health**policy**brief

The role of diversity in Ohio's health workforce

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Introduction

Ohio's health workforce plays a key role in ensuring that Ohioans have access to high quality health services that are appropriate, comprehensive and integrated. Driven by a rapidly aging population and the expansion of subsidized health coverage through the Affordable Care Act (ACA), the demand for health services is expected to increase substantially in the coming years. This increased demand for health services, coupled with an expected demographic shift toward a more racially, ethnically and culturally diverse population, has intensified the demands on Ohio's health workforce.

This policy brief highlights how diversifying Ohio's health workforce, by increasing the presence of racially and ethnically diverse populations, individuals from poor socio-economic backgrounds and rural or Appalachian Ohio (referred to as underrepresented populations)
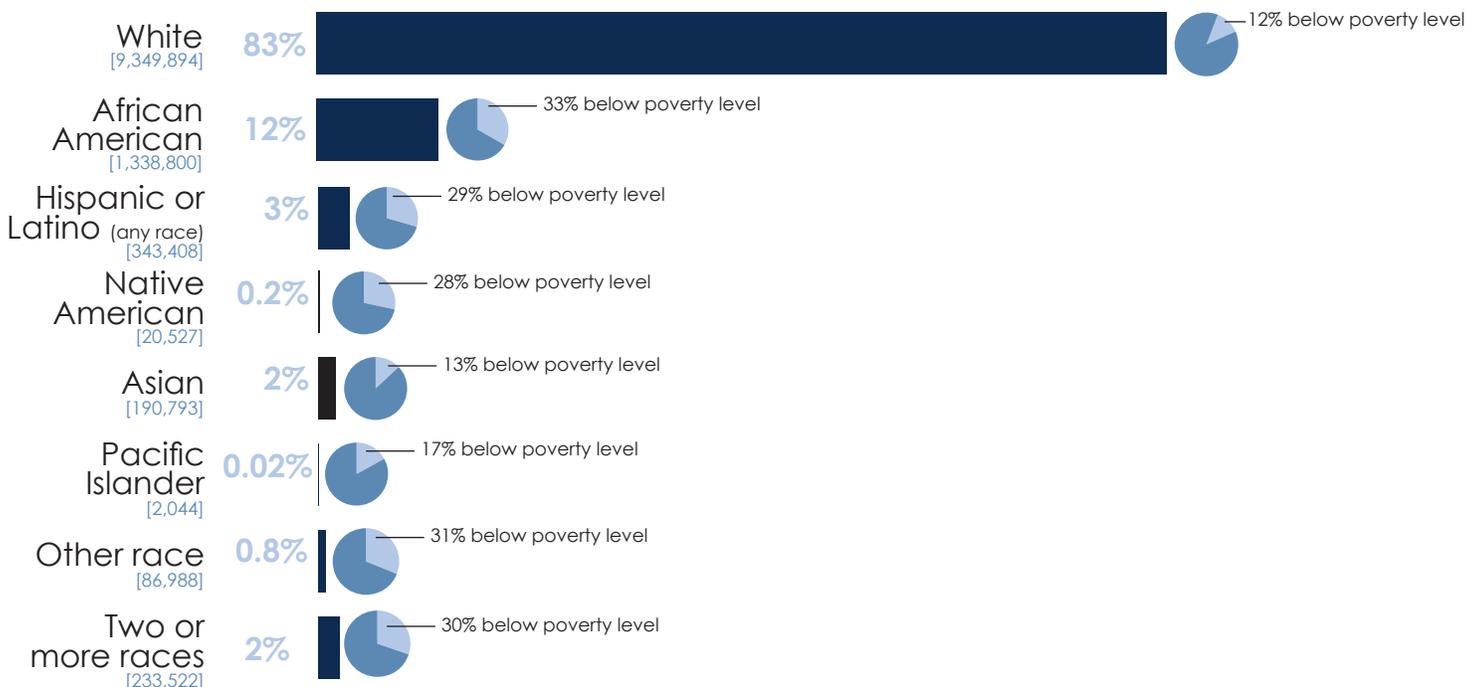
can contribute to a number of benefits, including increased access to health services for Ohio's most underserved populations. This brief also discusses a number of strategies that can be implemented to diversify Ohio's health workforce.

What is a diverse health workforce?

A diverse health workforce ensures that the characteristics and distribution of health workers is reflective of the characteristics and distribution of the patient population.

Across a number of health professions, data demonstrates that individuals from racial and ethnic minorities are underrepresented in the health workforce (referred to as underrepresented minorities).[1] Data also suggests the same for individuals coming from rural or Appalachian regions and poor socio-economic backgrounds.[2]

A snapshot of Ohio's population, all ages, 2012

White [9,349,894]	83%	12% below poverty level
African American [1,338,800]	12%	33% below poverty level
Hispanic or Latino (any race) [343,408]	3%	29% below poverty level
Native American [20,527]	0.2%	28% below poverty level
Asian [190,793]	2%	13% below poverty level
Pacific Islander [2,044]	0.02%	17% below poverty level
Other race [86,988]	0.8%	31% below poverty level
Two or more races [233,522]	2%	30% below poverty level

Note: Percent below poverty level is within past 12 months
Source: U.S. Census Bureau, "2008-2012 ACS 5-Year Narrative Profiles."
http://www.census.gov/acs/www/data_documentation/2012_narrative_profiles/.

