Issue Brief
April 2026

Milbank Memorial Fund
Using evidence to improve population health

A Roadmap for Building and Implementing a Comprehensive State Graduate Medical Education Strategy: Actionable Steps to Align Investments with Workforce Needs

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Policy Points

- The Roadmap for Building and Implementing a Comprehensive State GME Strategy offers step-by-step guidance to policymakers, workforce leaders, and health care organizations looking to build their physician workforce.
- The roadmap provides a structured approach to expanding residency training while enabling states to adapt the model to meet their own workforce needs and policy priorities through budgetary appropriations, regulatory measures, and legislative action.
- States can use the roadmap to guide their workforce development strategy proposed as part of federal Rural Health Transformation Program activities and strengthen workforce recruitment, increase retention, and improve health care access in rural communities.

ABSTRACT

States across the nation are facing physician workforce shortages, particularly in rural and underserved communities. To address these shortages, states are increasingly embracing a "grow your own" graduate medical education (GME)[a] strategy as federal policies fall short of meeting their needs. However, without a guiding framework, states often rely on ad hoc approaches to engage key stakeholders; fund GME development, expansion, and sustainability; and assess the impact of their investments. To address the challenges states face, we developed the Roadmap for Building and Implementing a Comprehensive State GME Strategy, an evidence-based framework that organizes a GME growth strategy into five iterative stages: exploration, strategy development, strategy design, technical assistance, and optimization. The roadmap draws on previous research, the experience of our GME technical assistance centers, and collaborative work with numerous states engaged in developing statewide strategies.

BACKGROUND

Physician workforce shortages are limiting access to health care in nearly every state, with underserved and rural areas facing the greatest shortfalls.[1] To become board certified and licensed to practice, a physician must complete residency training after medical school. Research demonstrates that physicians are likely to practice near where they train, and this evidence has encouraged states to adopt a "grow your own" strategy to expand residency training, also known as graduate medical education (GME), with the intention of retaining physicians in-state after residency.[2-4] However,

[a] GME follows medical school graduation and is required for physician licensure in a particular specialty. It includes both residency and fellowship training. The duration of training varies according to specialty.

the GME system in the United States is large and complicated, and the overwhelming majority of GME funds are from the federal government. Federal investments total more than $28 billion annually and are primarily funded through Medicare, with substantial contributions from Medicaid, the Veterans Administration, the Department of Defense, and the Health Services and Resources Administration.[5] The GME system involves multiple stakeholders, funders, and regulators who oversee accreditation, training requirements, and financing.[6]

Addressing physician workforce shortages requires more than funding; it demands a coordinated, statewide approach that avoids siloed efforts and ensures long-term impact. Thus, states play a key role in shaping GME, not only as funders but as workforce planners and conveners. Through grants to develop new residency programs, expand or sustain existing programs, and provide technical assistance, states can target training to address physician workforce gaps and address population health needs. Yet, the complexity of GME financing and regulation can leave states without a clear roadmap for action. Questions about how to sequence activities, engage stakeholders, secure funding, and measure impact can stall progress. Moreover, current financing models can create a workforce misaligned with community needs. This misalignment underscores the importance of state-focused, comprehensive workforce planning that integrates GME growth strategies with broader efforts to address specialty-specific shortages, ameliorate geographic disparities, and meet projected physician demand.

To provide states with a clear path to grow their GME capacity, we developed the Roadmap for Building and Implementing a Comprehensive State GME Strategy. Figure 1 outlines the five stages: exploration, strategy development, strategy design, technical assistance, and optimization. The roadmap draws on lessons learned from previous research, our work with multiple states engaged in expanding GME training, and expertise gleaned from leading national technical assistance centers that have supported the launch of new residency training programs nationwide.[7–19]

THE ROADMAP TO A COMPREHENSIVE STATE GME STRATEGY

Previous work described a national roadmap for developing rural residency GME,[15] and while the national roadmap has some overlap with the framework presented in this article, the Roadmap for Building and Implementing a Comprehensive State GME Strategy is specifically geared toward states. It was developed to help states address the challenges they are likely to encounter in developing GME capacity that meets their unique needs, leverages Medicaid and state appropriations, engages state policymakers and health systems, and measures outcomes specific to the populations, geographies, and settings for which they are seeking to increase access. The roadmap is designed to be nonlinear so that states can tailor their GME development process to their specific needs and context. Strategy development is iterative as states may progress quickly through some stages, encounter unforeseen challenges, or need to revisit work completed at an earlier stage based on outcomes or stakeholder feedback. Ownership of a statewide GME strategy varies by state and may reside within a state agency, workforce organization, or academic institution; regardless of the lead entity, success depends on establishing a governance structure that brings together policymakers, health systems, advocates, and other stakeholders to ensure broad feedback and buy-in.

