

HOD ACTION: Recommendations in Council on Medical Education Report 3 adopted as amended and the remainder of the report filed.

REPORT 3 OF THE COUNCIL ON MEDICAL EDUCATION (N-21)
Rural Health Physician Workforce Disparities
(Reference Committee C)

EXECUTIVE SUMMARY

The supply of practicing physicians in rural settings in the United States has been insufficient to meet the demand for health care services of the rural population. Physician shortages in rural settings have been an enduring and widespread concern, with only 12 percent of primary care physicians working in rural areas (and only eight percent in other specialties). The impact of these numbers is real. Rural communities most likely to suffer from a shortage of physicians can be characterized by low population density, extreme poverty, and high proportions of racial and ethnic minoritized, as well as a lack of physical and cultural amenities.

According to the 2010 Census, nearly 60 million people live in rural communities, and 20 percent of people in the U.S. are rural residents. The size of this population has been stable for several decades. Additionally, more than 15 percent of these rural residents are members of racial/ethnic minoritized groups, and this percentage is growing. In 2002, seven national family medicine organizations adopted a new model of practice that established a reasonable physician-to-population ratio at 1:1,200. In 2014, the primary care physician-to-population ratio was 1:1,300 in the United States as a whole, versus a 1:1,910 ratio in rural areas.

A recent decline in the percentage of students who report an interest in practicing in small towns and rural communities is cause for concern as these communities struggle to sustain their access to health care. A multitude of factors may contribute to this decline, including inadequate exposure to rural medicine as a career pathway, lack of pathway programs targeting rural students, and limited resources to support preparation for medical school and residency for rural students.

The federal government has established several programs to recruit and retain a diverse workforce and encourage physicians to practice in shortage specialties and underserved communities such as rural settings. These programs include the National Health Service Corps (NHSC), Title VII of the Public Health Service Act, the Conrad 30 Waiver, and Area Health Education Centers (AHECs).

Additionally, there have been other efforts to recruit and retain physicians in rural areas such as 3RNet, the Community Apgar Project, Rural Training Tracks, the Columbia-Bassett Program, and the California Oregon Medical Partnership to Address Disparities in Rural Education and Health (COMPADRE) Project. The utilization of telehealth has also provided opportunities for physicians to consult with specialists and increase access to physicians, specialists, and other health care professionals for patients in rural areas.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION

CME Report 03-N-21

Subject: Rural Health Physician Workforce Disparities

Presented by: Niranjan Rao, MD, Chair

Referred to: Reference Committee C

1 INTRODUCTION

2

3 American Medical Association (AMA) Policy H-465.988 (2,3,4), “Educational Strategies for
4 Meeting Rural Health Physician Shortage,” directs our AMA to:

5

6 2. work with state and specialty societies, medical schools, teaching hospitals, the
7 Accreditation Council for Graduate Medical Education (ACGME), the Centers for
8 Medicare and Medicaid Services (CMS) and other interested stakeholders to identify,
9 encourage and incentivize qualified rural physicians to serve as preceptors and volunteer
10 faculty for rural rotations in residency.

11

12 3. (a) work with interested stakeholders to identify strategies to increase residency training
13 opportunities in rural areas with a report back to the House of Delegates; and (b) work with
14 interested stakeholders to formulate an actionable plan of advocacy with the goal of
15 increasing residency training in rural areas.

16

17 4. undertake a study of issues regarding rural physician workforce shortages, including
18 federal payment policy issues, and other causes and potential remedies (such as telehealth)
19 to alleviate rural physician workforce shortages.

20

21 This report, which is in response to this directive, builds on information from a previous Council
22 on Medical Education report to the House of Delegates on this topic [Report 7-A-14, “Physician
23 Workforce Shortage: Approaches to GME Financing”] and addresses the policy above by
24 providing information on:

25

- 26 1. The current state of the rural physician workforce;
- 27 2. The impact of closing rural hospitals and critical access hospitals on the rural physician
28 shortage;
- 29 3. Current efforts to address the rural physician workforce shortage; and
- 30 4. Current AMA policy.