National snapshot of select health professionals by race and ethnicity, 2013

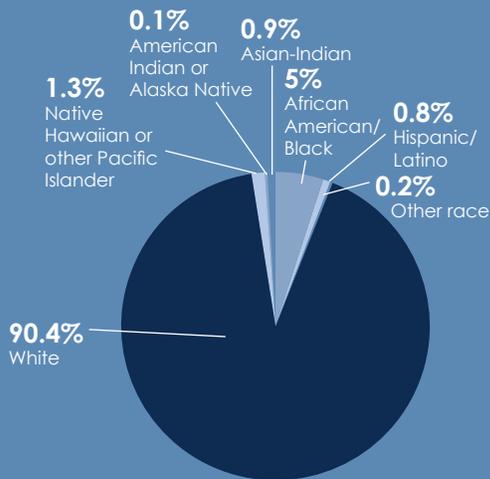|	White	Black/ African American	Hispanic/ Latino	Asian/ Native Hawaiian/ Pacific Islander	American Indian/ Alaska Native	Multiple/ Other race
Working-age population	66.9%	11.8%	14.2%	4.9%	0.6%	1.5%
Physicians	68.7%	5.1%	6.0%	18.5%	0.2%	1.5%
Physician assistants	73.6%	7.8%	9.4%	6.6%	Not available	2.3%
Licensed practical and licensed vocational nurses	63.2%	23.6%	7.5%	3.6%	0.6%	1.4%
Dentists	75.8%	3.2%	5.8%	14.1%	Not available	1.0%
Pharmacists	72.4%	5.6%	4.0%	16.5%	0.2%	1.3%
Optometrists	79.7%	1.9%	3.8%	12.8%	Not available	Not available
Chiropractors	89.4%	1.8%	3.4%	3.9%	Not available	1.4%

■ = Underrepresentation

Note: Ohio-specific data for registered nurses and advanced practice registered nurses is provided below.
Source: U.S. Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis, "The U.S. Health Workforce Chartbook Part I: Clinicians." Last modified November 2013. See also U.S. Department of Health and Human Services Health Resources and Services Administration National Center for Health Workforce Analysis, "The U.S. Health Workforce Chartbook Part II: Clinicians and Health Administration ." Last modified November 2013. http://bhpr.hrsa.gov/healthworkforce/supplydemand/usworkforce/chartbook/chartbookpart2.pdf.
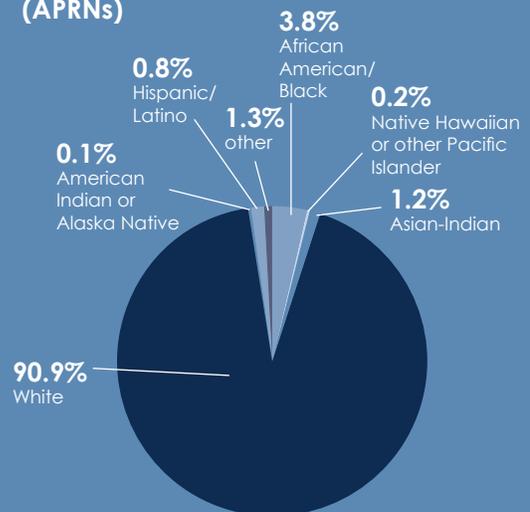
A closer look at diversity in the nursing workforce in Ohio

Comprehensive data on the demographics of Ohio's health workforce across professions is not available (See page 7, developing Ohio's health workforce data). However, the Ohio Board of Nursing is among the few health professional licensing boards in Ohio that collect worker demographic data, including race and ethnicity. The Board recently collected comprehensive workforce data for registered nurses (RNs) and advanced practice registered nurses (APRNs) during their 2013 renewal cycle that ended on August 31, 2013. Data from the Board's recent collection efforts are summarized below.

Registered Nurses (RNs)

0.1% American Indian or Alaska Native
0.9% Asian-Indian
1.3% Native Hawaiian or other Pacific Islander
5% African American/ Black
0.8% Hispanic/ Latino
0.2% Other race
90.4% White

Advanced Practice Registered Nurses (APRNs)

3.8% African American/ Black
0.8% Hispanic/ Latino
1.3% other
0.2% Native Hawaiian or other Pacific Islander
0.1% American Indian or Alaska Native
1.2% Asian-Indian
90.9% White

Source: 2013 Registered Nurse, "Ohio Workforce Data Summary Report October 2013." Last modified October 2013. http://www.nursing.ohio.gov/PDFS/workforce/RN_Workforce_2013.pdf See also 2013 Advanced Practice Registered Nurse, "Ohio Workforce Data Summary Report October 2013." http://www.nursing.ohio.gov/PDFS/workforce/APRN_Workforce_2013.pdf

What are the potential benefits of a diverse health workforce?

Benefits of a diverse health workforce cited in research include the following:

Greater patient satisfaction. Research suggests that patients receiving care from a provider of their same race or ethnicity report greater patient satisfaction.[3] These patients also report better communication with their providers and perceive their providers to have a higher level of participation in their care.[4]

A workforce that is culturally and linguistically competent. Cultural and linguistic competency is the ability to deliver services in a manner that is respectful of and responsive to the cultural and linguistic needs of a patient.[5] Research on the effectiveness of cultural and linguistic competence has found that culturally and linguistically trained providers are more likely to report enhanced understanding of the health care experiences of patients with diverse backgrounds, improved ability to communicate with patients, as well as improved skills to effectively work in cross-cultural situations.[6]

A number of experts have suggested that a diverse health workforce will be more culturally and linguistically prepared to care for a diverse patient population.[7] However, the majority of research on this topic has focused on the impact of cultural and linguistic competency training rather than on the impact of diversity itself.[8] Notably, a number of studies, both inside and outside of the health arena, have found that diversity in academic settings increases students' openness and responsiveness to diversity, as well as students' racial and cultural awareness.[9] Some data also suggests that underrepresented minority faculty members are more likely than non-minority faculty to teach on cultural competency and other topics associated with caring for a diverse patient population.[10] Consequently, there is evidence to suggest that diversifying the health workforce could contribute to more culturally and linguistically competent health providers.

Expanded access to health services for underserved populations. A growing number of studies have indicated that increasing the presence of underrepresented populations in health professions can expand access to health services for underserved populations.[11]

There is a significant geographic maldistribution of providers in Ohio resulting in a high concentration of providers in some areas of the state and a lack of providers in other areas. As of January 1, 2014, Ohio had more than more than 340 Health Professional Shortage Areas (HPSAs), designated by the federal government as having a shortage of health practitioners in primary, dental or mental health care (see Chart Ohio Health Professional Shortage Areas).[12] According to Ohio's Office of Health Transformation (OHT), individuals living in HPSAs tend to disproportionately be from racial and ethnic minority and poor socio-economic communities within rural and urban areas across Ohio.[13]

To further compound this problem, many health providers choose not to work in HPSAs and underserved communities. The majority of medical students come from families that make more than $100,000 a year. Notably, those coming from the highest income segment are the least likely to enter primary care or practice in rural or underserved areas.[14] In 2012, only 2.9% of matriculating medical students in the US intended to practice in a small town or rural area.[15]

Several studies have demonstrated that for underrepresented minorities, race is the strongest predictor of caring for underserved populations, surpassing a provider's socio-economic background as well as participation in financial incentive programs such as the National Health Service Corps.[16] Data from a recent study analyzing 2010 Medical Expenditure Panel Survey results found that non-white minority physicians were more likely than white physicians to serve minority patients as well as non-English speaking patients.[17] Further, compared to white physicians, black, Hispanic and Asian physicians were more likely to see patients on Medicaid, and Hispanic physicians were more likely to care for the uninsured.[18]

Improved health outcomes. Many of the benefits associated with diversifying the health workforce may also contribute to improved health outcomes for patients. However, **there is a need to establish a stronger evidence base that supports the direct link between health workforce diversity and improving patients' health outcomes.**

What are some barriers to developing a diverse health workforce?