Stage 1: Exploration

In the initial stage, stakeholders assess the state's physician workforce needs and take inventory of overall capacity for residency training. A workforce assessment provides baseline data on the existing supply and distribution of physicians in high-need specialties compared with the location and type of GME training that is underway and the retention of GME graduates in the state and in needed specialties and geographies. Typically, statewide workforce assessments are led by state agencies including departments of health or higher education, sometimes in partnership with workforce organizations or academic institutions, ensuring that data collection and analysis reflect statewide priorities. This collective approach ensures that the planning reflects a comprehensive view of GME and physician distribution across the state. For example, during a statewide assessment,

the Missouri Department of Health and Senior Services determined that primary care and psychiatry positions were in high demand and, thus, decided to focus initial expansion on these specialties.[20] The North Carolina GME Technical Assistance Center created maps highlighting training site distribution relative to physician supply that were used to inform workforce planning efforts at the county level.[21] The workforce assessment also includes a GME inventory that identifies "GME-naïve" hospitals (hospitals that have not received Medicare funding), residency programs that may be poised for expansion but have not yet grown due to a lack of funding or other barriers, and rural hospitals or health centers looking to become engaged in training. This first stage should also include an assessment of available funding through federal grants, state appropriations, and Medicaid GME.

Stage 2: Strategy Development

Stage 2 moves from assessing existing workforce supply and GME capacity to analyzing opportunities for growth. Engaging stakeholders to review the information gathered in Stage 1 provides a chance to validate workforce needs, prioritize workforce investments, and align activities with state-specific policy agendas. While primary care shortages often drive initial priorities, states may want to address other high-need specialties such as obstetrics and gynecology or general surgery, ensuring strategies reflect the full spectrum of workforce needs.

Key Actions in Stage 1: Exploration	
Focus Area	**Action Steps**
Workforce Assessment	• Identify available data on high-demand specialties, physician needs by region, and projected physician shortfalls at the state and regional level, in the context of the larger provider workforce (e.g., nurse practitioners, physician assistants) • Compare findings with national sources including data from the National Center for Health Workforce Analysis dashboard[22] • Compare numbers of medical school graduates with available first-year GME slots in the state • Gather data on retention rates for physicians who complete medical school and GME in-state • Evaluate inflow and outflow of medical students and residents across state lines;[23] if this information is unavailable, plan to explore during Stage 5: Optimization
Resource Inventory	• Assess existing training in high-need programs by institution to understand overall GME capacity • Determine existing funding and identify funding needed to grow programs or positions • Assess needs specific to supporting existing GME programs in high-demand specialties
Stakeholder Identification	• Engage stakeholders to review data, assess gaps, and prioritize policies that will protect, grow, expand, and support GME

Establishing a governance structure creates a foundation for collaboration and stakeholder engagement.[18] Stakeholders should include key decision makers and organizations that can influence the physician workforce. States differ in who leads GME strategy development; responsibility may fall to a state agency, a workforce organization, or an academic institution. Regardless of the lead entity, success hinges on collaborative governance that brings together stakeholders to align priorities and resources. While not an exhaustive list, a governance body should include GME leaders, hospitals and health centers, medical schools, physician specialty associations, hospital association representatives, state agencies, and public health officials. Early integration of funding strategy into governance discussions is essential, as stakeholder collaboration can inform resource allocation and legislative priorities. For example, Missouri's GME Advisory Committee, launched in 2025, brought together varied perspectives to create a comprehensive, collaborative strategy in support of workforce goals.[20] Due to limited GME expertise within state agencies, Missouri supplemented internal resources with external technical assistance from an entity experienced in statewide strategy development. States seeking similar support can also leverage partnerships with workforce researchers, medical schools, hospital or health center associations, and national organizations such as the National Conference of State Legislatures.

Key Actions in Stage 2: Strategy Development

Focus Area	Action Steps
Research	• Validate state workforce priorities by specialty, geography, and setting • Involve GME experts as well as leaders from Medicaid, public health, mental health, workforce development, hospital and rural health associations, physician associations, medical schools, and community partners (e.g., community health centers) • Research available state, federal, and private funding sources; these may include Medicaid GME, state appropriations, philanthropy, or nontraditional sources including taxes or settlement funds • Evaluate existing programs and institutions for growth potential • Use earlier research to identify GME-naïve sites and development capacity
Growth Plan	• Identify gaps and develop growth strategy by leveraging insights from funding research • Secure resources and define timeline for policy adoption and funding allocation • Develop governance model for stakeholder input
Policymaker Engagement & Education	• Highlight workforce needs, physician shortages, and retention benefits • Share data and accountability measures on the impact of training in rural/underserved areas • Provide state-specific data on positions and projected needs • Educate policymakers on the value of GME and its potential to address comprehensive health workforce strategy needs

Stage 3: Strategy Design

Stage 3 translates the GME strategy into a comprehensive and practical plan that establishes the structures and priorities needed for growth. At this stage, states establish funding allocations based on the priorities identified in Stage 2. These may include grants for program start-up, slot expansion, or other targeted initiatives like sustainability, curriculum development, rural rotations, or technical assistance. Table 1 summarizes the funding and technical assistance approaches different states are utilizing and denotes if the state is targeting certain specialties, rural locations, and/or health center settings.[18,24–26] Developing a budget and selecting a technical assistance center in this stage also provides the foundation for successful strategy implementation.

