Impact of Post-Graduate Training in Underserved Communities

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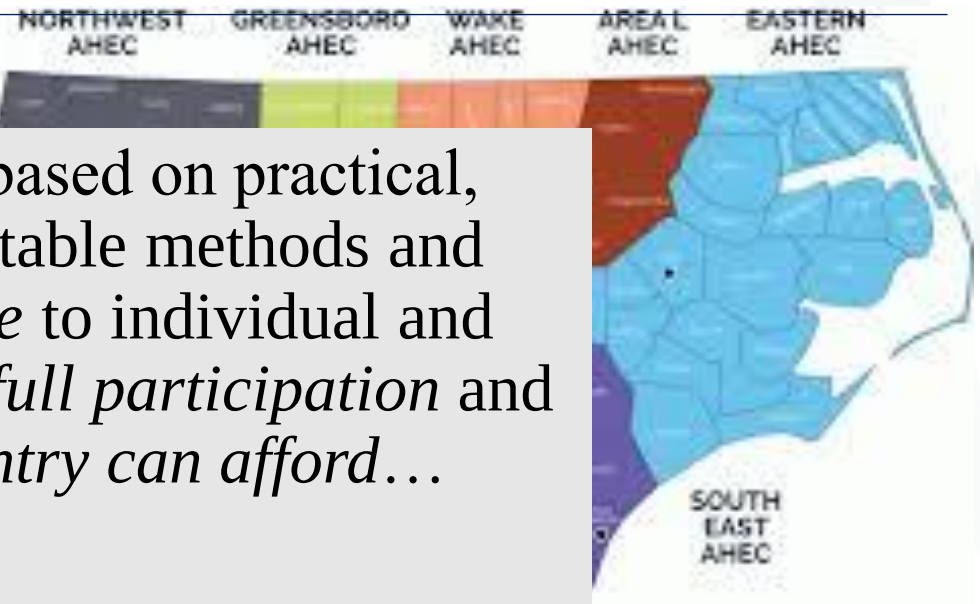
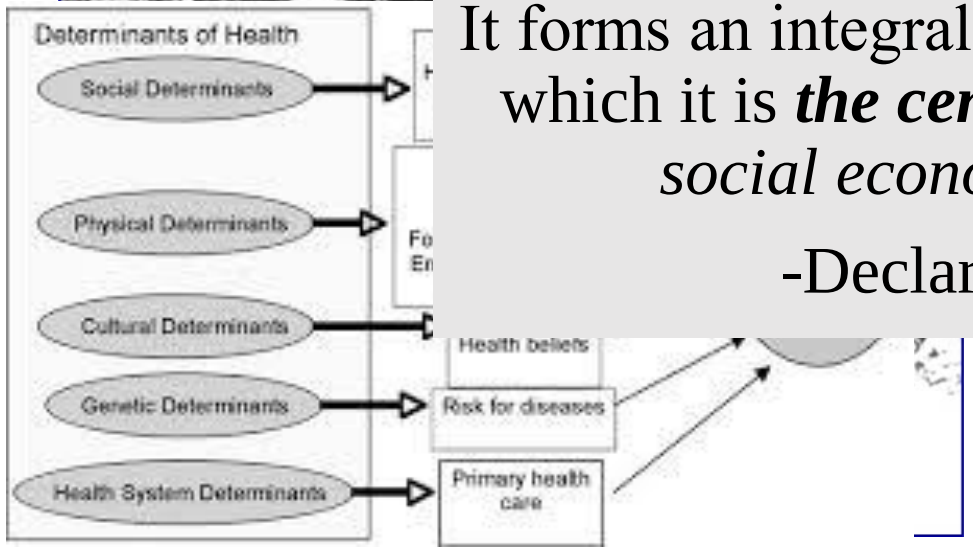
Formative influences: COPC & Decentralized Primary Health Care Training

