Training More Physicians for Medically Underserved Communities: The Power of Regional Medical Education Collaboratives Across the Training Continuum

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Introduction

The shortage and geographic maldistribution of US physicians leads to poor access, delays in care, and worse health outcomes in rural and underserved communities across the United States. Successful models for recruiting, training, and retaining physicians to work in low-resource urban, rural, and tribal settings exist[1] and need to be widely adopted across the medical training continuum to meaningfully address workforce shortages. In addressing the challenges with pathways for physician workforce development,[2] special attention should be given to how applicants are selected (holistic review),[3-6] the structure of the curriculum (intentional highlights of service, rural practice, health equity),[7-10] and training environment (experience in a rural or underserved setting).[11-13]

In this Perspective, we will describe 2 models, the University of North Carolina Fully Integrated Readiness for Service Training[14] (FIRST) and the California Oregon Medical Partnership to Address Disparities in Rural Education and Health (COMPADRE),[15] that link undergraduate medical education (UME) and graduate medical education (GME) through mission-oriented admissions, tailored curricula, and place-based clinical training focused on recruiting, training, and retaining physicians to work in rural and underserved communities. Both projects were funded by a 2019 American Medical Association (AMA) Reimagining Residency grant. We developed a "UME to GME to Independent Practice" framework (FIGURE 1) that we will use to describe how our programs leveraged regional collaboratives across the medical training continuum to address and mitigate common workforce development challenges.

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Editor's Note: The online supplementary data contains a map of the Fully Integrated Readiness for Service Training (FIRST) collaborating sites and programs and a map of the California Oregon Medical Partnership to Address Disparities in Rural Education and Health (COMPADRE) and partner sites.

FIRST

FIRST is a 3-year MD program linked to GME programs in rural and underserved communities and to subsequent practice in a health professions shortage area across the state of North Carolina (NC).[14] The program began in 2015 with 1 family medicine program and subsequently expanded to include 17 GME programs throughout NC in surgery, psychiatry, pediatrics, internal medicine, and medicine-pediatrics with AMA grant funding (see online supplementary data). FIRST students complete a 130-week Liaison Committee on Medical Education curriculum with a directed pathway into an affiliated GME program. GME program directors are involved in selecting students for the FIRST program during their first year of medical school. Students receive intentional mentorship, additional clinical experiences within the GME program, and focused didactics to prepare for medical practice in rural and underserved settings.

Since 2015, 50 students have matriculated, and 24 students graduated UME and transitioned into GME. Ten of the 50 matriculants were lost to attrition, with 9 students opting to return to a 4-year nonaccelerated curriculum prior to GME transition and 1 student opting to switch specialty programs during GME training. All 7 FIRST graduates who completed residency are practicing in rural or medically underserved areas of NC, 6 of 7 (86%) are clinical preceptors for UME FIRST students, and 2 of 7 (29%) are faculty at Health Resources and Services Administration (HRSA)-funded Rural GME and Teaching Health Center GME FIRST family medicine residency programs. Evaluation of students who have completed the UME FIRST curriculum indicates equal preparedness for GME training, due in part to their longitudinal GME experiences throughout their UME training.[16]