Implementation approaches vary by state. Most rely on a combination of legislation, regulatory measures, and budgetary appropriations rather than legislation alone, which does not guarantee funding or sustainability. Robust data and outcomes tracking measures should be established at the beginning, providing for both accountability and sustainability. States should establish clear priorities from the outset. For example, Wisconsin's expansion grant program requires the state's funded GME expansion programs to prioritize recruitment of in-state medical students and post-residency in-state retention of 50% for funded positions.[27]

Key Actions in Stage 3: Strategy Design	
Focus Area	**Action Steps**
Governance Model	• Implement governance framework for GME planning and implementation • Establish regular stakeholder meetings, including annual GME conference and strategic planning
Strategy Planning	• Finalize strategy components with policymakers, stakeholders, and governing body • Define programs and specialties to address workforce priorities
Funding Allocation	• Determine funding mechanisms for residency growth (feasibility studies, planning grants, slot expansion, curriculum development, sustainability, rural rotations) • Develop detailed budget for each strategic element
Technical Assistance Selection	• Choose organization for technical assistance • Develop services: program start-up support, guidance for new programs, sustainability planning, data collection, marketing, peer networking
Data Tracking	• Design ways to track data on outcomes, measure return on investment and inform continuous improvement
Accountability Framework	• Incorporate accountability measures such as in-state recruitment and retention of graduates and other stakeholder priorities

Table 1. State GME Models and Technical Assistance Initiatives

State	Specialties Included	Rural Provisions	Health Center Provisions	Development Model(s)	Expansion Model(s)	Sustainability Model(s)	Technical Assistance Entity/Services
Alabama	Not specified	No	No	Alabama Medical Education Consortium (AMEC) GME Development	No	No	Alabama Medical Education Consortium (AMEC)
Alaska	No	No	No	No	No	No	WWAMI (Washington, Wyoming, Alaska, Montana, and Idaho) Region Family Medicine Residency Network (Note: specific to FM)
Arizona	FM, IM, Peds, Peds/IM, OB-GYN, psychiatry, geriatrics, GS	Yes	Yes	Arizona Area Health Education Center (AzAHEC) Graduate Medical Education Development Program	General Fund (GF) Graduate Medical Education (GME) (SPA AZ-24-0008)	General Fund (GF) GME Program (SPA AZ-24-0008); Intergovernmental Agreement (IGA) Graduate Medical Education (GME) (SPA AZ-24-0007)	Arizona Area Health Education Centers (AzAHEC)
Arkansas	Primary care or other shortage specialties	No	Yes	Graduate Medical Education Residency Expansion Implementation Grants | GMERE	Graduate Medical Education Residency Expansion Implementation Grants | GMERE	SPA AR-13-21	No
California	FM, IM, OB-GYN, Peds, EM	Yes	Yes	Song-Brown Program; CalMedForce	Song-Brown Program; CalMedForce	Song-Brown Program; CalMedForce; SPA CA-17-0009; SPA CA-18-032	No
Colorado	FM	Yes	No	Rural Family Medicine Residency Development Payment (SPA CO-23-0032)	No	Family Medicine Residency Payment (SPA CO-23-0032); Rural Family Medicine Residency Development Payment (SPA CO-23-0032); SPA CO-21-0032	Colorado Commission on Family Medicine *(Note: specific to FM)*
Connecticut	No	No	No	No	No	Reported payments; SPA not found	No

Specialty abbreviations: key emergency medicine (EM), family medicine (FM), family medicine-obstetrics (FM-OB), general pediatrics (Peds), general surgery (GS), internal medicine (IM), internal medicine-pediatrics (IM-Peds), obstetrics-gynecology (OB-GYN).

State	Specialties Included	Rural Provisions	Health Center Provisions	Development Model(s)	Expansion Model(s)	Sustainability Model(s)	Technical Assistance Entity/Services
Delaware	Behavioral health	Yes	No	No	Delaware Health Force Graduate Medical Education Expansion	Reported payments; SPA not found	No
District of Columbia	Not specified	No	No	No	No	SPA DC-18-0003	No
Florida	Inclusive of 25+ specialties (e.g., FM, OB-GYN, GS, IM, psychiatry, geriatrics, allergy/immunology, anesthesiology, oncology)	Yes	Yes	No	Startup Bonus Program (SPA FL-23-0003); Slots for Doctors Program; Primary Care Graduate Medical Education (SPA FL-23-0003)	Statewide Medicaid Residency Program (SPA FL-23-0003); Primary Care Graduate Medical Education (SPA FL-23-0003); Full Time Equivalents in Primary Care in Specific Medicaid Regions (SPA FL-23-0003); High Tertiary Statutory Teaching Graduate Medical Education (SPA FL-23-0003); Mental Health Graduate Medical Education (SPA FL-23-0003); Adult and Child Psychiatry for Federally Qualified Health Centers (SPA FL-23-0003); uncompensated care pool to distribute GME supplemental payments via 1115 waiver (the 1115 waiver is not on Medicaid.gov).	No
Georgia	IM, FM, psychiatry, EM, OB-GYN, Peds, GS, neurology	Yes	Yes	Exploratory Graduate Medical Education (GME) Grants	Exploratory Graduate Medical Education (GME) Grants	GA Code § 31-7-95; SPA GA-19-0006; SPA GA-23-0009; state-directed payments	Georgia Board of Health Care Workforce