Education inequality. Education inequality is cited as one, if not the greatest, impediment to increasing diversity in the health workforce.[20] Vulnerable populations, including racial and ethnic minorities, individuals from rural or Appalachian Ohio, and those from poor socio-economic backgrounds, experience greater obstacles in accessing the educational opportunities needed to prepare students for health careers. Data demonstrates that racial and ethnic minorities and those coming from low-income families are less likely to enter into higher education than white students, or those coming from wealthier socio-economic backgrounds.[21] In 2012, more than 26% of white Ohioans had a college degree, compared to only 16% of both African-American and Hispanic/Latino Ohioans.[22]

Total cost of health education. The high cost of tuition coupled with the costs of applying for and attending a health professional program can deter students, specifically those coming from lower income families, from pursuing a health career. Data from the Association of American Medical Colleges (AAMC) suggests that 86% of medical students graduate with educational debt, with an average debt totaling more than $169,000.[23] A recent study evaluating racial and ethnic disparities in medical student debt found that more than 77% of African-American medical students reported an anticipated educational debt in excess of $150,000, compared to only 65% of white medical students.[24] A survey of dental school seniors in 2013 found similar results, with 81% of African-American students surveyed anticipating an educational debt greater than $150,000, compared to 75% of white students.[25]

Limited supply of diverse health professions faculty. The shortage of faculty for health professional education programs limits the opportunities available to pursue a health career. In particular, nursing programs have cited a critical shortage in the supply of nursing faculty.[26] Aside from difficulties in recruiting and retaining health professions faculty, these programs face even greater difficulty recruiting and retaining a diverse health professions faculty with adequate representation from minority and other underrepresented populations.

Diversity in health professions faculty plays a key role in the recruitment and retention of underrepresented minority students, as well as students from rural or Appalahian Ohio, and those from poor socio-economic backgrounds.[27] Specifically, underrepresented minority faculty can provide the social support, mentorship and cultural competency training needed to support the development of a diverse health workforce.[28] A growing number of health professions programs have found that students' success can be improved by pairing an underrepresented minority student with an underrepresented minority faculty mentor who understands and shares their personal background and experience.[29] Furthermore, underrepresented minority faculty are more likely to address the challenges associated with caring for a diverse population through research and teaching.[30]

Lack of comprehensive workforce data. Comprehensive health workforce data provides the necessary foundation for targeted recruitment and retention efforts to increase the presence of underrepresented populations in the health workforce. Both lack of data and

Ohio Health Professional Shortage Areas (as of January 1, 2014)

Health Professional Shortage Areas (HPSA) Category	Number of HPSAs	Total population living in HPSAs	Practitioners needed to remove HPSA designation
Primary care	124	1,063,078	130
Dental care	124	1,541,273	235
Mental health care	95	2,550,345	59
Total	**343**	**-**	**424**

Note: An HPSA designation is, in part, based on the identification that there is a shortage of health practitioners in the geographic area. For Ohio HPSAs, a "practitioner" means allopathic (MD) or osteopathic (DO) primary medical care physicians for primary medical care HPSA designations; dentists, for dental HPSA designations; and psychiatrists, for mental health care HPSA designations.[19]

Source: Bureau of Clinician Recruitment and Service, Health Resources and Services Administration (HRSA), U.S. Department of Health & Human Services. Last modified April 7, 2014. Accessed April 19, 2014.

data collection standards hamper states' ability to appropriately structure programs and policies aimed at diversifying the health workforce.[31]

Like many states, Ohio does not have a publicly available source for comprehensive health workforce data.[32] Data on Ohio's health workforce is fragmented and incomplete with various state agencies and healthcare licensing boards collecting different data sets specific to their licensees. While some healthcare licensing boards collect data on their workers' race and ethnicity and geographic origin, others do not. Additionally, data on healthcare professionals' socio-economic and cultural background is rarely collected. As a result, the lack of comprehensive data has made it difficult to:

- Assess the current supply and distribution of Ohio's health workforce
- Determine to what extent certain populations are underrepresented in the health workforce
- Set goals to address the future supply, distribution and composition of health workers

Notably, Ohio is addressing this issue with work to develop a Health Professions Data Warehouse (HPDW). See "What is going on in Ohio" on page 6.

What are some strategies aimed at diversifying the health workforce?

Educational pipeline programs. Educational pipeline programs are partnerships, typically between health professional schools and K-12 schools, intended to inspire and support students who are interested in pursuing health professions or health sciences as careers.[33] Some of these programs also focus on creating pathways for health care professionals, such as state tested nursing aides/assistants and community health workers, to enter into nursing, medical, dental or other health professional programs.