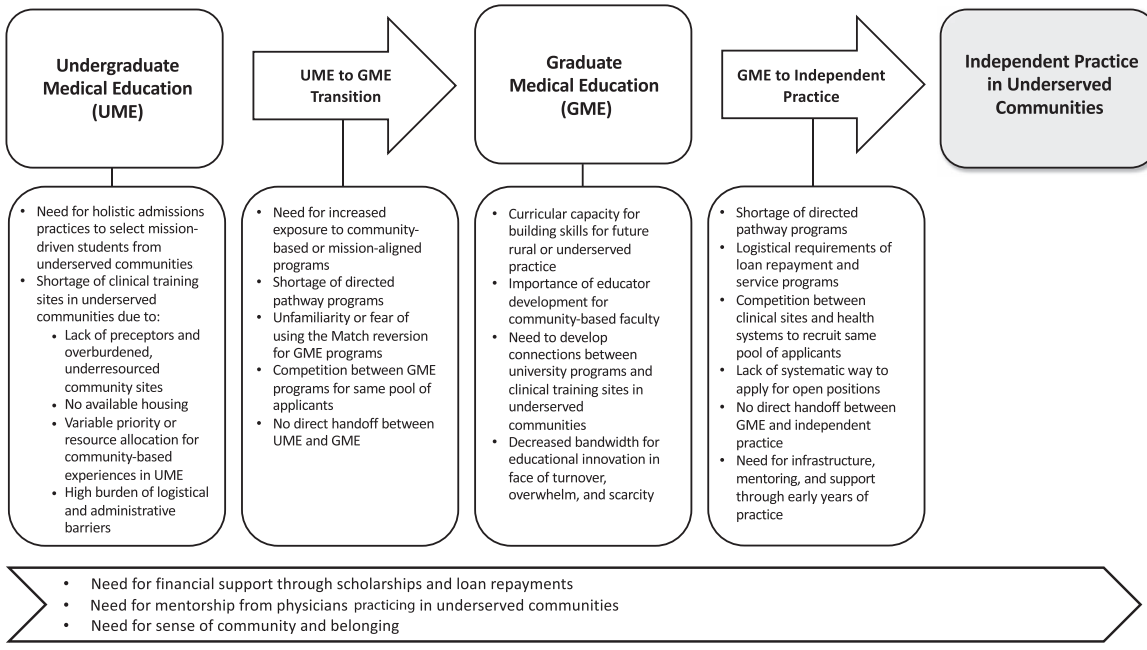

FIGURE 1
UME to GME to Independent Practice Framework That Identifies Challenges in Training Physicians for Future Rural or Underserved Practice

COMPADRE

COMPADRE is a collaboration between University of California, Davis (UCD) School of Medicine and Oregon Health & Science University (OHSU), and a majority of GME programs and health centers in Northern California and Oregon in family medicine, internal medicine, pediatrics, surgery, psychiatry, and obstetrics and gynecology. COMPADRE focuses on reducing the significant regional health disparities by transforming the physician workforce through initiatives that affect admissions practices, UME to GME transition, curriculum and educator development, and physician well-being.

COMPADRE provides annual peer support training for faculty, chief residents, and GME wellness champions. A robust curriculum consisting of 10 entrustable professional activities for rural, underserved, and indigenous practice was created and made accessible to all GME programs, which incorporated curricular elements into rotations, workshops, and didactics. In 2019, COMPADRE aimed to develop a community of practice with 31 GME programs. Five years after inception, 25 of the original GME programs remain, and 4 newly accredited rural psychiatry and family medicine residency programs joined (see online supplementary data).

Since 2021, 80 students enrolled in COMPADRE UME programs, 23 graduated and transitioned into GME, and 0 students exited the program. Ten of 19 (53%) students who ranked available COMPADRE specialties matched to a GME partner. The UME institutions created pre-clerkship electives with GME partners and a standing post-clerkship elective with rotation catalog to increase opportunities for students to rotate at GME partner sites. Additionally, UCD's first cross-state core family medicine clerkship site was established in Oregon in 2023, which 4 trainees have completed.

Discussion

FIRST and COMPADRE are 2 unique multi-institution partnerships between UME and GME programs across specialties and locations that abandoned inter-program competition to prioritize addressing regional physician workforce needs in underserved communities. Both efforts emphasize greater engagement of GME in UME training, admitting mission-driven trainees, offering tailored curricula, and placed-based training, allowing for precision-based education to support students' pre-matriculation mission with alignment of community needs. Early outcomes demonstrate retention in rural and underserved communities, with UME trainees matching to GME programs engaged in this effort. We anticipate this will extend to future practice in rural and underserved communities with dire physician shortages, as FIRST's early outcomes indicate.

Interventions to address workforce shortages can occur at different institutional levels (FIGURE 2), including

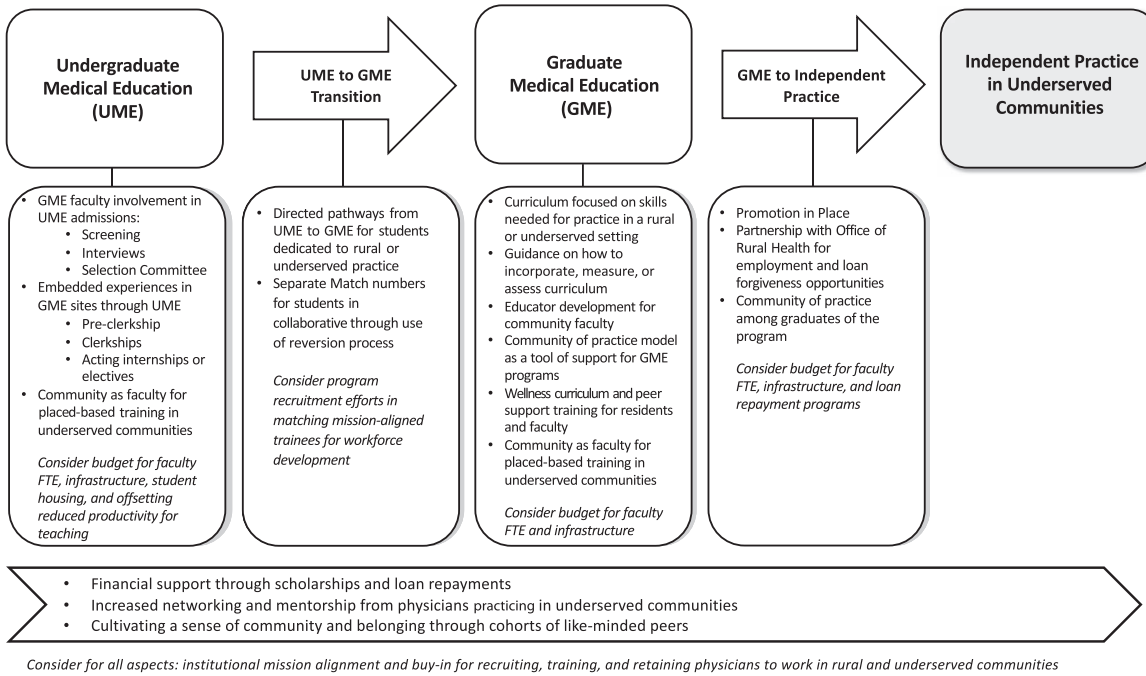

FIGURE 2
Opportunities and Considerations for GME Programs to Strengthen Workforce Development Linkages Across the Medical Training Continuum

