Supplemental digital content for Phillips RL Jr, George BC, Holmboe ES, Bazemore AW, Westfall JW, Bitton A. Measuring graduate medical education outcomes to honor the social contract. Acad Med.

Supplemental Digital Appendix 1

Selection of Calls for Graduate Medical Education Outcomes Assessment or Accountability

Author(s)	Organization	Year	Message
Authorizing legislation	US Congress	1965	Educational activities enhance the quality of care in an institution, and it is intended, until the community undertakes to bear such education costs in some other way, that a part of the net cost of such activities (including stipends of trainees as well as compensation of teachers and other costs) should be considered as an element in the cost of patient care, to be borne to an appropriate extent by the hospital insurance program.[1]
Coggeshall[2]	AAMC	1965	"Those responsible for medical education…will, in decades ahead, need to devote careful attention to appraising the needs of society for health care and health personnel and to developing and implementing plans to meet those needs. Failure to do so will damage the standing of the profession and educational institutions and will invite - even make necessary - less desirable approaches to meeting the health care needs of a growing America."
Millis Commission[3]	AMA	1966	"As yet no serious effort has been made to determine, even in general terms, the distribution of physicians within the differing fields of medical practice which would be optimal for the provision of superior medical service", "it must be emphasized that graduate medical education is unique among the fields of graduate and professional education in being a responsibility of institutions which have service rather than education as their primary function."
Rosemary Stevens[4]	Tulane University	1978	"Who should control specialization? That is, who should make decisions about the number, distribution, and type of education across the board of the specialty fields? This question hovers uneasily over current debates. Traditionally, this has been a matter of professional self-

			regulation." "[H]ow far should the distribution of residencies match perceived manpower needs?"
Work Group on the Education of the Health Professions and the Nation's Health[5]	National Center for Health Services Research	1976	Called for the research community to undertake studies designed to explore the relationships between specific medical education interventions and the clinical outcomes produced by practicing physicians.
Institute of Medicine[6]	IOM Consensus Report. Primary Care Physicians: Financing Their Graduate Med Education in Ambulatory Settings	1989	The committee recommends an adjustment to the Medicare payment for the direct costs of GME that would create an incentive to establish residencies in primary care and to place those residents in primary care ambulatory settings.
Cohen[7]	AAMC	1999	Complaints about how graduates of training programs do their jobs could test public support and faith in our training programs.
Rosenthal[8]	SUNY Buffalo	2000	76% of Rural Training Track graduates are practicing in rural America and graduates describe themselves as prepared for rural practice.
Oliver, Grover, Lee[9]	California HealthCare Foundation	2001	"Future policy decisions should rest…on clearer agreement about which personal services and public goods provided by teaching hospitals deserve governmental support."
Task Force on Academic Health Centers[10]	The Commonwealth Fund	2001	*Training Tomorrow's Doctors: The Medical Education Mission of Academic Health Centers* "the available data are insufficient to judge the performance of academic health centers in discharging their educational responsibilities beyond establishing a minimum level of competency." Recommended $25 million in federal support to produce valid and reliable measures of the costs and quality of medical education.
Whitcomb[11]	AAMC	2002	"More than ever, the public expects the academic community to ensure that doctors who are completing residency training and entering practice are well

			prepared to provide high-quality medical care...It is time for the research community to embrace a research agenda that will meet this need. It is staggering to imagine what the present state of medical education would be like if the research agenda proposed by the Work Group on the Education of the Health Professions and the Nation's Health had been adopted by the research community 25 years ago. Even more important, imagine how the quality of health care might be improved in the future if the medical education community focuses its efforts on this agenda beginning today."
Chen, Bauchner, Burstin[12]	AHRQ, Boston University	2004	"There exists an opportunity to create a research agenda in medical education outcomes research that is multidisciplinary, broad based, and focused on patient centered outcomes."
Medicare Payment Advisory Committee[13]	June 2010 MEDPAC Report to Congress: Chapter 4: GME Financing	2010	Increase accountability for Medicare's GME payments via: Performance-based incentive program and Publishing Medicare's payments and teaching costs
Council on Graduate Medical Education[14]	20th Report to Congress	2010	"Medical Schools and academic health centers should develop an accountable mission statement and measures of social responsibility to improve the health of all Americans."
Weida, Phillips, Bazemore[15]	Robert Graham Center Boston University	2010	Just as Ebell demonstrated decreased student interest in low-compensation primary care specialties, teaching hospitals have also favored higher revenue generating specialty training over primary care positions.
Grover[16]	AAMC	2013	The AAMC identified twelve proposals between 2010 and 2013 to make wholesale cuts to GME funding.
Chen, Petterson, Phillips, Mullan, Bazemore[17]	Robert Graham Center, George Washington University	2013	Teaching hospitals can declare and demonstrate a return for this public investment, and it is possible to measure specific outcomes of this investment.

Reddy, Lazreg, Phillips, Bazemore, Lucan[18]	Robert Graham Center, ABFM, Albert Einstein College of Medicine, Mt Sinai School of Medicine, American Medical Student Association	2013	Qualitative study of GME stakeholders produced three themes about social accountability: (1) creating a diverse physician workforce to address regional needs and primary care and specialty shortages; (2) ensuring quality in training and care to best serve patients; and (3) providing service to surrounding communities and the general public. Suggestions for measuring social accountability included reviewing graduates' specialties and practice locations, evaluating curricular content, and reviewing program services to surrounding communities.
Chen, Xierali, Piwnica-Worms, Phillips[19]	Robert Graham Center, George Washington University	2013	The Medicare Prescription Drug, Improvement, and Modernization Act of 2003 redistributed nearly 3,000 residency positions among the nation's hospitals, largely to train more residents in primary care and in rural areas. Less than 3% went to rural and the relative allocation to nonprimary care training was twice as large as to primary care
Phillips, Petterson, Bazemore[20]	Robert Graham Center, ABFM	2013	31-52% of trainees exposed to safety net settings during training return to practice in one of those settings compared to 2% of all residency graduates who practice in one of these settings.
Institute of Medicine[21]	Graduate medical education that meets the nation's health needs	2014	The system's only mechanism for ensuring accountability is the requirement that residency programs be accredited. The system does not yield useful data on program outcomes and performance. There is no mechanism for tying payments to the workforce needs of the health care delivery system. The committee strongly urges Congress to amend Medicare law and regulation to begin the transition to a performance-based system of Medicare GME funding. Create a GME Policy Council in the Office of the Secretary of the U.S. Department of Health and Human Services Development to (2 of 5