Pipeline programs are funded through several mechanisms, including federal or state grants, sponsorship by a health professional school, or through public and private collaboration.[34] Many of these programs focus specifically on increasing awareness of health career opportunities for students from underrepresented populations and reducing the barriers students may face in entering a health career by providing social support networks, as well as examination preparation courses, tutoring, and career counseling.[35]

Science, Technology, Engineering, Mathematics and Medicine (STEMM) initiatives. STEMM initiatives focus on increasing the number of professionals within the fields of science, technology, engineering, mathematics and medicine.[36] These programs target students when they are younger in order to inspire and support their decisions to enter these professions. A growing number of STEMM initiatives are also focused on developing programming and strategies to increase the presence of underrepresented populations in STEMM professions.[37] Funding for these initiatives comes from colleges and universities, the federal government, and non-profit organizations.[38] These programs can include leadership and mentoring opportunities, workshops, internships, career counseling and placement services, and assistance with funding for undergraduate and graduate education.[39]

Targeted recruitment and retention. Universities and health professional programs have undertaken targeted minority recruitment and retention programs to foster a diverse learning environment.[40] These programs are intended to provide students with information regarding future career development and educational program eligibility, provide alternative pathways for entering into a health professional program, and assist with retaining students from underrepresented populations once they enroll into a program. Examples of these programs include:

- *Holistic review of student applications.* A holistic review in the admissions process for health undergraduate and graduate programs means that, upon initial review of a student's application, factors such as an applicant's life experiences, racial and ethnic background, socio-economic background, or whether they come from a rural or Appalachian community, are considered in determining admission into the program. This approach moves away from grades and standardized test scores as the primary determinants of admissions decisions.
- *Early assurance programs.* These programs generally guarantee a student a spot in a health program, typically at the graduate/professional level, if the student is able to comply with specific requirements such as taking a certain curriculum of courses, maintaining a particular GPA, and/or participation in special programs or events. Early assurance programs vary in structure,

but some will:

- ◦ Waive standardized test requirements that are normally required for admission into the health program
- ◦ Provide additional training to the student to better prepare them for success in a graduate or health professional program
- ◦ Decrease the number of prerequisite courses the student would traditionally need to take to be accepted into the program
- ◦ Allow students the flexibility to pursue non-traditional pre-health professional undergraduate studies (i.e. humanities or social sciences)

Internship, fellowship or other training programs. Creating internship, fellowship and training programs focused on providing students from diverse communities with the practical skills they need to acquire gainful employment within the health field is another strategy that can be used to diversify the heath workforce. A number of these programs are designed to directly support training programs in rural and medically underserved areas in order to provide students and early career health professionals with exposure to diverse patient populations. Examples of these programs include:

- • *Longitudinal integrated clerkships.* These clerkships provide students with a longer clinical immersion experience of at least a semester during their health education and training. In these clerkships, students are able to participate in the comprehensive care of their patients as well as establish continued learning relationships with clinicians over a longer period of time.[41]
- • *Rural residency trainings.* These training programs combine urban training with

rural training, often requiring students to participate in one year of training in an urban setting coupled with two years of training in a rural setting.[42]

Loan and tuition support programs. Loan and tuition support programs, funded by both the public and private sectors, can be instrumental in assisting individuals with the high cost of a health education. A growing number of these programs specifically target students from underrepresented populations. These programs generally provide students with loans, scholarships, or grants. Some of these programs also provide loan forgiveness or educational debt relief to graduates.
Embedded in a number of these programs are higher pay incentives for working in HPSAs or medically underserved areas for a period of time either during a health professional's training or early on in their career.[43]

What is going on in Ohio to diversify the health workforce?

In 2012, Ohio Gov. John Kasich created the Office of Workforce Transformation (OWT) tasked with coordinating and aligning Ohio's workforce policies, programs and resources.[44] OWT relies on a core team including the Ohio Board of Regents, the Ohio Development Services Agency, and the Ohio Department of Job and Family Services to create a unified workforce system that includes coordinating health sector workforce activities across Ohio's health and human services agencies. In 2013, the Governor's Office of Health Transformation (OHT) identified three high need areas important to its work in health sector workforce coordination,

Ohio and federal programs aimed at diversifying the health workforce

Ohio has a number of programs that use the strategies discussed on pages 5 and 6 to promote and develop a diverse health workforce throughout the state. A few of these programs have been highlighted in **Appendix A** as promising practices for increasing the presence of underrepresented populations in health professions. Many of these programs are establishing evidence of what works well and what can be replicated and expanded into other areas of the state or across other health disciplines. Part of this process includes developing an effective method to track longitudinal outcome measures for students involved in the programs. The collection of comprehensive data on Ohio's health workforce and the tracking and reporting of demographic data on the admission, retention, and attrition of students and faculty (including but not limited to race, ethnicity, and socio-economic background) is critical to this process. Notably, the majority of the programs listed in Appendix A reported that securing sustainable long-term funding for their initiatives is a challenge to these efforts.

The federal government also promotes various policies and programs aimed at health workforce diversification. Many of these programs are housed in the U.S. Department of Health and Human Services (HHS), and managed by the Health Resources Services Administration (HRSA). Most of these programs are grant-based for state or local initiatives. For an overview of these programs, see **Appendix B**.

including **(1) providing comprehensive health sector workforce data, (2) prioritizing advanced primary care, and (3) prioritizing underrepresented minorities in the health professions.**
Strategies that particularly address prioritization of underrepresented populations in health professions and diversification of Ohio's health workforce are outlined below:

Developing Ohio's health workforce data. OHT has prioritized the development of a Health Professions Data Warehouse (HPDW) that will act as an analytical engine to enhance state agency capacity in health workforce forecasting, policy development, and research. The Medicaid Technical Assistance and Policy Program (MEDTAPP) HPDW project is sponsored by the Ohio Department of Medicaid (ODM) and the Ohio Department of Health (ODH), supported by the Ohio Department of Administrative Services and staffed by the Ohio Colleges of Medicine Government Resource Center (GRC). The project work with GRC is on a two-year timeline, and is expected to end in June 2015.

The MEDTAPP HPDW will provide Ohio's state agencies, policymakers, academic medical centers, and health sciences colleges and universities with an accurate snapshot of Ohio's current health professional workforce status. Part of the development of Ohio's HPDW will include the creation of a Healthcare Workforce Minimum Data Set (MDS). The MDS will include data collected from Ohio health professional licensing boards on provider demographics, education and practice characteristics (e.g. location and capacity). The collection of comprehensive health workforce data can be used in planning efforts around health professions education programming as well as in the development of health professions' recruitment and retention strategies.[45] Furthermore, data can be used to assess and plan for the future supply, distribution and composition of health professionals.