Abbreviation: FTE, full-time equivalent.

UME pathway programs, GME programs, academic medical centers, sponsoring institutions, or regional collaboratives. Although individual programs may face challenges for educational innovation, engaging in a community of practice may mitigate these by identifying potential high-impact innovations and facilitating strategic approaches. Both FIRST and COMPADRE programs have shown growth since program inception, which brings energy and commitment to sustain collaborations while supporting GME programs in development with ideas and practical solutions.

Sustaining cross-institutional partnerships requires ongoing resources to support the infrastructure, administrator and faculty time, and future innovations. Funding from the AMA's Reimagining Residency grant program jumpstarted many foundational efforts such as protecting faculty time to develop curricula and collaborations, travel to in-person meetings to catalyze co-learning opportunities, distribution of funds to support community-based curricular or well-being innovations, and student housing for new clinical rotations (TABLE). We reviewed our project sustainability plan annually, deciding which efforts to sunset and which to institutionalize. Each of our institutions has committed to providing continued support for core faculty, staff, and programming after external funding ends. Many community partners recognize the value of this workforce initiative and institutionalize their contributions as well.

Additional investment is needed to address barriers in the GME to independent practice transition. One potential strategy is Promotion in Place,[17] which is a model for competency-based time-variable GME. Standard setting organizations in medical education need to consider how they can address issues around workforce, including reducing barriers that current standards may pose for innovation that enable capable clinicians to enter the workforce as soon as possible. The Council on Graduate Medical Education,[18] which provides an ongoing assessment of physician workforce trends, training issues, and financing policies, should also provide recommendations. Policymakers need to consider how to provide support for design, implementation, and dissemination of innovative programs that address physician workforce shortages.

Conclusions

Regional collaborations linking UME and GME play a critical role in addressing workforce shortages by recruiting mission-driven trainees to mission-aligned programs, sharing resources to strengthen focused curriculum, and offering longitudinal clinical training in underserved areas to prepare for independent practice. This intentional linkage across the medical training continuum mitigates barriers commonly experienced in physician workforce development efforts, promoting graduates to practice in regions with dire

TABLE
Investments Needed to Launch Regional Collaborations to Address Physician Workforce Shortages

Category	Description	Sustainability
Faculty FTE support	Protecting FTE is necessary to: ▪ Engage in admissions work to recruit mission-aligned trainees ▪ Develop resources such as tailored curricula, educator development materials, and wellness resources ▪ Build partnerships within and across institutions that increase opportunities for place-based training within the existing curricular structure ▪ Lead and administer the program that trainees are recruited to join ▪ Pursue additional funding opportunities to support future program growth	Admissions work is continued in-kind. Initial FTE to develop resources and partnerships is phased out. Program leadership roles are institutionalized with continued funding of core faculty and programming.
Staff FTE support	Administrative support is needed for logistical coordination of: ▪ Meetings (virtual and in-person) ▪ Project collaboration, which may involve IRB and data use agreements ▪ Clinical experiences, which may involve affiliation agreements, volunteer clinical faculty, and other licensure ▪ Collaborative-wide communication	Selected efforts are institutionalized with continued funding, and program staff extend their expertise to other institutional workforce efforts.
Support for clinical experiences	Clinical experiences for distant sites require support for housing and travel costs that are often too burdensome for trainees. Programs can seek support from trusted community members to offer housing at free or reduced costs but should still have a budget to support place-based training. Consider offsetting reduced productivity for community faculty who invest in teaching the future physician workforce by either offering an RVU unit for teaching or reducing the number of scheduled patients.	Travel support is provided by the UME institutions. Housing is variable: some community partners invested in additional support such as housing resources. UME institutions have incorporated funding into annual budget to support as well.
Travel costs	In-person meetings are crucial catalysts for collaboration and innovation. Our collaboratives gathered in-person annually and offered travel support for participating institutions.	Annual in-person meetings will continue, held at the UME institutions. Community-based institutions support their own travel.

Abbreviations: FTE, full-time equivalent; IRB, institutional review board; RVU, relative value unit; UME, undergraduate medical education.

physician shortages. Collaborations across institutions, specialties, and the UME-GME divide will enhance the ability to meet workforce needs of underserved communities and ultimately improve health outcomes.

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