31

32 CURRENT STATE OF THE RURAL PHYSICIAN WORKFORCE

33

34 There is broad recognition that the United States is facing a physician workforce shortage. In 2020,
35 the Association of American Medical Colleges (AAMC) reported that the nation “could see an
36 estimated shortage of between 54,100 and 139,000 physicians, including shortfalls in both primary
37 and specialty care, by 2033” as demand for physicians continues to grow faster than supply.¹ The
38 major factor driving demand for physicians continues to be a growing, aging population. According

1 to the U.S. Census Bureau, the nation's population is estimated to grow by more than 10 percent by
2 2032, with those over age 65 increasing by 48 percent. Additionally, the aging population will
3 affect physician supply, since one-third of all currently active doctors will be older than 65 in the
4 next decade. The retirement of these physicians could have a significant impact on supply.²

5
6 The supply of practicing physicians in rural settings in the United States has been insufficient to
7 meet the demand for health care services of the rural population. Physician shortages in rural
8 settings have been an enduring and widespread concern, with only 12 percent of primary care
9 physicians, and eight percent in other specialties, working in rural areas.² According to the 2010
10 Census, nearly 60 million people live in rural communities, and 20 percent of people in the U.S. are
11 rural residents. The size of this population measured as a percent has been stable for several
12 decades.³ Additionally, more than 15 percent of these rural residents are members of racial/ethnic
13 minoritized groups, and this percentage is growing.⁴

14
15 In response to growing frustrations regarding continued inequities and inefficiencies in the U.S.
16 health care system, the leadership of seven national family medicine organizations initiated the
17 Future of Family Medicine (FFM) project in 2002. Through this project, a new model of practice
18 was adopted, proposing that a reasonable physician-to-population ratio be 1:1,200.⁵ In 2014, the
19 primary care physician-to-population ratio was 1:1,300 persons in the United States as a whole,
20 versus a 1:1,910 ratio in rural areas.⁶ In 2019, the Federation of State Medical Boards reported
21 there were 985,026 physicians with Doctor of Medicine (MD) and Doctor of Osteopathic Medicine
22 (DO) degrees licensed to practice medicine in the United States and the District of Columbia and
23 available to serve a U.S. national population of 327,167,434.⁷ Of these physicians, only 11 percent
24 (108,353) practiced in rural counties serving 14 percent (46.1 million) of the U.S. population.^{8,9}

25
26 The impact of these numbers is real. Rural communities most likely to suffer from a shortage of
27 physicians can be characterized as communities that have low population density, extreme poverty,
28 and high proportions of racial and ethnic minorities, as well as a lack of physical and cultural
29 amenities.¹⁰ These circumstances contribute to the difficulty in recruiting physicians to practice in
30 these areas. Additionally, most of medical education is based in metropolitan areas limiting future
31 physicians' exposure to medical practice in rural settings contributing to challenges in recruiting
32 future physicians to train and practice in rural communities.

33
34 Studies have found that students who grew up in rural areas, as well as individuals who are racial
35 and ethnic minorities and/or non-U.S.-citizen international medical graduates, are most likely to
36 practice in medically underserved areas such as rural communities.^{11,12} Pathman found that
37 physicians who felt better prepared both medically and socially for practice in a rural environment
38 stayed longer than those who felt unprepared or who were initially unaware of the special
39 characteristics of rural practice.¹³ Additional factors associated with increased likelihood that a
40 physician will choose a rural practice include training at a medical school with a mission to train
41 rural physicians, training at an osteopathic medical school, or training that includes rural
42 components such as rural rotations.¹⁴

43
44 While medical students from rural backgrounds are more likely to practice in rural settings
45 compared to students from non-rural areas, there was a recent 28 percent decline in rural medical
46 school matriculants. This decline occurred between 2002 and 2017 when the overall number of
47 medical school matriculants increased by 30 percent. In 2016 and 2017, students from rural
48 backgrounds made up only 4.3% of the incoming medical student body.⁸ That said, a recent decline
49 in the percentage of rural medical students who report an interest in practicing in small towns and
50 rural communities is cause for concern as these communities struggle to sustain their access to
51 health care. A multitude of factors may contribute to this decline, including inadequate exposure to

1 rural medicine as a career pathway for both students in rural and nonrural environments, lack of
2 pathway programs targeting rural students, and limited resources to support preparation for medical
3 school and residency for rural students. The increasing number of rural hospital closures may also
4 negatively impact medical student interest in pursuing a career in rural health.