Additionally, the HPDW will:
• Incorporate health professions data warehouse best practices from around the country
• Encourage collaboration across stakeholders to determine the MDS elements and technical infrastructure components necessary to accurately predict Ohio's health workforce needs
• Integrate historical and current health professions licensure board and commissions data from Ohio's e-Licensure system
• Augment Ohio's e-Licensure data with available geographic area based population counts, estimates, projections and shape files using supplemental data from the U.S. Census, HRSA, and private sector research firms
• Incorporate additional data sources to identify Medicaid providers, medical residents, and Ohio medical school graduates and their practice locations

Targeting direct medical education (DME) to support workforce priorities. Ohio's 2014-2015 budget allows Medicaid to revise rules in allocating DME payments to teaching hospitals – about $200 million over the biennium. The rules will support the administration's health workforce priorities: a workforce trained in comprehensive primary care and committed to serving all Ohioans, dollars that follow residents into community practices, primary care placements in recognized PCMHs, a residency mix that recognizes and supports Ohio's needs and strategies that mitigate the state's underserved areas. OHT has convened a workgroup with participation from OWT, ODH, ODM, Board of Regents, and the Ohio Commission on Minority Health (OCMH) in addition to external clinical groups, to develop recommendations regarding the changes to the Medicaid DME payments.[46]

Coordinating priorities and resources for scholarship, training and loan repayment programs. OWT and OHT will be working together to align current priorities and resources for health professions scholarship, training and loan repayment programs. Part of that work will focus on increasing the diversity of the health workforce. This includes revising loan repayment program application scoring criteria to ensure that there are increased opportunities for underrepresented minorities.

Ohio's key collaborative partners on health workforce diversity

A number of organizations in Ohio have had a historic focus on the issue of workforce diversity. These organizations are subject-matter experts and key collaborative partners on the issue of diversifying Ohio's health workforce. These include, but are not limited to, the following organizations.

Ohio Commission on Minority Health (OCMH)
OCMH is dedicated to eliminating disparities in minority health through innovative strategies, financial opportunities, public health, promotion, legislative action, public policy and systems change. http://mih.ohio.gov/

Multiethnic Advocates for Cultural Competence (MACC)
MACC's mission is to enhance the quality of care in Ohio's health care system and to incorporate culturally competent models of practice into the systems and organizations that provide services to Ohio's diverse populations. http://www.maccinc.net/

The Kirwan Institute (The Ohio State University)
The Kirwan Institute for the Study of Race and Ethnicity works to deepen understanding of the causes of—and solutions to—racial and ethnic disparities worldwide and to bring about a society that is fair and just for all people. http://kirwaninstitute.osu.edu/

Ohio Statewide Health Disparities Collaborative (OSHDC)
A number of individuals and organizations are working together to achieve health equity and eliminate health disparities in Ohio through the Ohio Statewide Health Disparities Collaborative. The group's workforce development subcommittee is tasked with "developing strategies to overcome Ohio's shortage and lack of diversity of public health practitioners, community health workers, primary care physicians, nurses, behavioral health providers, long-term care workers and advance the U.S. Department of Health and Human Services National Standards on Culturally and Linguistically Appropriate Services (CLAS)." http://www.ohiohealthdisparitiescollaborative.org/

Key policy "take-aways"

There are five key steps Ohio policymakers can take to support diversifying Ohio's health workforce:

1. **Target resources and provide support for pipeline and STEMM programs** that increase awareness of health career opportunities for students from underrepresented populations and provide the social supports needed to cultivate a successful health career

2. **Direct funding toward initiatives targeted at recruiting and retaining students and faculty from underrepresented populations** into health professional degree tracks, programs, and academic settings

3. **Provide funding and establish incentives for the development of internship, fellowship or other training programs** that place students and early career health professionals in community based, rural and underserved clinical settings

4. **Support the development and expansion of loan and tuition support programs** targeted towards assisting students and early health career professionals from underrepresented populations with the high cost of a health education

5. **Promote robust data collection and analysis** through the collection of health workforce data on race, ethnicity, geographic origin, and socio-economic background from state agencies and licensing boards, as well as encourage health professional schools to report on this data for the admission, retention and attrition of students and faculty

We want to hear from you

Please take a few minutes to let us know what you think of this policy brief.

https://www.surveymonkey.com/s/WorkforceDiversityP

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Appendix A: Ohio programs aimed at diversifying the health workforce

Program	Program description	Key program features	Evidence of success
Choose Ohio First (COF) **Contact:** Jeff Robinson, Deputy Communications Director, 614-752-9487	COF supports STEMM students in Ohio. The overarching goal of COF is to advance Ohio's position as a leader in world markets, including energy, technology and medicine. **Funding**: State-funded **Partners**: Ohio colleges, universities, and their respective business partners. Participating campuses in every region of the state	• Provides scholarship money to colleges and universities that seek to recruit and retain Ohio students into STEMM fields. The funds also attract business partners who are investing in their future STEMM workforce. • Scholarships have been awarded to over 4,000 students in over 40 public and private institutions in Ohio. • Offers primary care scholarships in medicine and nursing (arising from an education component of the Patient Centered Medical Home Education Pilot Project)	• COF students take more credits, on average, than do their non-COF counterparts (time to degree). • COF recipients earn their degrees at higher rates than their non-COF counterparts – data from the 2008 cohort shows 51% versus 19% for community college students and 38% versus 34% for 4-year students (completion)
University of Cincinnati (UC) **Contact:** Tammy Mentzel, Project Manager and Research Associate, tammy.mentzel@uc.edu	The UC programs target economically disadvantaged, ethnically and racially diverse and first-generation college students. The programs aim to: • Increase the educational opportunity for talented and diverse students in order to graduate a health care workforce that reflects the diversity of the population in the local urban community • Produce students who are culturally competent to ensure the local health care workforce has the background, qualities, and skills to serve community needs and decrease health disparities in the local urban community; and • Develop a health workforce that increases access to health care and the opportunity for optimal health for all in the local urban community. **Funding**: Multiple funders **Partners**: Multiple partners including various community councils and advisory groups, local health foundations, and national foundations, associations, and organizations	**UC Academic Health Center** • **Academic Health Center Pathways Program** – Development of an evidence-based inter-professional pipeline pathway curriculum to attract and retain diverse students from urban and rural communities to health professions programs. • **Academic Health Center Educational Pipeline** – Development of a collaborative pipeline aimed at K through 12 and first- through fourth-year college students, with inter-professional education components. **UC College of Allied Health Sciences** • **Connections Mentoring Program** – Mentorships, job shadowing and professional role modeling. • **Hughes High School Pathways Program** – Dual-credit medical terminology course, tutoring and power lunches. **UC College of Medicine** • **TAP MD, LaSalle Scholars** – Science enrichment classes, shadowing experiences and faculty lectures. • **Connections Dual Admissions Program** – Mentoring and guidance to support academic growth in pre-medical studies at the undergraduate level; service and medically-related experiences. • **STEMMD** – 7-week pre-first-year summer bridge program, academic support and enrichment throughout baccalaureate degree in science pre-med. **UC College of Nursing** • **AMBITION** – Internal undergraduate mentorship program. • **Leadership 2.0 Nursing's Next Generation Program** – Academic support, career exposure, community engagement, enrichment, mentoring, summer bridge program and scholarships for first-year students from diverse backgrounds (i.e., rural, high financial need, race/ethnicity). **UC College of Pharmacy** • **Pharmacy in Learning and Leading (PILL)** – Shadowing and mentoring.	Many of the programs are new and outcome data is not available yet. Outcome data that is available include: • Academic Health Center Educational Pipeline – themes describing what students need to be successful in pursuing and graduating from a health care profession. • Connections Mentoring Program- very positive responses on end of year surveys by both mentors and mentees; doubled in participation year 1 to year 2; and retained significant number of mentors (65%). • Hughes High School Pathways Program – 100% of students completing year 1 program are currently attending UC and Power Lunches continue to be well received and attended. • Leadership 2.0 Nursing's Next Generation Program – 13 students from diverse backgrounds enrolled in a summer bridge residential program the summer before their freshman year of college. 100% of students indicated that the program eased their concerns related to knowledge of the nursing profession, access to help with studies, feeling part of a community, use of technology and having someone to lean on and ask for help.