			recommendations) provide oversight of a strategic plan for Medicare GME financing; and, provide research and policy development regarding the sufficiency, geographic distribution, and specialty configuration of the physician workforce. Establish a GME Center within the Centers for Medicare & Medicaid Services with the following capacity (1 of 3 recommendations): Data collection and detailed reporting to ensure transparency in the distribution and use of Medicare GME funds.
Peterson, Careck, Holmboe, et al[22]	ABFM, ACGME, University of Florida, University of Cincinnati	2014	ABMS boards have a wealth of data on physicians collected as a by-product of MOC and business operations. Further, many ABMS boards collect practice demographics and scope-of-practice information through MOC enrollment surveys or recertification examination questionnaires. These data are potentially valuable in helping residencies know what their graduates are doing in practice. ABMS member boards and the ACGME should broaden their long-standing relationship to further develop shared roles and data-sharing mechanisms to better inform residencies and the public about GME training outcomes.
Chen, Petterson, Phillips, Bazemore, Mullan[23]	George Washington University, ABFM	2014	Among primary care physicians who completed residency training between 1992 and 2010, the spending patterns in the HRR in which their residency program was located were associated with expenditures for subsequent care they provided as practicing physicians for Medicare beneficiaries. This raises the possibility that interventions during residency training may be able to contribute to the control of future health care spending.
Phillips, Bitton[24]	ABFM, Harvard	2014	Most training institutions do not have a uniquely stated GME mission. Without a clear GME mission statement, GME

			training and output commonly devolve to reflect the hospital's dominant business strategy. As AHCs reform their business models and social contracts, it makes sense to also enunciate a new GME mission that clarifies whom GME serves.
Weinstein[25]	Partners HealthCare System	2015	Key requirements for achieving meaningful GME accountability are proposed, including (1) a more effective partnership with the public; (2) explicit goals and assigned responsibilities, reflecting reasonable expectations of what GME can accomplish; (3) reliable metrics for GME outcomes; and (4) a governance system that provides coordination and has the authority to effect changes.
Office of Management and Budget[26]	HHS Budget proposal 2016	2016	Would give the Secretary authority to set standards for teaching hospitals receiving GME Payments particularly for primary care.
Weidner, Chen, Peterson[27]	University of Washington ABFM	2017	The National Family Medicine Graduate Survey is a collaboration of the American Board of Family Medicine and Association of Family Medicine Program Directors that enables quality feedback from family physicians three years out of training on training outcomes for residencies to monitor and improve their programs. The survey collects data that would meet the ACGME's requirement for surveying graduates and improve residency training, the specialty, and ultimately the health of the public.
Weinstein[28]	Partners HealthCare System	2017	Assessment of the impact of individual residency graduates, the performance of graduate medical education programs, and the collective contribution of our GME "system" would help inform policy decisions and facilitate efforts to cultivate evidence-based GME.
Phillips, Petterson, Bazemore, Wingrove, and Puffer[29]	ABFM, Robert Graham Center	2018	The "imprint" of training spending patterns on physicians is strong and enduring, without discernible quality effects, and, along with identified institutional features, supports measures

			and policy options for improved graduate medical education outcomes.
National Academies of Sciences, Engineering, and Medicine[30]	Graduate Medical Education Outcomes and Metrics: Proceedings of a Workshop	2018	Measuring and reporting GME outcomes is important for professional accountability and to justify public funding Many data are already available, and there are many opportunities to use those data in novel ways. For example, presentations at the workshop noted that data are currently collected by ACGME, NBME, HRSA, the VA, AMA, AAMC, ABMS, CMS, and state databases The medical and GME communities are not fulfilling all of their responsibilities and it is time to consider values other than self-regulation. The GME community may not be able to do this alone and it may need to accept the idea that it needs to partner with government and regulatory bodies.
Triola, Hawkins, Skochelak[31]	NYU School of Medicine, ABMS, AMA	2018	Using practice data to evaluate medical education programs can transform how the future physician workforce is trained and better align continuously learning medical education and health care systems.
Levin, Meyers, Peterson, et al[32]	Robert Graham Center, ABFM	2019	Family medicine residents who graduate from Federally Qualified Health Center–aligned Teaching Health Center (THC) training residencies are nearly twice as likely to pursue employment in safety-net settings compared with non-THC graduates. This trend has been consistent over the past few years, suggesting that the program is fulfilling its mission to strengthen primary care in underserved settings.
Coutinho, Klink, Wingrove, et al[33]	Robert Graham Center	2019	There is little relationship between Primary Care GME trainee growth and state need indicators. States should capitalize on opportunities to create explicit linkages between UME, GME, and population need; strategically allocate Medicaid GME funds; and monitor the

			impact of workforce policies and training institution outputs.
Rosenberg, Gauer, Smith, et al[34]	University of Minnesota	2019	to develop a Medical Education Outcomes Center (MEOC) to integrate education data and to build a framework to standardize the intake and processing of requests for using these data

References for Supplemental Digital Appendix 1

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