5
6 According to the U.S. Government Accountability Office (GAO), 101 rural hospitals closed in the
7 United States between 2013 and 2020. When rural hospitals closed, people living in areas who
8 received health care from them had to travel farther to get the same health care services—about 20
9 miles farther for common services like inpatient care. People had to travel even farther—about 40
10 miles—for less common services like substance use disorder treatment. Before rural hospitals
11 closed, counties where these hospitals were located had fewer doctors than counties without any
12 closures. The number of doctors further decreased when hospitals closed.¹⁵ Germack et al. found
13 that rural hospital closures were associated with immediate and persistent decreases in the supply
14 of physicians across multiple specialties.¹⁶ For example, the percent of all rural counties in the U.S.
15 without hospital obstetric services increased from 46 percent in 2004 to 55 percent in 2014.¹⁷ In the
16 period of 2004-2014, the closure of 14 rural hospitals with obstetrics units and the closure of 165
17 obstetric units within otherwise open hospitals, left the counties where they were located with no
18 available obstetric services.¹⁸

19
20 Hospitals located in rural areas have been closing their doors more frequently and at higher rates
21 than urban facilities in recent years—and a pattern of increasing financial distress suggests that
22 more are likely to falter.¹⁹ A February 2019 study found that 21 percent of U.S. rural hospitals
23 remain at high risk of closing unless their financial situations improve. One factor driving the
24 overall negative financial performance of rural hospitals is the losses they incur on reimbursement
25 for Medicare patients. Excluding critical access hospitals, rural hospitals have an approximately
26 negative 8.2 percent operating margin on Medicare patients, creating a dependence on commercial
27 patients and employers to make up the difference.²⁰ Concurrently, a 2019 study of final-year
28 medical residents found that “geographic location was their number one priority when considering
29 a practice opportunity and 91 percent prefer to be an employee of a hospital, medical group or
30 other facility than to be in private practice.²¹ If the trend of rural hospital closures continues,
31 physicians may be increasingly hesitant to accept positions at rural hospitals due to concerns about
32 the financial viability of these institutions.

33 34 LEGISLATIVE PRINCIPLES TO REDUCE RURAL HEALTH DISPARITIES RELATED TO 35 PHYSICIAN SHORTAGES

36
37 There are several current initiatives in Congress that seek to reduce the physician shortage. This
38 includes efforts to increase Medicare support for GME, including increasing the number of
39 Medicare-supported medical resident training positions as well as the number of physicians trained
40 in pain management, addiction medicine, or addiction psychiatry. Another effort seeks to address
41 the cap on full-time equivalent residents for purposes of payment for graduate medical education
42 costs under the Medicare program for certain hospitals that have established a shortage specialty
43 program. There are efforts underway to expand access to telehealth by waiving restrictions on
44 Medicare payment for telehealth services. There are also efforts to examine strategies for
45 increasing health professional workforce diversity.¹

46 47 *Current Graduate Medical Education Financing Structure*

48
49 When considering health care workforce, it is important to “follow the money.” The federal
50 government is the largest contributor to physician training, through its funding of graduate medical
51 education (GME), which exceeds \$15 billion per year.²² Funding for GME stems from both public

1 and private sources as well as federal mandatory and discretionary appropriations. The payroll tax
 2 funds Medicare Part A, while insurance premiums and federal mandatory appropriations fund
 3 Medicare Part B. Insurance premiums also fund private payers. The federal mandatory
 4 appropriations fund provides money to states through the federal Medicaid match and the Health
 5 Resources and Services Administration (HRSA). Meanwhile, the federal discretionary
 6 appropriations fund GME at the Department of Defense (DoD) and Veterans Health
 7 Administration (VHA). While most states support GME through their Medicaid program, some
 8 also provide GME support through state-based programs such as loan repayment incentives to
 9 address health workforce shortages.²³ Figure 1 below outlines the flow of GME funding.