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State	Specialties Included	Rural Provisions	Health Center Provisions	Development Model(s)	Expansion Model(s)	Sustainability Model(s)	Technical Assistance Entity/Services
Hawaii	FM, IM, various specialty residencies	Yes	No	John A. Burns School of Medicine Medical Education Expansion	John A. Burns School of Medicine Medical Education Expansion	Reported payments; SPA not found	No
Idaho	FM, psychiatry, IM, Peds, geriatrics, FM-OB	No	Yes	No	Idaho State Board of Education Ten Year GME Plan	SPA ID-17-0010	WWAMI (Washington, Wyoming, Alaska, Montana, and Idaho) Region Family Medicine Residency Network *(Note: specific to FM)*
Illinois	Not specified	No	No	No	No	SPA IL-24-0010	No
Indiana	FM, Peds, OB-GYN, psychiatry, EM, GS, IM	Yes	Yes	Indiana Commission for Higher Education Graduate Medical Education Board New Residency Program Development Grant	Indiana Commission for Higher Education Graduate Medical Education Board Residency Expansion Grant	Reported payments; SPA not found	Indiana Commission for Higher Education Graduate Medical Education Board
Iowa	FM, IM, psychiatry, OB-GYN, EM	Yes	Yes	Medical Residency Training State Matching Grants Program *(Note: this model will be phased out for Medicaid GME efforts)*	Medical Residency Training State Matching Grants Program *(Note: this model will be phased out for Medicaid GME efforts)*	Medical Residency Training State Matching Grants Program *(Note: this model will be phased out for Medicaid GME efforts);* SPA IA-18-0005	No
Kansas	FM	Yes	No	No	Rural Family Physician Residency Program *(See page 32)*	SPA KS-23-0009	No
Kentucky	Not specified	No	No	No	No	SPA KY-19-0004; SPA KY-24-0006	No
Louisiana	No	No	No	No	No	Reported payments; SPA LA-24-0012; SPA LA-24-0009	No
Maine	No	No	No	No	No	Reported payments; SPA not found	Maine Rural Graduate Medical Education (MERGE) Collaborative

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State	Specialties Included	Rural Provisions	Health Center Provisions	Development Model(s)	Expansion Model(s)	Sustainability Model(s)	Technical Assistance Entity/Services
Maryland	Not specified	No	No	No	No	Maryland Health Services Cost Review Commission (HSCRC) *(Note: GME is handled inside the HSCRC rate-setting process)*	No
Massachusetts	No	No	No	No	No	No	No
Michigan	FM, IM, OB/GYN, Peds, GS, psychiatry, EM, preventive medicine	Yes	Yes	No	MIDOCs (SPA MI-25-0008)	SPA MI-20-0011; GME Innovations Sponsoring Institutions Program (SPA MI-17-0002); GME Innovations Sponsoring Institutions Program (SPA MI-17-0004)	MIDOCs
Minnesota	FM, IM, Peds, GS, geriatrics, psychiatry	Yes	Yes	Primary Care Residency Expansion Grant Program; Rural Primary Care Residency Training Grant Program	Primary Care Residency Expansion Grant Program; Rural Primary Care Residency Training Grant Program; Rural Family Medicine Residency Grant Program	Rural Primary Care Residency Training Grant Program; Rural Family Medicine Residency Grant Program; Medical Education and Research Cost (MERC) Grant; SPA MN-11-030b; SPA MN-13-022	Minnesota Department of Health
Mississippi	FM, psychiatry, IM, EM	Yes	Yes	Office of Mississippi Physician Workforce	Office of Mississippi Physician Workforce	Office of Mississippi Physician Workforce; SPA MS-23-0017	Office of Mississippi Physician Workforce
Missouri	FM, psychiatry, OB-GYN, IM, Peds, GS, addiction medicine or addiction psychiatry, IM-Peds	Yes	Yes	Missouri Department of Health and Senior Services GME Program	Missouri Department of Health and Senior Services GME Program	SPA MO-11-12	Graduate Medical Education (GME) Technical Assistance Center

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State	Specialties Included	Rural Provisions	Health Center Provisions	Development Model(s)	Expansion Model(s)	Sustainability Model(s)	Technical Assistance Entity/Services
Montana	FM, psychiatry, IM	Yes	No	No	No	Medicaid Graduate Medical Education Payment Program (SPA MT-20-0027)	Montana Graduate Medical Education (GME) Council; WWAMI (Washington, Wyoming, Alaska, Montana, and Idaho) Region Family Medicine Residency Network *(Note: specific to FM)*
Nebraska	Peds	Yes	Yes	No	No	SPA NE-22-0002; SPA NE-24-0011; Neb. Rev. Stat. § 71-5206.01	No
Nevada	Not specified	Yes	Yes	Graduate Medical Education Grant Program	Graduate Medical Education Grant Program	Graduate Medical Education Grant Program; SPA NV-17-010	No
New Hampshire	No	No	No	No	No	No	No
New Jersey	Psychiatry, dental	No	No	No	No	GME Subsidy (SPA NJ-24-0009); GME S-Subsidy (SPA NJ-24-0010); GME T-Subsidy (SPA NJ-24-0011); Medicaid Indirect Medical Education (IME) Payments for HEALS (Health Education, Advancement, Learning, and Success) Program (SPA NJ-24-0011)	No
New Mexico	FM, IM, psychiatry, Peds	Yes	Yes	Graduate Medical Education (GME) Expansion Grant Program	No	Graduate Medical Education (GME) Expansion Grant Program; SPA NM-20-0019	New Mexico Primary Care Training Consortium *(Note: specific to primary care and psychiatry)*