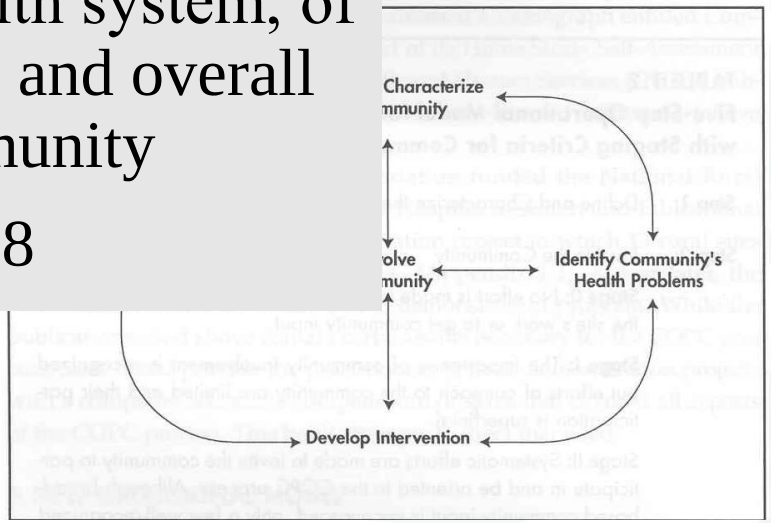


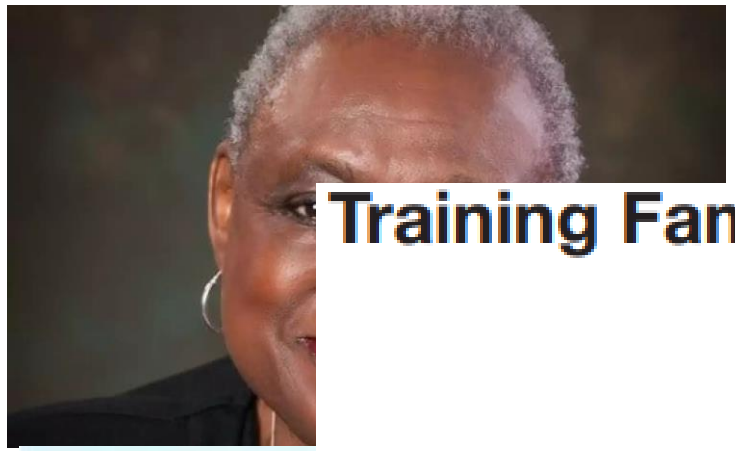
"Primary care is essential health care based on practical, scientifically sound and socially acceptable methods and technology made *universally accessible* to individual and families in the community through their *full participation* and at a cost that the *community and country can afford*…

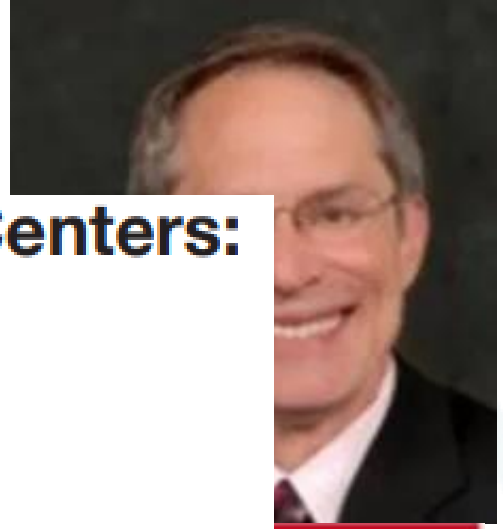
It forms an integral part of both the country's health system, of which it is ***the central function*** and main focus, and overall *social economic development* of the community

-Declaration of Alma Ata, WHA, 1978







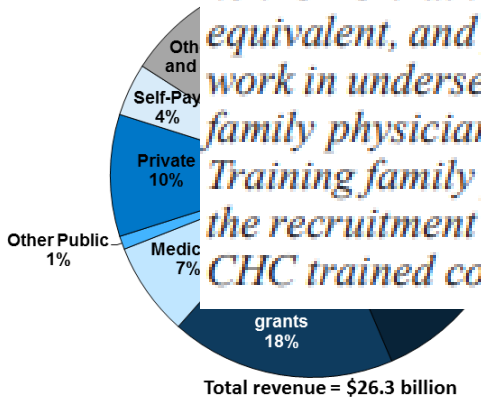


Training Family Physicians in Community Health Centers: A Health Workforce Solution

Carl G. Morris, MD, MPH; Brian Johnson, MD;
Sara Kim, PhD; Frederick Chen, MD, MPH

Purpose: *For more than 25 years, family medicine residencies (FMRs) have worked with community health centers (CHCs) to train family physicians. Despite the long history of this affiliation, little research has been done to understand the effects of training residents in this underserved community setting. This study compares CHC and non-CHC-trained family physicians regarding practice location, job and training satisfaction, and recruitment and retention to underserved areas.* Methods: *We conducted a cross-sectional survey of a cohort of the 838 graduates from the WAMI (Washington, Alaska, Montana, and Idaho) Family Medicine Residency Network from 1986–2002.* Results: *CHC-trained family physicians were almost twice as likely to work in underserved settings than their non-CHC-trained counterparts (64% versus 37%). When controlling for gender, percent full-time equivalent, and years from graduation, CHC-trained family physicians were 2.7 times more likely to work in underserved settings than non-CHC-trained family physicians. CHC and non-CHC-trained family physicians report similar job and training satisfaction and scope of practice.* Conclusions: *Training family physicians in CHCs meets the health workforce needs of the underserved, enhances the recruitment of family physicians to CHCs, and prepares family physicians similarly to their non-CHC trained counterparts.*