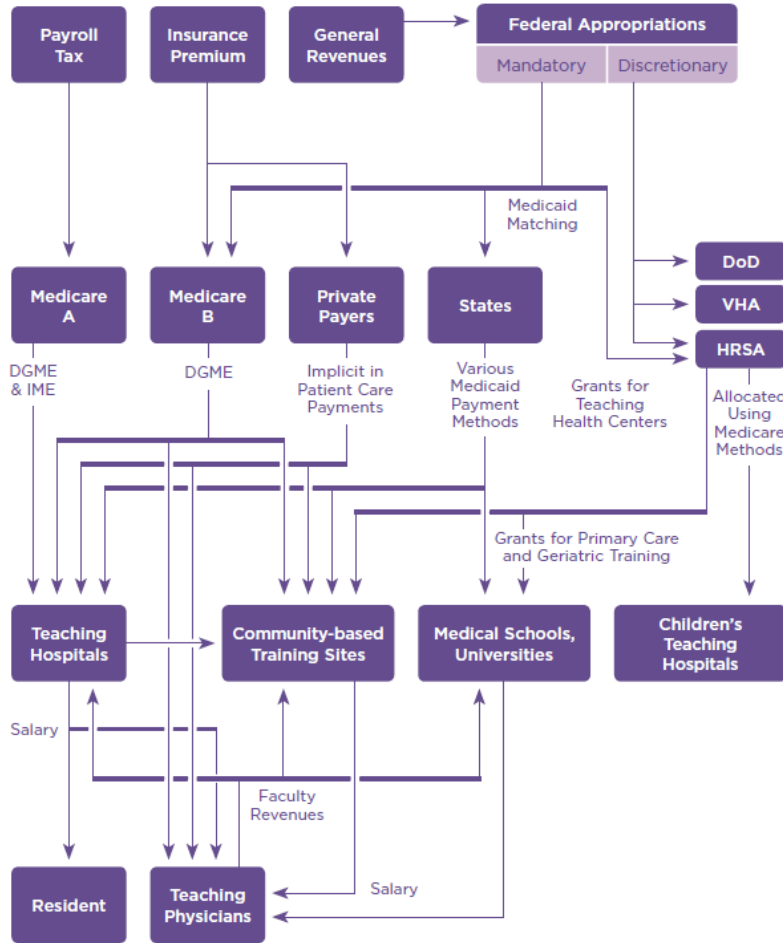


Figure 1: Flow of GME funding.

Note: DGME = direct graduate medical education; DoD = Department of Defense; HRSA = Health Resources and Services Administration; IME = indirect medical education.

Adapted from Wynn, 2012 (Committee of Interns and Residents Policy and Education Initiative White Paper, "Implementing the 2009 Institute of Medicine recommendations on resident physician work hours, supervision, and safety")

10 The most recent available estimates of GME funding by source indicate that Medicare is the single
 11 largest contributor to GME. A 2013 study by Henderson found that of the top three public
 12 contributors to GME, Medicare contributed \$9.7 billion (~64 percent); Medicaid \$3.9 billion (~26
 13 percent); and the VHA \$1.4 billion (~10 percent). Private funding for GME is difficult to quantify.

1 Private insurers support GME by paying higher rates to teaching institutions and health systems.
 2 Hospitals, universities, physicians’ organizations, and faculty practice plans also support
 3 residencies and fellowships. In addition, private philanthropy as well as gifts and grants from
 4 industry provide GME support.²⁴

5
 6 When Medicare began funding GME in 1965, payments to teaching hospitals were based solely on
 7 hospitals’ costs. With the arrival of the Medicare prospective payment system (PPS) for acute care
 8 hospitals in 1983, Medicare established two GME funding streams for teaching hospitals: Direct
 9 Graduate Medical Education (DGME) funding to cover the direct expenses related to residency
 10 training and Indirect Medical Education (IME) funding to help offset the additional costs of
 11 providing patient care thought to be associated with sponsoring residency programs.²⁵ Medicare
 12 GME was never intended to cover teaching costs for non-Medicare patients, and distribution of
 13 Medicare DGME and IME funds is governed by strict statutory formulas. Both the DGME and the
 14 IME formulas include variables that tie payment to a teaching institution’s volume of Medicare
 15 patients. The DGME payment for an individual institution is calculated by multiplying three
 16 factors: weighted resident count, per-resident count, and Medicare day ratio. The weighted resident
 17 count is the rolling average of hospital’s weighted number of full-time equivalent (FTE) residents
 18 in accredited programs in the most recent three-year reporting period. The per-resident amount is
 19 calculated by dividing the individual hospital’s base year DGME costs by the weighted residents
 20 count, which is adjusted for geographic differences and inflation. The Medicare day ratio is the
 21 hospital’s Medicare inpatient days to total inpatient days to approximate Medicare’s share of
 22 training costs.²⁶ These formulas are not designed to account for differences in costs resulting from
 23 training residents of different specialties. The Department of Veterans Affairs, Medicaid, and the
 24 Children’s Health Insurance Program are other federal sources of GME funding of varying levels.
 25 In addition, the Army, Navy, and Air Force support their own in-house residencies and fellowships
 26 to provide for the future physician workforce needs of those services. Figure 2 below highlights the
 27 breakdown of both mandatory and discretionary GME funding including the total funding, the
 28 number of trainees and cost per trainee.