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State	Specialties Included	Rural Provisions	Health Center Provisions	Development Model(s)	Expansion Model(s)	Sustainability Model(s)	Technical Assistance Entity/Services
New York	Not specialty specific	No	No	No	No	SPA NY-14-0009; Regional Covered-Lives Assessment/Graduate Medical Education Surcharges (Health Care Reform Act)	No
North Carolina	FM, psychiatry, OB-GYN, IM, Peds, GS	Yes	Yes	UNC System Rural Residency Medical Education and Training Fund	UNC System Rural Residency Medical Education and Training Fund	UNC System Rural Residency Medical Education and Training Fund; SPA NC 21-0004	North Carolina Graduate Medical Education - Technical Assistance Center (NCGME - TAC)
North Dakota	Not specified	No	No	No	University of North Dakota School of Medicine & Health Sciences Healthcare Workforce Initiative	No	No
Ohio	FM, psychiatry	No	No	No	No	Ohio Administrative Code 5160-2-67; H.B. 96	No
Oklahoma	Not specified	No	Yes	No	No	Hospital Graduate Medical Education Program (Medicaid GME); Dean's GME	No
Oregon	Not specified	No	No	No	No	SPA OR-23-0026	Oregon Residency Collaborative Alliance for Family Medicine (ORCA-FM) *(Note: specific to FM)*
Pennsylvania	FM	No	No	No	No	Pennsylvania Academy of Family Physicians Residency Expansion Program; SPA PA-24-0021	No
Puerto Rico	No	No	No	No	No	No	No
Rhode Island	No	No	No	No	No	No	No

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State	Specialties Included	Rural Provisions	Health Center Provisions	Development Model(s)	Expansion Model(s)	Sustainability Model(s)	Technical Assistance Entity/Services
South Carolina	OB-GYN, FM, Peds, psychiatry, IM	Yes	No	No	Physician Residency Incentive Program *(Funding described on page 2)*	South Carolina GME Program *(Funding described on page 2)*	South Carolina Area Health Education Consortium (AHEC) *(Note: specific to FM)*
South Dakota	FM	Yes	No	No	No	Medical Residency Program (SPA SD-18-0005); Rural Residency Program (SPA SD-18-0005)	No
Tennessee	FM, Peds, IM, OB-GYN, geriatrics, psychiatry	Yes	No	Rural Health Care Pathways Expansion Grant	No	Payments for Graduate Medical Education (SPA TN-22-0002)	No
Texas	FM, IM, OB-GYN, Peds, psychiatry	Yes	Yes	Graduate Medical Education Expansion Programs (GME Expansion); Graduate Medical Education Planning and Partnership Grants Program (GME Planning); Rural Resident Physician Program (RRPP)	Graduate Medical Education Expansion Programs (GME Expansion); Rural Resident Physician Program (RRPP)	Graduate Medical Education Expansion Programs (GME Expansion); Family Practice Residency Program (FPRP); SPA TX-19-0020	No
Utah	Primary care, dental, mental health	Yes	Yes	Residency Grant Program	Residency Grant Program	SPA UT-24-0012	No
Vermont	No	No	No	No	No	Reported payments; SPA not found	No
Virginia	Addiction medicine, EM, FM, GS, geriatrics, IM, OB-GYN, Peds, psychiatry	Yes	Yes	No	Graduate Medical Education (GME) Supplemental Funding Program (SPA VA-21-0015)	SPA VA-21-0015; SPA VA-24-0020	Virginia Health Workforce Development Authority Graduate Medical Education (GME) Task Force

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State	Specialties Included	Rural Provisions	Health Center Provisions	Development Model(s)	Expansion Model(s)	Sustainability Model(s)	Technical Assistance Entity/Services
Washington	FM, psychiatry	Yes	Yes	No	No	SPA WA-24-0032	WWAMI (Washington, Wyoming, Alaska, Montana, and Idaho) Region Family Medicine Residency Network *(Note: specific to FM)*
West Virginia	No	No	No	No	No	Reported payments; SPA not found	No
Wisconsin	FM, psychiatry, OB/GYN, IM, Peds, GS, EM, addiction medicine, addiction psychiatry, other specialties considered when data demonstrates need in rural areas	Yes	Yes	Department of Health Services (DHS) Grant Program; Wisconsin Rural Physician Residency Assistance Program (WRPRAP) Rural GME Transformational Grants	Graduate Medical Education (GME) Residency Expansion Grant (SPA WI-24-0017)	Wisconsin Rural Physician Residency Assistance Program (WRPRAP) Rural GME Operational Grants	Wisconsin Collaborative for Rural Graduate Medical Education (WCRGME)
Wyoming	No	No	No	No	No	No	WWAMI (Washington, Wyoming, Alaska, Montana, and Idaho) Region Family Medicine Residency Network *(Note: specific to FM)*

Specialty abbreviations: key emergency medicine (EM), family medicine (FM), family medicine-obstetrics (FM-OB), general pediatrics (Peds), general surgery (GS), internal medicine (IM), internal medicine-pediatrics (IM-Peds), obstetrics-gynecology (OB-GYN).