Medicaid and Sectio
62% of Community

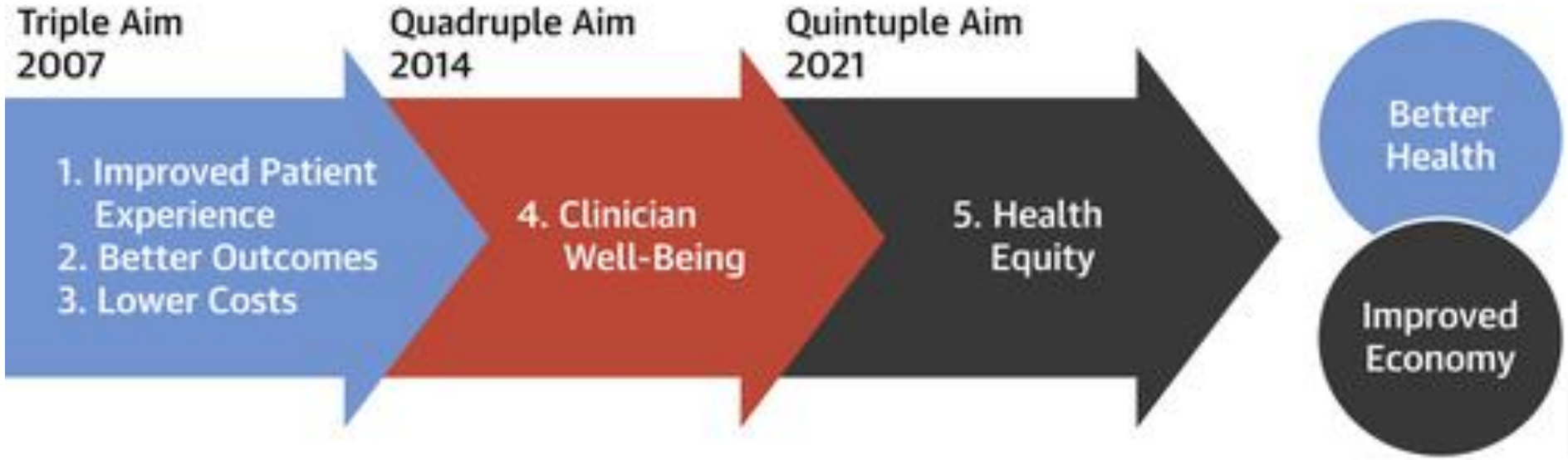


SOURCE: Bureau of Primary Health Care. (2018). 2017 Health Center Data: National Data. Health Resources and Services Administration. https://bphc.hrsa.gov/uds/datacenter.aspx?q=tall&year=2017&state=

unity Health
ice Corps

PHILLIPS, JR., MD, MSPH, KEVIN
PhD

US Health System “Quintuple Aim”



Dipti Itchhaporia et al. *JACC* 2021; 78:2262-2264.

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And yet, as Candice & I learned, our Graduate Medical Education System

- Receives $19 billion/yr in public financing
- While producing 25% Primary Care, 5% Rural (as of 2008, less since)
- And has no mechanism for measurement, tracking & accountability

Toward Graduate Medical Education (GME) Accountability: Measuring the Outcomes of GME Institutions

Candice Chen, MD, MPH, Stephen Petterson, PhD, Robert L. Phillips, MD, MSPH, Fitzhugh Mullan, MD, Andrew Bazemore, MD, MPH, and Sarah D. O'Donnell, MPH

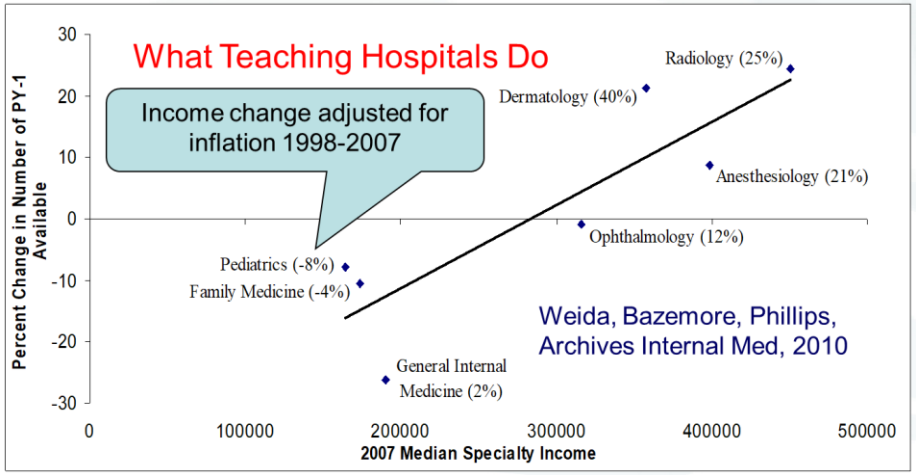
Abstract

Purpose
Graduate medical education (GME) plays a key role in the U.S. health care workforce, defining its overall size and specialty distribution and influencing physician practice locations. Medicare provides nearly $10 billion annually to support GME and faces growing policy maker interest in creating accountability measures. The purpose of this study was to develop and test candidate GME outcome measures related to physician workforce.

Method
The authors performed a secondary analysis of data from the American Medical Association Physician Masterfile, National Provider Identifier file, Medicare claims, and National Health Service Corps, measuring the number and percentage of graduates from 2006 to 2008 practicing in high-need specialties and underserved areas aggregated by their U.S. GME program.

Results
Average overall primary care production rate was 25.2% for the study period, although this is an overestimate because hospitalists could not be excluded. Of 759 sponsoring institutions, 158 produced no primary care graduates, and 184 produced more than 80%. An average of 37.9% of internal medicine residents were retained in primary care, including hospitalists. Mean general surgery retention was 38.4%. Overall, 4.8% of graduates practiced in rural areas; 198 institutions produced no rural physicians, and 283 institutions produced no Federally Qualified Health Center or Rural Health Clinic physicians.

Conclusions
GME outcomes are measurable for most institutions and training sites. Specialty and geographic locations vary significantly. These findings can inform educators and policy makers during a period of increased calls to align the GME system with national health needs.



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Evidence

Family Medicine Residencies: How Rural Training Exposure in GME Is Associated With Subsequent Rural Practice