Federal Funding for Graduate Medical Education (CRS, 2018)

Program Name	Total Funding	Number of Trainees	Cost Per Trainee
<i>Control over trainees</i>			
MANDATORY FUNDING			
Medicare GME Payments <i>The number of Medicare-supported residents and per-resident payment amount is capped for each hospital, but hospitals determine staffing needs and types of residents with the exception of certain primary care residents.</i>	FY2015 (est.): \$10.3 - \$12.5 billion	FY2015 (est.): 85,712 - 87,980 FTE (DGME) slots 85,578 - 88,416 FTE (IME) slots	FY2015 (est. average): \$112,000 - 129,000 per FTE
Medicaid GME Payment <i>States are permitted to make these payments using their own criteria to determine which providers are eligible for payments.</i>	N/A.	N/A The Medicaid program does not require states to report these data.	N/A. The Medicaid program does not require states to report these data.
Teaching Health Centers GME Payment Program <i>Funding to applicant teaching health centers that meet the program’s eligibility requirements.</i>	FY2018: \$126.5 million (est.)	AY2016-AY2017: 742 FTE slots 771 total residents trained	N/A.
DISCRETIONARY FUNDING			
Veterans Affairs GME Payments <i>VA facilities determine their staffing needs and the number and type of residents supported.</i>	FY2017: \$1.78 billion	AY2016-AY2017: 11,000 FTE slots and > 43,565 residents spent part of their training at a VA facility	FY2015 (est.): \$137,792/resident

Children's Hospital GME Payment Program <i>Grant funding awarded to applicant children's hospitals that meet the program's eligibility requirements.</i>	FY2019: \$325billion	FY2016-FY2017 58 hospitals received payments to support 7,164 FTE slots	N/A
Department of Defense GME Payments <i>Divisions of the armed forces determine their staffing needs and the number and type of residents supported.</i>	FY2012: \$16.5 million	FY2017: 3,983 FTE residents	N/A

Source: CRS analysis of agency data, including review of various agency budget justification and The Robert Graham Center program data sourced from CMS Medicare hospital cost report data, and GAO report, *Physician Workforce: HHS Needs Better Information to Comprehensively Evaluate Graduate Medical Education Funding* (GAO-18-240, 2018).

Notes: AY = Academic year; Academic year 2016-2017 began on July 1, 2016, and concluded on June 30, 2017. DGME = direct graduate medical education. est. = estimate. FTE = full time equivalent. FY = fiscal year. IME = Indirect Medical Education. N/A = not available. VA = the Department of Veterans Affairs.

1 A key factor that may impact the physician workforce is the cap placed on Medicare GME funding
 2 more than two decades ago. The Balanced Budget Act (BBA) of 1997 (P.L.105-33) limited the
 3 number of medical residents at an institution that could be counted for purposes of calculating
 4 DGME and IME payments to the number of trainees as of 1996. This limitation effectively
 5 prohibits existing teaching hospitals from receiving Medicare support for any medical residency
 6 positions added after 1996. As medical school enrollment continues to grow in attempts to address
 7 the physician shortage, which has increased 30 percent since 2002, the Medicare GME cap has
 8 made it difficult for the number of medical residency slots to keep pace, resulting in a bottleneck in
 9 physician training.¹ Between 2005 and 2015, the number of residents grew by 22 percent.
 10 Additionally, it should be noted that the Balanced Budget Act of 1999 (P.L. 106-113) increased the
 11 resident cap for rural hospitals to 130 percent of its 1996 level, thereby mitigating somewhat the
 12 full impact of the Medicare GME cap.