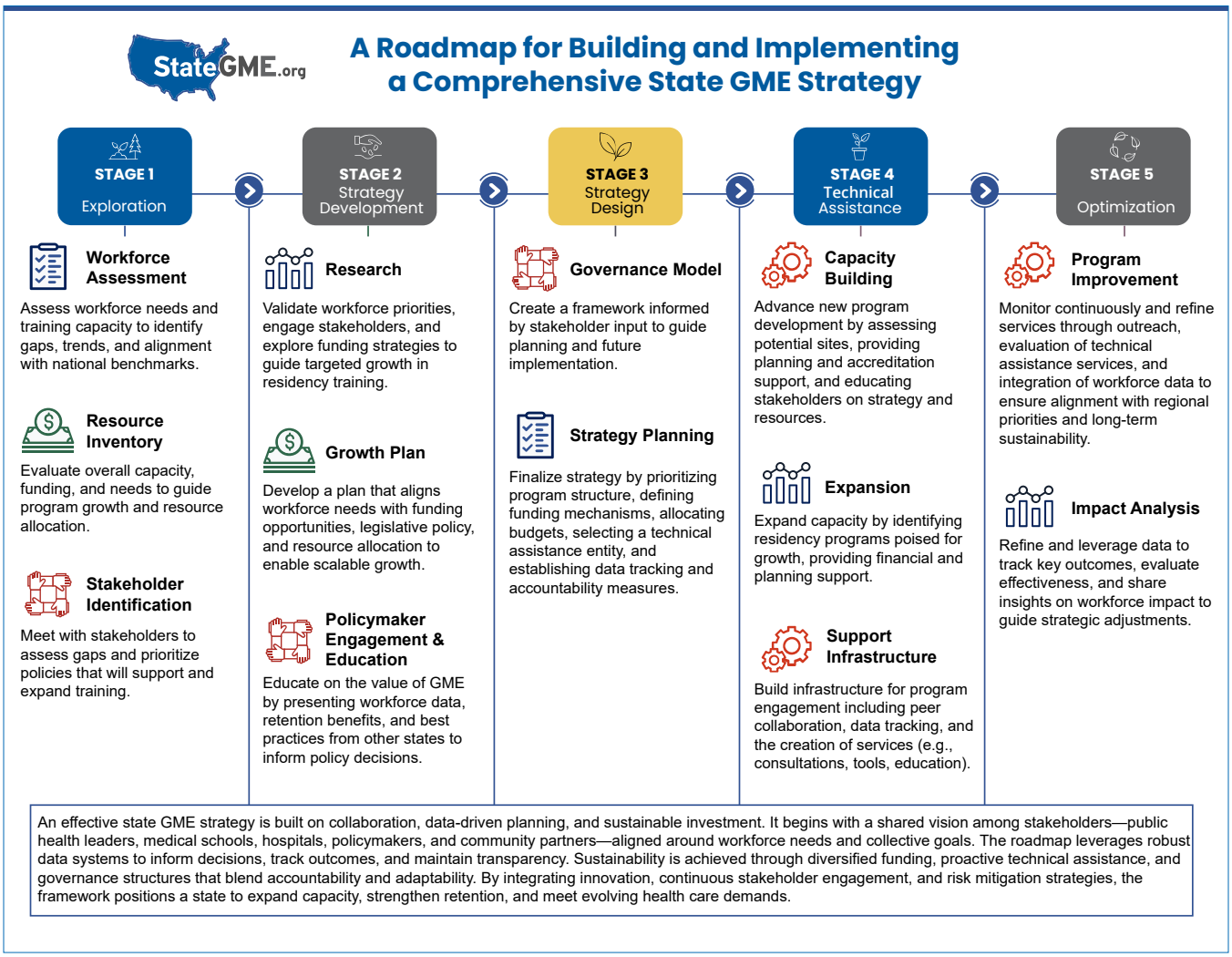
Stage 4: Technical Assistance

A growing number of states (e.g., Wisconsin, New Mexico, Arizona, Missouri and North Carolina) are offering or requiring technical assistance for GME programs, via internal and/or contracted GME expertise.[21,28–30] Table 1 lists the technical assistance entities and services each state has developed. Technical assistance is a critical component of a GME growth strategy, ensuring programs can launch, expand, and remain sustainable over the long term. The technical assistance center should serve as a neutral, statewide resource that supports all partners, helping new programs launch, guiding expansion efforts, and providing stability for programs facing challenges. Just as technical assistance ensures programs have the tools to succeed, accountability measures ensure those efforts deliver desired outcomes. Services provided should encompass structured support for program start-up, targeted expansion, and service development for new and expanding programs. A key element of technical assistance is comprehensive data collection to monitor effectiveness. States should also prioritize sustainability by engaging with programs at risk of closure and offering support and resources to prevent loss of training capacity. Effective strategies recognize that GME growth requires more than funding; it also requires support structures that help programs thrive and maintain capacity over time. Wisconsin's experience illustrates this: Technical assistance was central to the formation of the Wisconsin Collaborative for Rural GME, created when the state embarked on rural training development after five rural residency tracks closed in the early 2000s.[31]