Deborah J. Russell, MBBS, MClinEpid, PhD

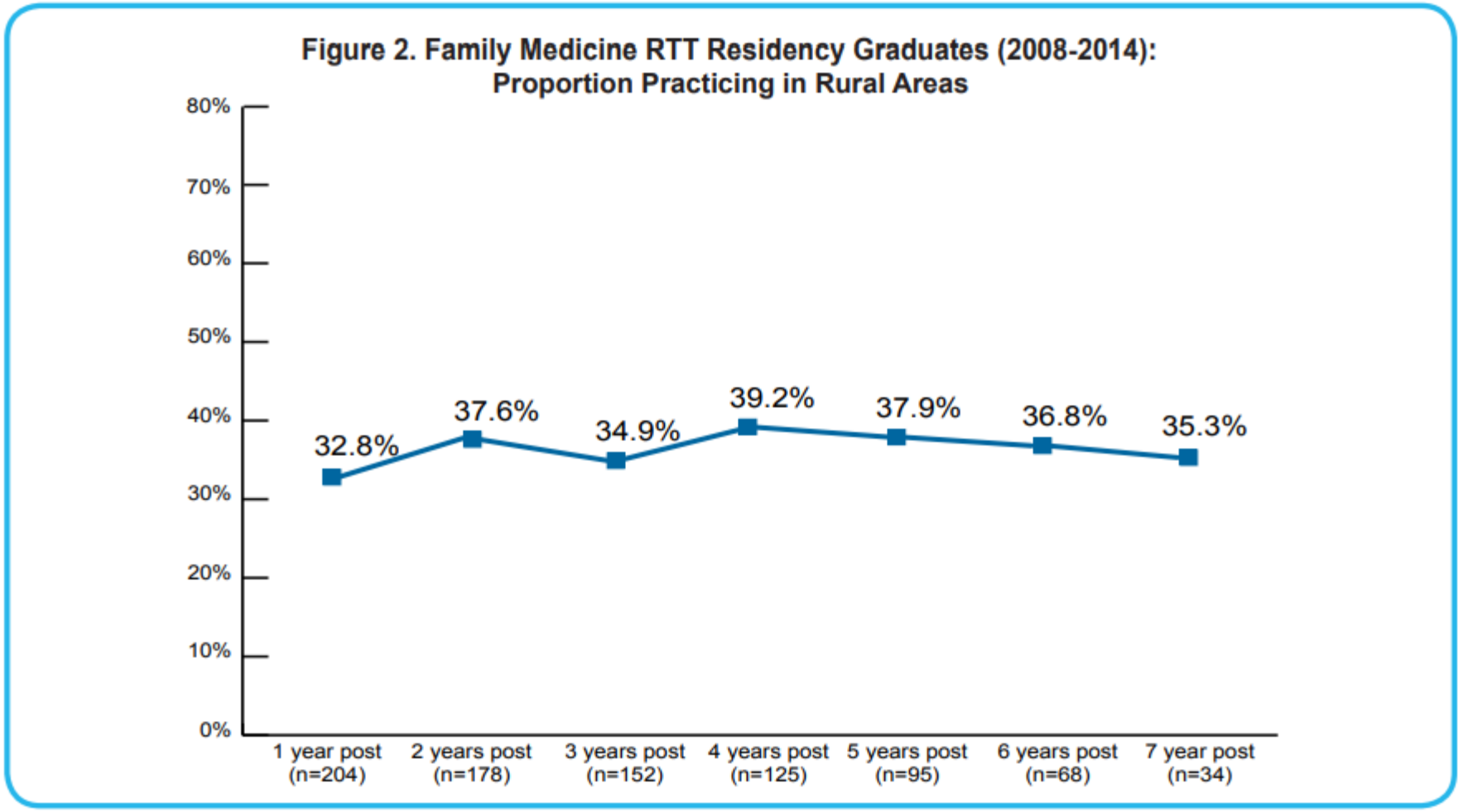
Rural exposure during FM residency training is associated with a 5- to 6-fold increase in subsequent rural practice, with a positive dose effect for greater degrees of exposure, yet less than 10% of graduates experience any rural training during their residencies

medical school location and type) and clustering by resident program.

Results Most (91%, 11 011 of 12 162) residents had no rural training. A minority (14%, 1721 of 12 162) practiced in a rural location in 2018. Residents with no rural training comprised 80% (1373 of 1721) of those in rural practice in 2018. Spending more than half of residency training months in rural areas was associated with substantially increased odds of rural practice (OR 5.3-6.3). Only 4% (424 of 12 162) of residents spent more than half their training in rural locations, and only 5% (26 of 436) of FM training programs had residents training mostly in rural settings or community-based clinics.

Conclusions There is a linear gradient between increasing levels of rural exposure in FM GME and subsequent rural work.

Rural Training Tracks



Data sources: graduates identified by 21 RTT programs, NPI business practice location address ZIP codes classified by Rural-Urban Commuting Areas.

Study Data

We used 2017-2020 data from the National Graduate Survey, administered to all Board Certified Family Physicians 3 years after the completion of residency training.

Evaluating the Teaching Health Center Graduate Medical Education Model at 10 Years: Practice-Based Outcomes and Opportunities

Caitlin Smith Davis, MD, MSc; Tuhin Roy, MD, MPH; Lars E. Peterson, MD, PhD ; Andrew W. Bazemore, MD, MPH

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63.9%.

The proportion of respondents who were THC graduates increased from 2.8% (2017) to 3.3% (2020) during the sample period.

Teaching Health Center Graduate Demographics

Table 1

Physician Demographics by Teaching Health Center (THC) Graduate Status

Demographic	THC Program Graduates (n=264), %	Other Program Graduates (n=8344), %	*P* Value
Mean age (SD)	36.36	35.71	.016
Gender			
Female	56.44	56.21	.94
Male	43.56	43.79	
Medical degree			
MD	82.58	80.84	.48
DO	17.42	19.16	
International medical graduate			
Yes	23.11	32.07	***.002***
No	76.89	67.93	
Race			
Asian	16.94	22.34	***.044***
Black or African American	4.84	7.35	.13
White	75.00	67.32	***.011***
Other	3.22	2.99	.83
Ethnicity			
Hispanic	8.87	8.37	.78
Non-Hispanic	91.13	91.63	

Note: *P* values in bold italics are statistically significant.

THC graduates were likely to be slightly older than other graduates (36.4 to 35.7 years at 3 years after graduation).

There were no significant differences in gender or degree (MD vs. DO), but THC graduates were less likely to be international medical graduates (23.1% to 32.1%).

There were also no significant differences in ethnicity, but THC graduates were more likely to be white (75% to 67.3%) and less likely to be Asian (16.9% to 23.3%).