Program	Program description	Key program features	Evidence of success

Northeast Ohio Medical University (NEOMED) Health Professions Affinity Community pipeline program
 	
Contact: Gina Weisblat, PhD, Director of Education for Service, gweisblat@neomed.edu
	The NEOMED program is statewide and aims to:
	• Provide academic and career support through a high school through professional school pipeline experience and scholarship support for qualified underrepresented minorities at NEOMED.
	• Improve underserved and rural communities by reducing health disparities and increasing the development of a diverse workforce
	
	Funding: Multiple funders
	
	Partners: Area Health Education Centers, Ohio Association of Community Health Centers, and other public and private organizations across Ohio
		• **Education for Services (EFS)**
		  ◦ Scholarship program that incentivizes students from impoverished urban and rural communities to pursue health care degrees
		• **Health Professions Affinity Community pipeline program**
		  ◦ Establish strong health professions pathways for K-16 in underserved and rural communities throughout Ohio
		  ◦ Asset based community building model engages students in identifying and addressing health issues within their communities using existing resources. Students learn:
		    ▪ How to interpret research
		    ▪ Basic level statistics
		    ▪ Formative and outcome evaluation techniques
		    ▪ Program development
		  ◦ Supports academic and career development for health professions practice in rural Ohio through various STEMM initiatives
			A formal evaluation plan developed at NEOMED and currently under university Institutional Review Board (IRB) approval has been generated and will be implemented.

Ohio State University College of Dentistry Oral Health Improvement though Outreach (OHIO) Project **Contact:** Dr. Canise Bean, Associate professor and Director of the OHIO project, bean.26@osu.edu	As part of Ohio State's mission of service learning, the College of Dentistry is working to address the number one unmet health need in Ohio – access to dental care. Through the OHIO Project, the College of Dentistry trains excellent, socially aware dental practitioners. Students receive clinical training in a variety of settings; including college- based comprehensive care and specialty clinics, as well as community-based dental clinics. The College recruits prospective dental students from underserved areas, with a specific focus on Ohio Appalachian counties. **Funding:** N/A (part of the dental curriculum) **Partners:** Multiple partners	• Increase the presence of dental students training in community dental clinics and underserved areas ◦ Requirement for fourth year dental students to be placed in a community setting to provide care for underserved patients • Provide associated faculty status to supervising dentists within community clinics • Educate middle and high school students about career options in dentistry • Providing oral health care to those without access to care while training socially aware dental practitioners.	Students maintain records of the types of procedures they provide in community settings. Since the inception of the OHIO Project, supervised students have provided services to over 105,000 children and adults and over $12 million in dental services to those in need in Ohio.
Wright State University Horizons in Medicine **Contact:** Lakia Gray, Director of Recruitment and Student Development, lakia.gray@wright.edu	Targets the recruitment of low income and underrepresented minority high school students into the healthcare workforce (primarily Dayton area high school students but all are encouraged to apply). The program aims to increase the number of economically disadvantaged and underrepresented students in primary care. **Funding:** Private donors	Students are provided information and learning opportunities regarding medical careers and career pathways. Students also have the ability to earn a stipend and receive tuition scholarship for successful completion of the program.	NA