Key Actions in Stage 4: Technical Assistance

Focus Area	Action Steps
Site Assessments	• Assess potential programs and training sites for feasibility, rotations, and new program development • Identify specialties and facilities in which training can be started or expanded; target programs for rural or health center–focused tracks
Foundational Support	• Assist with new program planning and accreditation (timelines, accreditation, financial considerations) • Coordinate professional development and education for new GME programs
Program Expansion	• Identify programs for state-funded GME expansion slots based on earlier research • Provide assistance to programs with analysis, financial planning, and partnership development • Promote expansion opportunities and technical assistance resources
Infrastructure Support	• Provide technical support for financial planning, program development, accreditation, sustainability, and overcoming barriers; support should include curriculum development and scenario planning as well as engagement with organizational and physician leaders to support planning efforts • Foster peer networking through regular meetings, annual conferences, and professional and/or faculty development • Promote training opportunities for medical students in the state and region • Foster partnerships between residency programs and medical schools to ensure strong pathways into GME programs

Data Collection & Feedback	• Implement data systems for graduate placement, match results, and program performance building on the framework established in Stage 3 • Analyze the impact of rural residency activities and funding on rural and underserved communities • Identify, track, analyze, and translate key policy and programmatic issues to inform residency programs, policymakers, and other stakeholders about changes, knowledge gaps, or other challenges impacting programs and funding
Program Vitality & Sustainability	• Engage proactively with programs through meetings and site visits to address challenges (faculty recruitment, accreditation, financial concerns) and ensure long-term viability



Stage 5: Optimization

Building on program implementation and support, this stage focuses on long-term monitoring, evaluation, and refinement to ensure the strategy remains responsive to evolving workforce needs. States should disseminate outcomes of GME expansion and sustainability efforts to policymakers, health care leaders, and the public to demonstrate value and inform future investments. This involves ongoing assessment of program support and technical assistance, refining data tracking systems to capture outcomes, and assessing workforce distribution impact. Outcomes tracking has been identified as a priority, as it informs future funding needs and can foster policy changes.[18] For example, the Texas legislature aimed to increase GME positions to 10% more than the number of medical school graduates training in their state. From 2014 to 2023 the state created 508 new first-year residency positions, exceeding the goal of 481.[32]

DISCUSSION

States are increasingly examining ways to increase GME capacity as a "grow your own" strategy to address physician workforce shortages. While Medicare has historically been the primary source of GME funding, Medicare funding challenges include hospital caps on resident positions and limitations on states' ability to use funding to address physician workforce gaps.[7,33,34] By contrast, Medicaid GME and state appropriations help further address state-specific needs.[18,35] Federal initiatives such as the Rural Health Transformation Program are also spurring states to develop and implement state workforce development activities tailored to their populations.

Many state GME expansion efforts emerge from individual health systems or specialties rather than strategic GME planning activities that prioritize measurable GME outcomes focused on population health needs. Successful implementation depends on building broad support and commitment, which can be achieved with clear workforce data, trends, and compelling narratives that highlight the impact of gaps in the physician workforce. For example, Montana quadrupled its in-state resident training over the course of five years.[3] Both Indiana and Wisconsin also expanded resident positions, with Indiana creating nine medical residencies in the span of 10 years and Wisconsin adding 141 positions over 10 years.[36–38]

The Roadmap for Building and Implementing a Comprehensive State GME Strategy addresses an existing gap in state-level workforce planning: the absence of a structured model to guide comprehensive GME strategy development and implementation. Historically, states have relied on ad hoc approaches and funding initiatives, which often lack coordination and sustainability. Without a clear framework, states struggle to develop effective

Key Actions in Stage 5: Optimization

Focus Area	Action Steps
Program Improvement	• Maintain ongoing outreach to address emerging challenges • Assess technical assistance offerings and adapt to evolving needs • Incorporate updated workforce data and trends to guide statewide adjustments • Ensure alignment with state health care priorities through stakeholder engagement
Impact Analysis	• Refine and leverage data systems for comprehensive evaluation of GME initiatives • Regularly update analysis to capture key outcomes (resident retention in the state, in needed specialties, and in under-resourced geographies and settings) and alignment of outcomes with state-specific priorities • Disseminate results to stakeholders, policymakers, and the public to demonstrate value and impact

strategies, engage key stakeholders, and align investments with workforce priorities. The roadmap provided in this article demonstrates a sequenced and flexible model for growing residency training.

The roadmap also aligns with efforts to broaden workforce development, leveraging lessons learned from a statewide GME strategy to extend beyond physicians. Wisconsin's experience illustrates this potential: After successfully implementing GME program development grants, the state expanded its approach to include other health professions, creating a comprehensive training grant model.[39] To date, the state has awarded 55 grants, which include 32 training sites supporting the education of 900 learners with a 50% retention rate of participating sites. This example demonstrates how a structured framework can catalyze scalable solutions across disciplines. More detail on these state case examples will be included in a forthcoming publication.