Teaching Health Center Graduate Practice Patterns

Table 2

Physician Practice Location by Teaching Health Center (THC) Graduate Status

Primary Practice Location	THC Program Graduates, %	Other Program Graduates, %	*P* Value
Within geographic radius of training program			
100 miles	41.29	44.12	.36
50 miles	34.47	37.04	.39
5 miles	18.94	12.88	***.004***
Rural area (RUCC ≥4)	17.86	11.83	***.004***
Primary care Health Professional Shortage Area (HPSA)			
2017–complete	0	3.38	.15
Partial	96.55	92.09	.21
2018–complete	1.45	3.17	.42
Partial	92.88	95.65	.38
2019–complete	2.70	3.07	.86
Partial	95.95	93.51	.40
2020–complete	5.88	4.62	.67
Partial	100	93.52	.06
Medically underserved practice setting (MUPS)			
Any MUPS	35.29	18.63	***<.001***
FQHC or look-alike	26.70	11.69	***<.001***
Federally Qualified Rural Health Clinic	4.07	4.57	.73
Indian Health Service	1.81	0.99	.23
Non-federal government clinic	2.71	1.39	.10

Abbreviations: RUCC, Rural-Urban Continuum Code; FQHC, Federally Qualified Health Centers.
Note: *P* values in bold italics are statistically significant.

Teaching Health Center graduates were more likely than other graduates to practice near their training site (within 5 miles, 18.9% to 12.9%) and in a rural area as designated by RUCC.

While we found differences in the proportions of graduates practice in partial and complete HPSAs, these differences were not statistically significant.

However, we did find that THC graduates were more likely to be practicing in a Medically Underserved Practice Setting (MUPS), largely driven by the higher proportion practicing in a FQHC compared to graduates of other programs (26.7% to 11.7%).

Teaching Health Center Graduate Scope of Practice

Table 3

Physician Practice Patterns by Teaching Health Center (THC) Graduate Status

Practice Patterns (Self-Reported)	THC Program Graduates, %	Other Program Graduates, %	*P* Value
Practices outpatient continuity care	83.33	81.05	.36
Scope of care (I-SOP score)	17.22	16.06	***<.001***
Behavioral health care–trained	91.98	87.47	***.029***
Behavioral health care–practicing	92.19	86.89	***.013***
Buprenorphine–trained	29.39	11.25	***<.001***
Buprenorphine–practicing	27.34	12.30	***<.001***
Outpatient gynecological procedures (endometrial biopsy, IUD insertion/removal, other LARC, colposcopy)–trained	96.95	90.22	***.0003***
Outpatient gynecological procedures–practicing	64.06	50.24	***<.001***
HIV/hepatitis C care–trained	43.51	32.25	***.0001***
HIV/Hepatitis C care–practicing	27.73	22.53	.050
Outpatient pediatric care–trained	94.66	90.94	***.038***
Outpatient pediatric care–practicing	80.08	76.29	.16
Obstetrical care			
Estimated deliveries in residency 1≤20 2=21-40 3=41-60 4=61-80 5=81-100 6>100	4.30 categorical avg. Where 4=61-80 and 5=81-100	3.62 categorical avg. Where 3=41-60 and 4=61-80	***<.001***
Currently delivering babies	27.73	13.33	***<.001***

Abbreviations: I-SOP, Individual Scope of Practice; IUD, intrauterine device; LARC, long-acting reversible contraceptive.
Note: *P* values in bold italics are statistically significant.

We used the I-SOP (an independently validated measure of practice scope) to study population differences in scope of practice.

THC graduates demonstrated a higher I-SOP score (17.2) compared to other graduates (16.1) driven by higher rates of providing **behavioral health care**, **buprenorphine prescribing**, and o**utpatient gynecologic procedures.**

THC graduates were more likely to have been trained on every practice component than their peers who graduated from other programs, including **behavioral health care**, **buprenorphine prescribing**, **gynecologic procedures**, **HIV/Hepatitis C care**, **pediatric care**, and **obstetrical care**.

They also averaged more obstetrical deliveries during residency training.

Multivariate results

In a multivariate model using scope of practice (I-SOP) as the variable of interest, THC graduate status was positively correlated with higher scope score (0.817, p<0.001).

Other variables positively related to higher scope included rural practice setting and underserved practice setting.

Table 4

Scope of Practice Linear Regression Results

Family Physicians (n=6521)	Coefficient	*P* Value
THC graduate status		
Yes	0.817	***<.001***
No	Ref	
Gender		
Female	-0.136	.042
Male	Ref	
Medical degree		
DO	Ref	
MD	0.159	.06
International medical graduate		
Yes	-0.878	***<.001***
No	Ref	
Race		
Asian	-1.04	***<.001***
Black or African American	-1.13	***<.001***
White	Ref	
Other	-0.222	.26
Ethnicity		
Hispanic	-0.657	***<.001***
Non-Hispanic	Ref	
Rural practice setting		
Yes	1.75	***<.001***
No	Ref	
Underserved practice setting		
Yes	0.824	***<.001***
No	Ref	

Abbreviation: THC, Teaching Health Center.
Note: *P* values in bold italics are statistically significant.

