 years.

THC Post-Residency Practice Savings

Physicians who learn to provide cost-effective ambulatory primary care as residents usually continue to practice cost-efficient care later in their careers. We estimated cost savings associated with more cost-efficient spending patterns by physicians who have graduated from THC training as follows:

1. HRSA reported 236 AY 2017-2018 THC physician graduates. We base our estimates on graduating 236 new THC physician each year.
2. We estimate the number of patients served by these graduates based on a conservative estimate of the patient panel size for a primary care physician of 1,200 patients per year.¹⁸
3. Annual savings from the more cost-efficient practice of THC graduates is calculated as the product of the number of patients and the Medicare per-beneficiary spending savings between those trained in high- and low-spending areas. Per person savings are inflation-adjusted to 2019 dollars using the CPI-U.

Combined During and After Residency Savings Due to the THC Programs

The combined during- and after-residency savings of the THCGME program could result in an estimated \$1.8 billion in Medicaid and Medicare savings from 2019 to 2023 (an estimated \$1.5 billion in Medicaid savings and \$284 million in Medicare savings). **Table 1** provides THC program savings for the 2019-2023 period.

18 Raffoul, M., Moore, M., Kamerow, D., & Bazemore, A. (2016).. A Primary Care Panel Size of 2500 Is neither Accurate nor Reasonable. *JABFM*, 29(4): 496-9.

Table 1. Teaching Health Centers Program Savings

Program Year	2019	2020	2021	2022	2023
Savings Produced by THC Residents During Training at Health Centers					
Cumulative Savings Over Time (\$ Millions)					
Medicare	\$9	\$18	\$28	\$37	\$46
Medicaid	\$48	\$97	\$145	\$193	\$241
THC Post-Residency Practice Savings					
Cumulative Number of THC Graduates	236	472	708	944	1,180
Number of Patients Served Per Year	283,200	566,400	849,600	1,132,800	1,416,000
Cumulative Savings Over Time (\$ Millions)					
Medicare	\$16	\$48	\$95	\$159	\$238
Medicaid	\$83	\$249	\$498	\$829	\$1,244
Combined During and After Residency Savings					
Medicare	\$25	\$66	\$123	\$196	\$284
Medicaid	\$131	\$346	\$643	\$1,022	\$1,485

Source: George Washington University analysis, 2019

Primary Care Physicians and Health Centers Can Address Key Health Needs and Reduce Mortality

In general, the United States tends to have a relative shortage of primary care physicians (e.g., family physicians and internists) compared to specialists. Efforts to expand the pool of primary care physicians, such as THCGME, can have important health benefits, particularly when these efforts are integrated with the proven and effective model of care provided by community health centers.

For example, Chang et al. found an increase of one Medicare primary care physician (FTE) per 10,000 beneficiaries was associated with 82.8 fewer deaths per 100,000, 160.8 fewer preventable hospitalizations, and 712.3 fewer ED visits.¹⁹

Basu et al. found 10 additional primary care physicians per 100,000 population was associated with a 51.5-day increase in an average person’s life expectancy.²⁰

HHS Secretary Alex Azar recently acknowledged the importance of primary care delivered by community health centers in addressing the nation’s opioid crisis: “Health centers have rapidly adapted to the challenge of opioid addiction, becoming hubs for connecting patients to treatment and wraparound recovery services,” adding that “we have a long way to go in building a healthcare system where care is integrated and outcomes justify the costs.”²¹ Community health centers and THCs are an important component of these efforts to strengthen and upgrade the nation’s health system, particularly for patients living in medically underserved communities.

¹⁹ Chang, C.H., O’Malley, A.J., & Goodman, D.C. (2016). Association between Temporal Changes in Primary Care Workforce and Patient Outcomes. *HSR*, 52(2):634-55.

²⁰ Basu, S., et al. (2019). Association of Primary Care Physician Supply with Population Mortality in the United States, 2005-2015. *JAMA Int Med*. Published online Feb. 18, 2019.

²¹ Alex Azar, Speech delivered to the National Association of Community Health Centers. March 16, 2018. Available at <https://www.hhs.gov/about/leadership/secretary/speeches/2018-speeches/remarks-to-the-national-association-of-community-health-centers.html>

Conclusion

The THCGME program has the potential to bend the cost curve through two important mechanisms. First, THC residents provide patient care in community health center settings during their training. This patient care provides needed primary care access to underserved populations and results in health care cost savings. Second, evidence demonstrates that residents trained in low-cost settings will go on to practice in more cost-efficient ways.

Over the 2019-2023 five year period, continuation of the THCGME program has the potential to yield up to \$1.8 billion in Medicaid and Medicare savings – an estimated \$1.5 billion in Medicaid savings and \$284 million in Medicare savings.