Program	Program description	Key program features	Evidence of success
Area Health Education Centers (AHEC) Ohio Statewide Program **Contact:** Kathy Vasquez, Director, Kathy.vasquez@utoledo.edu	The purpose of AHEC is to improve access to quality healthcare by training the workforce pipeline continuum. The purpose is accomplished through academic/community partnership which work to build a diverse and well-distributed workforce, with emphasis on primary care. **Funding:** The Ohio Board of Regents, National AHEC Program, Health Resources and Services Administration of the Department of Health and Human Services, Public and private grants and contributions **Partners:** Community health professionals to include physicians, advanced practice nurses, etc.; Local hospitals, clinics, private practices; Community Health Centers; Local health departments; K-12 public schools; Workforce Investment Boards; many other partners	• Provides local need-based health profession education and training programs through community Area Health Education Centers which are affiliated with Ohio's seven medical schools and other health professions schools. The entire state is covered through regions established with Ohio's seven medical schools. • Education and training is provided at three levels of the workforce development continuum: 1) health career pipeline programs for middle school through undergraduate students; 2) clinical education for health professions students; 3) continuing professional education for practicing professionals.	• Output data is collected by region. • For the portion of the program which receives federal funding output and outcome data are collected • More than 390 Community AHEC training sites and 2,580 health care students in AHEC clinical training
Health Careers Collaborative of Greater Cincinnati **Contact:** Sharron DiMario, Executive Director, Sharron@competitiveworkforce.org	This program aims to build and maintain a health career pathway to the Greater Cincinnati region's employers for incumbent workers and low-income populations and increase workforce diversification. **Funding:** United Way of Greater Cincinnati, National Fund for Workforce Solutions **Partners:** UC Health Cincinnati Children's Hospital Medical Center, TriHealth, Mercy Health, Cincinnati State Technical & Community College, Gateway Community & Technical College, Great Oaks Institute of Technology, Dress for Success/Cincinnati, Mercy Neighborhood Ministries, Miami University – Middletown, Super Jobs Center, United Way of Greater Cincinnati, Southwest Ohio Regional Workforce Investment Board	• Program covers eight-county region in southwestern Ohio, norhern Kentucky and southeastern Indiana • Targets low-skilled health workers, unemployed and underemployed • Entry-level and advanced career pathway that links to approximately 50% of the region's health workforce employers • Cohort-based training with influence on retention • Remedial education provided • Job training and career guidance • Tuition reimbursement from some employer partners	• Three Return-on-Investment reports from UC Health (2011), Cincinnati Children's Hospital Medical Center (2013) and TriHealth (2013) • Value of Career Credentials report (2013) • ARRA Grant Final Report to the Department of Labor (2013)
Ohio University Heritage College of Osteopathic Medicine (OUHCOM) OUHCOM **Rural and underserved programs** **Contact:** Randall Longenecker MD, Assistant Dean, longenec@ohio.edu	The Office of Rural and Underserved Programs uses a multi-faceted and coordinated strategy across the continuum of medical education from early assurance programs to clinician support in practice, and is being implemented over 3 campuses in Athens, Columbus, and Cleveland (the latter two in development), to address disparities of place (geographic diversity) and prepare students for practice in rural and underserved communities. **Funding:** Osteopathic Heritage Foundations Vision 2020 grant, COF, HRSA Office of Rural Health Policy through the RTT Technical Assistance program grant and Rural Health Research Centers program **Partners:** Ohio Health, Cleveland Clinic, National Rural Health Association, Rural Assistance Center, National Organizations of State Offices of Rural Health, WWAMI Rural Health Research Center, The RTT Collaborative – a nationwide network of efforts in health professions education in rural places	• Patient Centered Primary Care innovations and curricular enhancements for all medical students • Rural and Urban Scholars Pathways program • Rural GME Consortium • Curriculum in Clinical Informatics, including quality improvement and population health management • Research in Primary Care Medical Education	• Individual programs initiated in the Fall of 2012 and the Office of Rural and Underserved Programs established in 2013 – 21 students in the RUSP program this year and 20 applications accepted for RUSP this upcoming year. • One research report accepted for publication in Family Medicine

Program	Program description	Key program features	Evidence of success
OUHCOM Summer Scholars **Contact:** John D. Schriner, PhD, Assistant Dean of Admissions, schriner@ohio.edu	Targets economically disadvantaged, ethnically and racially diverse and first-generation college students to participate in a simulated medical school experience. **Funding:** combined from state tuition and fees	• 22 students in cohort • Those who have applied and have a current MCAT score have a guaranteed interview for a spot in the next year's entering class. • Created in 1982 • First point in the pipeline programs for many of school's graduates • Core curriculum of basic science courses taught by medical school faculty • Study skills and time management workshops • Clinical experiences and special presentations on cultural competency and research methods • All activities are designed to emphasize case-based problem solving and small group teamwork.	• On average, 45%-47% of participants matriculate to OUHCOM as first-year medical students. • With limited exceptions, those students also go on to graduate from OUHCOM.
OUHCOM **Post-baccalaureate Program** **Contact:** John D. Schriner, PhD, Assistant Dean of Admissions, schriner@ohio.edu OR Alicia Boards, MA, Assistant Director, Multicultural Programs, boards@ohio.edu	Targets URM and Appalachian students with bachelor's degree who have been unsuccessful in admission to medical school and must establish strong basic science success for admission to medical school. Must have taken MCAT in the past three years. Must have been interviewed by the OUHCOM admissions committee and denied admission. **Funding:** combined from state tuition and fees	• 14 students in cohort • Year-long coursework of undergraduate/graduate curriculum • Supplemented by enrichment workshops on study skills, test taking, group problem-solving, etc. • Guaranteed admission to OUHCOM based on a cumulative average of 3.0 or higher • Tutoring and assignment of past participants as mentors • Curriculum individualized based on student's specific needs • Students integrated into HCOM environment, staff and faculty through speaker series and on-going activities of the College • Required participation in Prematriculation program if admitted	On average, 85-90% completion rate of program and graduation from medical school
OUHCOM **Pre-matriculation** **Contact:** Alicia Boards, MA, Assistant Director, Multicultural Programs, boards@ohio.edu	Four-week summer program designed to facilitate entry of underrepresented and Appalachian students who have been accepted for admission to OUHCOM into the year 1 class. Exposure to the medical school curriculum including introductions to medical physiology, microanatomy, immunology biochemistry, critical writing in medicine and medical terminology **Funding:** combined from state tuition and fees	Workshops on: • Study strategies, time management, test taking • Peer mentors/tutoring • Financial aid • Integration into the HCOM/University/Athens community • Individual and academic counseling throughout the program	High retention and graduation rate throughout the 4 years of medical school
Urban Universities for HEALTH **Contact:** Julia Michaels, Learning Collaborative Coordinator, Urban Universities for HEALTH, info@urbanuniversitiesforhealth.org	This program aims to enhance and expand a culturally sensitive, diverse, and prepared health workforce that improves health and reduces health disparities in urban communities. **Funding:** National Institutes of Health Cooperative agreement through NIH National Institute on Minority Health and Health Disparities through the Association of American Medical Colleges **Partners:** University of Cincinnati, Cleveland State University (CSU)/ Northeast Ohio Medical University (NEOMED), SUNY Downstate, University of Missouri Kansas City, University of New Mexico	• National, but with five demonstration sites located throughout the United States with two locations in Ohio (University of Cincinnati and NEOMED) • Increase the quality of evidence and use of data within university strategic and action planning to develop a health workforce that reduces health disparities • Identify measures by which institutions can assess progress and drive greater impact • Disseminate new knowledge, tools, and resources to assist universities and academic medical centers in increasing their capacity and contributions.	NA

Appendix B: Federal programs aimed at diversifying the health workforce

The **Health Resource Services Administration (HRSA)** provides national leadership in the development, distribution, and retention of a diverse, culturally competent health workforce. Their goals include: improving access to quality care and services, strengthening the health workforce, building healthy communities, and improving health equity. HRSA does this by designating geographic areas as a Health Professional Shortage Area (HPSA) or a Medically Underserved Area or Population, making those areas eligible for targeted, federally-funded grant and loan programs.