Summary - 10 Year Assessment of Outcomes for Teaching Health Centers

Teaching Health Center Graduates were significantly more likely than non-THCGME grads to:

- To practice in a rural location (17.9% to 11.8%)
- To practice within 5 miles of their residency program (18.9% to 12.9%)
- To care for medically underserved populations (35.2% to 18.6%)

Teaching Health Centers Improve Care

The Benefits of Physician Training Programs for Rural Communities: Lessons Learned from the Teaching Health Center Graduate Medical Education Program

Marshala Lee, MD, MPH
Helen Newton
Tracey Smith, MSc, MPH
Malena Crawford, MPH
Hayden Kepley, PhD
Marsha Regenstein, PhD
Candice Chen, MD, MPH

Abstract: Rural communities disproportionately face preventable chronic diseases and death from treatable conditions. Health workforce shortages contribute to limited health care access and health disparities. Efforts to address workforce shortages have included establishing graduate medical education programs with the goal of recruiting and retaining physicians in the communities in which they train. However, rural communities face a number of challenges in developing and maintaining successful residency programs, including concerns over financial sustainability and the integration of resident trainees into existing

Benefits to Health Centers & Communities:

- **Community Partnerships** – THCs created a sense of shared mission and facilitated more coordinated care
- **Access** – THCs supported clinician recruitment, expanded scope, and specialty access
- **Quality of Care** – residents drive more up to date, evidence-based care and innovation
- **Community Benefit** – community-based projects strengthen relationships and residents are role models

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Teaching Health Centers Improve Care

JAMA Network Open

Original Investigation | Health Policy

Training in Residency and Provision of Reproductive Health Services Among Family Medicine Physicians

Julia Strasser, DrPH; Ellen Schenk, MPP; Qian Luo, PhD; Mandar Bodas, PhD; Olivia Anderson, BA; Candice Chen, MD, MPH

Abstract

IMPORTANCE Contraception and abortion services are essential health care, and family medicine (FM) physicians are an important part of the workforce providing this care. Residency could inform the reproductive health services FM physicians provide.

OBJECTIVE To determine which residency training factors are associated with FM physicians' provision of reproductive health services to Medicaid beneficiaries.

DESIGN, SETTING, AND PARTICIPANTS This cross-sectional, population-based observational study of inpatient and outpatient FM physicians who completed residency between 2008 and 2018 and treated at least 1 Medicaid beneficiary in 2019 was conducted from November 2022 to March 2023. The study used 2019 American Medical Association Masterfile and Historical Residency file, as well as the 2019 Transformed Medicaid Statistical Information System claims.

EXPOSURES Residency training in community-based or reproductive health-focused programs.

MAIN OUTCOMES AND MEASURES The outcomes were providing the following to at least 1 Medicaid beneficiary in 2019: prescription contraception (pill, patch, and/or ring), intrauterine device (IUD) and/or contraceptive implant, and dilation and curettage (D&C). Odds of providing each outcome were measured using correlated random-effects regression models adjusted for physician, residency program, and county characteristics.

RESULTS In the sample of 21 904 FM physician graduates from 410 FM residency programs, 12 307 were female (56.3%). More than half prescribed contraception to Medicaid beneficiaries (13 373 physicians [61.1%]), with lower proportions providing IUD or implant (4059 physicians [18.5%]) and D&C (152 physicians [.7%]). FM physicians who graduated from a Reproductive Health Education in

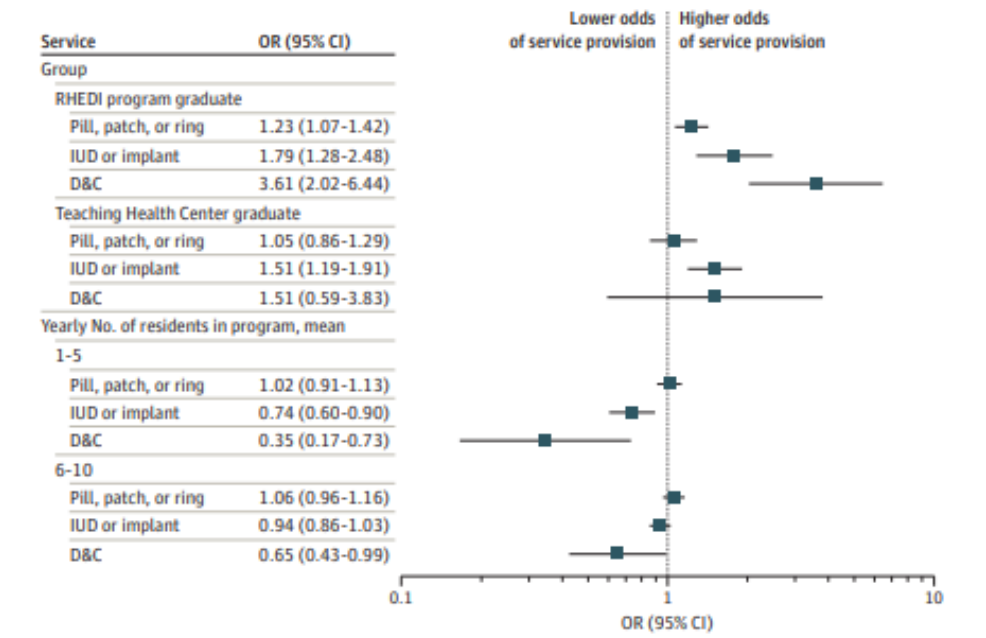
Key Points

Question What residency training factors are associated with family medicine (FM) physicians' provision of reproductive health services to Medicaid beneficiaries?

Findings This cross-sectional observational study of 21 904 FM physicians found that several residency program characteristics were significantly associated with provision of common methods of contraception and dilation and curettage. Larger programs, programs with fully integrated family planning, and programs with an emphasis on community-based care produced graduates with higher odds of providing reproductive health services.

Meaning These findings suggest improving family planning and abortion training in family medicine programs could expand the workforce that can provide reproductive health services, thus improving access to care.