13

14 **LEGISLATION TO ADDRESS THE PHYSICIAN SHORTAGE**

15

16 The recent Consolidated Appropriation Act of 2021 included several efforts to address the
 17 physician shortage.

18

19 *Promoting Rural Hospital GME Funding Opportunity*

20

21 This section makes changes to the Medicare graduate medical education (GME) Rural Training
 22 Tracks (RTT) program to provide greater flexibility for hospitals not located in a rural area that
 23 established or establish a medical residency training program (or rural tracks) in a rural area. The
 24 program also provides flexibility for hospitals that establish an accredited program where greater
 25 than 50 percent of the program occurs in a rural area to partner with rural hospitals and address the
 26 physician workforce needs of rural areas.

27

28 *Medicare GME treatment of hospitals establishing new medical residency training programs after
 29 hosting medical resident rotators for short durations*

30

31 This section allows hospitals to host a limited number of residents for short-term rotations without
 32 being negatively impacted by a set permanent full time equivalent (FTE) resident cap or a Per
 33 Resident Amount (PRA). A hospital must report full-time equivalent residents on its cost report for
 34 a cost reporting period if the hospital trains at least 1.0 full-time-equivalent resident in an approved
 35 medical residency training program or programs in such period.

1 *Health Workforce*

2

3 Health Resources and Services Administration (HRSA) will make \$50,000,000 available for grants
4 to public institutions of higher education to expand or support graduate education for physicians
5 provided by such institutions. Priority will be given to public institutions located in states with a
6 projected primary care physician shortage in 2025 and are limited to public institutions in states in
7 the top quintile of states with a projected primary care physician shortage in 2025.

8

9 *Distribution of additional residency positions*

10

11 This section supports Medicare physician workforce development by providing for the distribution
12 of 1,000 additional Medicare-funded graduate medical education (GME) residency positions. Not
13 less than 10 percent of the aggregate number of these new positions will be given to each of the
14 following categories: rural hospitals, hospitals that are already above their Medicare cap for
15 residency positions, hospitals in states with new medical schools or new locations and branch
16 campuses, and hospitals that serve Health Professional Shortage Areas. However, a hospital may
17 not receive more than 25 additional full-time equivalent residency positions.²⁷

18

19 Council on Medical Education Report 7-A-14, “Physician Workforce Shortage: Approaches to
20 GME Financing,” outlined the impact of Congressional actions and the Affordable Care Act on
21 expansion of GME, as well as a summary of state-level funding models for GME. Since that time,
22 a number of legislative efforts have been proposed and/or passed to support expansion of GME,
23 including the following two examples.

24

25 *Rural Residency Planning and Development Grants*

26

27 In 2019, HRSA awarded approximately \$20 million to recipients across 21 states for a three-year
28 period to develop new rural residency programs while achieving program accreditation through the
29 Accreditation Council for Graduate Medical Education. The program is intended to expand the
30 physician workforce in rural areas by developing new, sustainable residencies in family medicine,
31 internal medicine, and psychiatry. Award recipients included rural hospitals; community health
32 centers; health centers operated by the Indian Health Service, Native American tribes or tribal
33 organizations; and schools of medicine. The awards are intended to help recipients address
34 challenges in securing sustainable financing and faculty support.¹⁷

35

36 PROGRAMS TO ADDRESS RURAL PHYSICIAN WORKFORCE SHORTAGES

37

38 *Federal Efforts to Recruit and Retain Rural Health Physicians*

39

40 The federal government has established several programs to recruit and retain a diverse workforce
41 and encourage physicians to practice in shortage specialties and underserved communities such as
42 rural settings. These programs include the National Health Service Corps (NHSC), Title VII of the
43 Public Health Service Act, the Conrad 30 Waiver, and Area Health Education Centers (AHECs).

44

45 National Health Service Corps (NHSC)

46

47 Funded by HRSA, the NHSC awards scholarships and loan repayment to primary care physicians
48 in eligible disciplines. The Consolidated Appropriation Act of 2021 provided an extension for
49 community health centers, the National Health Service Corps, and teaching health centers that
50 operate GME programs. This includes \$4 billion in funding from 2019-2023 for community health