HRSA's Bureau of Health Professions administers a wide range of training grants, scholarships, loans, and loan repayment programs for disadvantaged students.[48] The Bureau also provides health workforce studies designed to research and address the national challenges of workforce shortages, including workforce supply, demand, distribution and education.[49] A number of the programs administered under HRSA are highlighted below.

Health Careers Opportunity Program	HRSA administers the Health Careers Opportunity Program in order to increase the number of individuals from educationally or economically disadvantaged backgrounds that enter the healthcare workforce. Some of the services offered to students in this educational pipeline program are: academic and research training, stipends, financial planning resources, as well as counseling and mentoring services.[50]
Centers of Excellence (COE) Program	The Centers of Excellence (COE) grant program provides funding support to health professions schools for education and training enhancement programs targeted at increasing opportunities for underrepresented minority individuals to enter into and successfully complete a health professions academic program.[51]
Faculty Loan Repayment Program	To increase diversity in health professions faculty, HRSA also administers a Faculty Loan Repayment program which provides funding for repayment of student loans to health professions faculty from disadvantaged backgrounds.[52]
Nursing Workforce Diversity Program	HRSA's Nursing Workforce Diversity program aims to increase nursing education opportunities for individuals from disadvantaged backgrounds. The program supports projects that provide students with stipend and scholarship support, pre-entry preparation, advanced education preparation and retention activities.[53]
National Center for Health Workforce Analysis (the National Center)	The National Center informs public and private-sector decision-making related to the health workforce by expanding and improving health workforce data, disseminating workforce data to the public, improving and updating projections of the supply and demand for health workers, and conducting analyses of issues important to the health workforce.[54]
Rural Training Track Technical Assistance Program (RTTTA)[55,56,57]	The RTT Technical Assistance demonstration program is grant funded from HRSA's Office of Rural Health Policy, designed to address rural physician workforce shortages. As part of the President's Improving Rural Health Care Initiative, the Office of Rural Health Policy has joined with the National Rural Health Association and other key partners in this demonstration program aimed at: • Improving fill rates of RTT residency programs • Increasing the sustainability of existing RTT programs • Helping new RTT programs get started

The **National Health Service Corps (NHSC)** is federally-funded by HHS to increase access to primary care, dental and mental health care in HPSAs.[58] Key features of the program include loan repayment and scholarship opportunities, with a focus on providing culturally-competent interdisciplinary care. The program has seen increased retention of members in underserved communities after completion of their service commitments.

The NHSC programs in Ohio are coordinated by the Ohio Department of Health Primary Care Office.

Appendix C: Key Terms

Affordable Care Act (ACA) — The health care reform law enacted in March 2010. The law was enacted in two parts: the Patient Protection and Affordable Care Act was signed into law on March 23, 2010 and was amended by the Health Care and Education Reconciliation Act on March 30, 2010. The name "Affordable Care Act" is used to refer to the final, amended version of the law.

Cultural and linguistic competency — Being respectful of and responsive to the beliefs, practices, and cultural and linguistic needs of the patient.

Diversity — Differences of culture, background and experience among individuals and groups. Such differences include, but are not limited to, differences of race, ethnicity, geographic origin, socioeconomic status, as well as national origin, gender, sexual orientation, gender identity, age, disabilities, and political and religious affiliation.

Federal Poverty Level (FPL) — Annually updated guidelines established by the U.S. Department of Health and Human Services to determine eligibility for various federal and state programs. In 2011, the FPL for a family of four is $22,350.

Health — A state of complete physical, social, and mental wellbeing, and not merely the absence of disease or infirmity.

Health Professional Shortage Area (HPSA) — Geographic areas designated as having a shortage of primary medical care, dental or mental health providers. They may be urban or rural areas, population groups or medical or other public facilities.

Health Resources and Services Administration (HRSA) — An agency of the U.S. Department of Health and Human Services (HHS), HRSA is the primary federal agency for improving access to health care services for people who are uninsured, isolated or medically vulnerable.

Health workforce — All people engaged in actions whose primary intent is to enhance health. The health workforce is comprised of healthcare professionals such as nurses and doctors as well as allied health professionals. Allied health professionals include speech and language therapists, radiographers, physiotherapists, occupational therapists, and dietitians.

Medicaid — A federally-aided, state-administered and jointly-funded health insurance program that provides medical benefits to qualified indigent or low-income persons in need of health and medical care. The program is subject to broad federal guidelines and states determine the benefits covered and methods of administration.

Medically-underserved areas — Areas with economic barriers such as low-income or Medicaid-eligible populations, or cultural and/or linguistic access barriers to health care services.

Minorities — The definition for minority populations is based on the US Office of Management and Budget race and ethnicity categories which includes American Indians, Alaskan Natives, Asian and Pacific Islanders, and Blacks. Ethinicity includes Hispanic orgin of lack of Hispanic origin.

Rural Health Clinic — A public or private hospital, clinic, or physician practice designated by the federal government as in compliance with the Rural Health Clinics Act (Public Law 95-210). The practice must be located in a medically underserved area or a Health Professional Shortage Area (HPSA) and use physician assistants and/or nurse practitioners to deliver services.

Rural Health Network — Refers to any variety of organizational arrangements to link rural health care providers in a common purpose.

Underrepresented minorities (URM) — Any racial or ethnic population underrepresented in the health workforce relative to local and national demographics.

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