Figure. Association of Residency Program Type and Average Residency Size with Provision of Pill, Patch, and/or Ring, Intrauterine Device (IUD) and/or Implant, and Dilation and Curettage (D&C).



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Teaching Health Centers Improve Care

Community Health Center Residency Training: Improving Staffing, Service, and Quality

Candice Chen, MD, MPH; Nicholas Chong, MPH; Qian Luo, PhD, MPSA; Jeongyoung Park, PhD, MPH

BACKGROUND AND OBJECTIVES: Community-based residency programs are an important strategy to address rural and underserved primary care shortages, however, health centers report both benefits and challenges to training. This study aims to understand the impact of new Teaching Health Center (THC) residency programs on health center staffing, patient service, quality of care, and provider productivity.

METHODS: Using the Uniform Data System, we used inverse propensity score weighting to create a balanced sample of new THC and non-THC health centers in 2010. Using 2018 data, we applied propensity score weighted regressions to examine changes in staffing, service, quality of care, and productivity in THC versus non-THC health centers.

RESULTS: In 2018, health centers with new THC programs were associated with increased physician (16.40, $P<.01$) staffing, yet decreased physician visits per full-time equivalent (-425.3, $P<.01$) relative to non-THC centers. New THC centers had increased delivery visits (231.0, $P<.05$), and had a greater rate of early entry into prenatal care (4.90%, $P<.01$).

meet accreditation requirements or related to new faculty recruitment and improved quality of care as residents require teaching faculty to stay up to date and evidence-based.[6] However, health centers also report challenges in sustaining residency training due to concerns over financial viability, the effect of training on patient service particularly where revenue is based on patient visits, and the administrative challenges of meeting both community health center and residency program requirements.[7,8]

Financial barriers to health center-based residency programs include

Benefits to Health Centers:

- **Methods** – Health Center UDS Data
- **Key Findings –** Compared to non-THC health centers, new THC health centers:
  - Increased physician staffing
  - Increased deliveries
  - Greater rate of early entry into prenatal care

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PRA Estimate

Evaluation PRA for AY 2022-23	$209,623	• Adjusted using a 4.1 percent annual inflation rate from the CPI for Medical Care • Trended forward from study year AY 2018-19
Actual PRA for AY 2022-23	$160,000	• 76% of true median cost of training • Covers just over 50% of THC expenses

https://www.hrsa.gov/sites/default/files/hrsa/advisory-committees/graduate-medical-edu/meetings/teaching-health-center-graduate-medical-education-cost-evaluation.pdf

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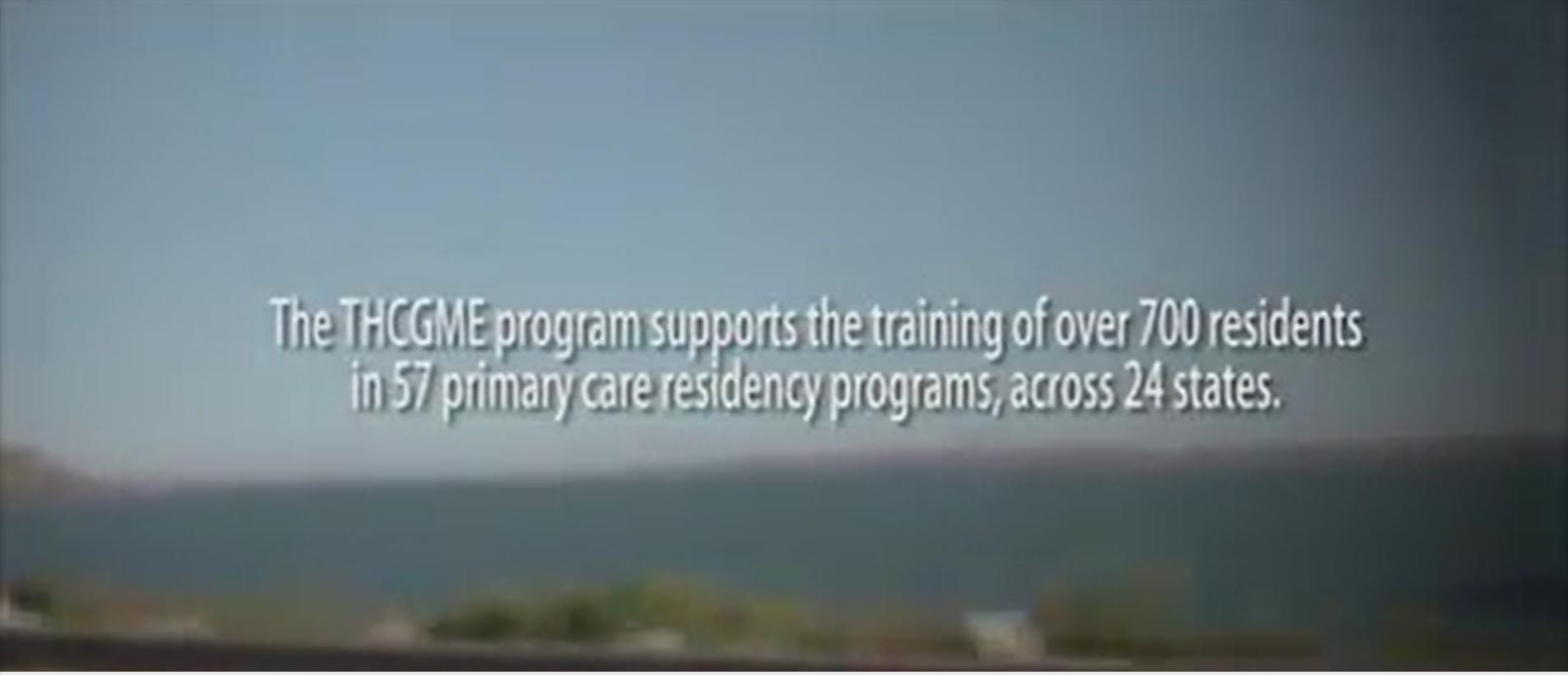