RECOMMENDATIONS FOR POLICYMAKERS

- **Utilize the Roadmap for Building and Implementing a Comprehensive State GME Strategy** to explore coordinated state-based strategies to accelerate GME growth in conjunction with federal initiatives and funding opportunities.
- **Designate a lead entity**, such as a state health agency, workforce organization, or academic institution, to convene stakeholders and oversee governance. Empower stakeholders and state agency staff to begin planning by providing resources for convening, conducting robust workforce data analysis, and crafting a statewide strategy.
- **Integrate key stakeholders early**, fostering a coordinated approach including GME experts, funders, health workforce analysts, regulators, and health systems to ensure alignment and sustainability.
- **Plan for funding from the outset** by leveraging state appropriations, Medicaid funding, and/or federal funding opportunities. Consider additional sources including settlement funds (e.g., opioid or tobacco), philanthropy, and public-private partnerships to support planning activities and long-term sustainability. Investigate ways to leverage the Rural Health Transformation Program to amplify the impact of state investments.
- **Draw on existing state models** to strategize the use of state investments to effectively target workforce needs and policy priorities.
- **Build in evaluation and adaptability**: Incorporate mechanisms to assess the long-term impact of a state GME strategy on physician distribution and retention, especially in rural areas. Use insights to inform future policy and explore opportunities to extend the framework to other health professions (e.g., nursing, behavioral health) for a comprehensive workforce approach.

CONCLUSION

Momentum for state-based policies to promote physician workforce expansion is building, driven by limited federal resources, the physician workforce shortage crisis, and growing examples of successful state-level approaches to expand in-state training of physicians. The Roadmap for Building and Implementing a Comprehensive State GME Strategy provides a foundation for states to implement GME solutions that can be refined and improved over time. The framework provides structure while allowing states to tailor strategies to meet unique workforce needs. By collaborating with stakeholders, states can customize their approach to address challenges and opportunities. This adaptability ensures the framework will remain effective for developing physician workforce solutions. Look out for soon-to-be-published companion illustrative case studies with insights into how states have designed and financed GME to complement federal efforts to expand workforce training capacity.

HOW THIS ROADMAP WAS DEVELOPED

The State GME Roadmap Framework

The roadmap builds upon previous research and the authors' experience in the development and administration of state GME strategies in Wisconsin, New Mexico, Missouri, and North Carolina.[7–19] It was developed utilizing an iterative consensus process with six content experts who hold leadership roles in state-level GME development and workforce research. Their expertise includes

comprehensive strategy development in five states and support for policy development across a diverse mix of states nationwide.

Roadmap development included identification of multiple objectives within each of the five stages of developing a comprehensive state-level GME strategy: exploration, strategy development, strategy design, technical assistance, and optimization. The stages and their objectives were designed to be nonlinear such that states can tailor their development process to address their most pressing needs, to account for resources available to develop and implement such a strategy, and to iterate and expand on those efforts in the future.

Table 1. State GME Models and Technical Assistance Initiatives

Table 1 provides an overview of current GME development, expansion, sustainability, and technical assistance initiatives across all 50 US states, the District of Columbia, and Puerto Rico. Supported medical specialties and inclusion of rural and/or health center provisions among the currently available initiatives are indicated for each state and territory. Depending on the state entity, provisions may be defined in formal, codified legislation or in less formal grant-application language. The findings in Table 1 were produced using mixed-methods data collection and analysis. The team conducted document analysis using online sources such as state initiative websites, requests for proposals, Medicaid State Plan Amendments (SPAs), and state legislation from program inception years as well as recent years (i.e., 2017–2025). Informational interviews were also conducted with GME leaders involved in statewide GME initiatives to gain further insight into programmatic approaches, data management strategies, and outcomes tracking. This combined quantitative and qualitative data allowed for the comparison of state frameworks and key characteristics of these frameworks.

Acknowledgments: We gratefully acknowledge the contributions of the following collaborators through the Sheps GME Technical Assistance Centers at the UNC Cecil G. Sheps Center for Health Services Research: Julie Chin, MEITE, education technology specialist, for contributions to the creation of the roadmap figure; Khadeejatul-Kubraa Lawal, MPH, former graduate research assistant, for contributions to protocol design and data collection for both the subject matter expert interviews and document content analysis; Jacob Rains, MPH, research affiliate, for contributions to the state GME study design and analysis; and Emma Bazemore, BS, research affiliate, for contributions to the development of Table 1.

Funding Statement: The Rural Residency and Planning and Development Program–Technical Assistance Center RRPD-TAC, the Teaching Health Center Planning and Development Program–Technical Assistance Center (THCPD-TAC), and the Teaching Health Center Graduate Medical Education Program–Technical Assistance Center (THCGME-TAC) are supported by the Health Resources and Services Administration (HRSA) of the US Department of Health and Human Services (HHS) under cooperative agreements #UK6RH32513 and #U3LHP45321, and contract #75R60224C00016, respectively. The contents are those of the authors and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS, or the US Government.

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