Power of Data & Narrative

NATIONAL ACADEMIES Sciences Engineering Medicine

About Us Events

5 Objectiv imary Care

1 PAYMENT
Pay for primary c

2 ACCESS
Ensure that high- very community.

3 WORKFORCE
Train primary ca

4 DIGITAL HEALTH
Design informati care team.

5 ACCOUNTABILITY
Ensure that high-quality primary care is implemented in the United States.

Implementing High-Quality Primary Care

Action 2.1: Payers should ask **all beneficiaries to declare usual source of care**. (Universal Empanelment)

Action 2.2: HHS should **create new health centers**, **rural health clinics**, **and Indian Health Service facilities in shortage areas**

Action 2.3: CMS should **revise access standards for primary care for Medicaid beneficiaries** and provide resources to state Medicaid agencies for these changes

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Action 3.1: Health care organizations should strive to **diversify the primary care workforce and customize teams to meet the needs of the populations they serve.**

Action 3.2: CMS, the Department of Veterans Affairs, HRSA, and states should redeploy or augment Title VII, Title VIII, and GME funding to **support interprofessional training in community-based, primary care practice environments**.

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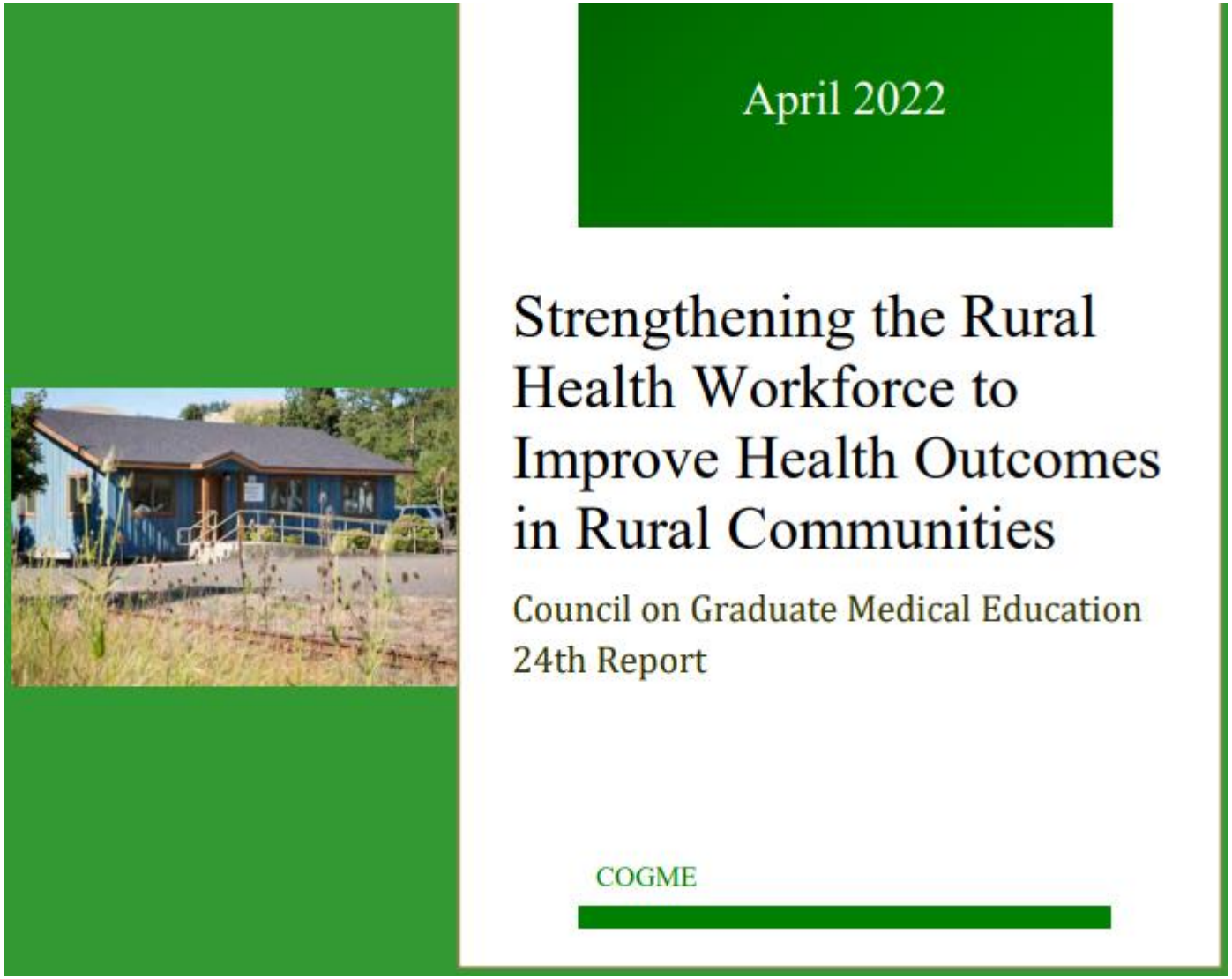

- Expand and extend successful place-based training initiatives that promote access to care.
- Develop a set of measures to ensure value and return on investment in rural health education

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Your Data Matters

- A tale of two Health Centers: CMHC vs. CHCs
- The Difference: UDS

Questions & Discussion