1 centers and the National Health Service Corps and provides \$310 million in additional funding
2 from 2021-2023 for the National Health Service Corps. It also provides additional funding, until
3 2023, for teaching health centers that operate graduate medical education programs. In FY 2019,
4 the NHSC received \$319 million in award funding to recruit, retain, and support clinicians serving
5 in high-need areas. These funds were used to pay tuition, eligible fees, other reasonable educational
6 costs, and a living stipend in exchange for a service commitment to work at an NHSC-approved
7 site in a high-need urban, rural, or frontier community for at least two years. Frontier areas are the
8 most remote and sparsely populated places along the rural-urban continuum and are often thought
9 of in terms of population density and distance in minutes and miles to population centers and other
10 resources, such as hospitals. In 2019, the NHSC placed more than 1,750 primary care clinicians in
11 NHSC-approved sites in rural and frontier areas.²⁸ The NHSC recently implemented the Rural
12 Community Loan Repayment Program (LRP) for physicians working to combat the opioid
13 epidemic in the nation's rural communities. The recent expansion of the NHSC is cause for
14 optimism as more than 75 percent of clinicians in the NHSC report that they plan to stay in the
15 practice where they fulfilled their commitment for loan repayment.²⁹

16 17 Title VII of the Public Health Service Act

18
19 Title VII funding supports rural physician training grants by recruiting students who are most likely
20 to practice medicine in underserved rural communities. Eligible entities are nationally accredited or
21 Secretary of Health and Human Services-approved schools of allopathic or osteopathic medicine or
22 any combination or consortium of such schools. Priority is given to entities that demonstrate (1) an
23 established record of rural community institutional partnerships; (2) having successfully trained
24 students who practice medicine in underserved rural communities; and (3) having a high
25 percentage of graduates from an existing program who practice medicine in underserved rural
26 communities.³⁰

27 28 Conrad 30 Waiver program

29
30 The Conrad 30 Waiver program allows physicians who have completed the J-1 exchange visitor
31 program to apply for a waiver from the two-year residence requirement upon completing their
32 training. J-1 visa physicians can stay in the United States after their training if they get a waiver
33 and practice for three years in an underserved area. These physicians provide the majority of
34 primary care services in underserved rural communities.³¹ Legislation is needed to reauthorize and
35 improve the Conrad 30 waiver program to protect patient access to care in medically underserved
36 areas such as rural communities.

37 38 Area Health Education Centers (AHECs)

39
40 Developed by Congress in 1971, Area Health Education Centers (AHECs) were established to
41 recruit, train, and retain a health professions workforce committed to treating underserved
42 populations. In 1972, Congress initially awarded funds to establish AHEC programs in 11 states. The
43 AHEC program helps bring the resources of academic medicine to address local community health
44 needs. AHECs have a continual focus on improving the health care system by working with
45 academic institutions, health care settings (including community health centers), behavioral health
46 practices, and community-based organizations. Through these long-standing partnerships, AHECs
47 employ traditional and innovative approaches to develop and train a diverse health care workforce
48 prepared to deliver culturally appropriate, high-quality, team-based care, with an emphasis on
49 primary care for rural and underserved communities. Presently, 235 centers across 56 AHEC
50 programs are in operation in almost every state and the District of Columbia.³² The national AHEC

1 network consists of more than 300 AHEC program offices and centers, serving over 85 percent of
2 the counties in the United States.³³

3 4 Health Professional Shortage Area Physician Bonus Program

5
6 To offer an incentive to physicians who work in Medicare Health Professional Shortage Areas
7 (HPSAs), CMS established the Health Professional Shortage Area Physician Bonus Program. The
8 program provides a 10 percent bonus for Medicare-covered services to beneficiaries in a
9 geographic HPSA. Paid quarterly, the bonus is based on the amount paid for professional services.

10 11 *Additional Efforts to Recruit and Retain Physicians in Rural Areas*

12
13 Grassroots organizations such as 3RNet have also established resources to support health care
14 recruitment and retention efforts for rural communities. Founded in 1995, 3RNet's mission is to
15 improve rural and underserved communities' access to quality health care through the recruitment
16 and retention of physicians and other health care professionals, development of community-based
17 recruitment and retention activities, and national advocacy on rural and underserved health care
18 workforce issues. To achieve this mission, 3RNet developed a website (<https://www.3rnet.org/>),
19 which serves as a clearinghouse for its members. Each member maintains state and regional pages
20 within the 3RNet website, providing information about communities, available opportunities for
21 physician employment, and loan repayment programs. Members and health care facilities can post
22 opportunities directly to the website and members can access a candidate database. Notable
23 members include both the Department of Veterans Affairs and the Indian Health Service. 3RNet
24 has also collaborated with the NHSC on recruitment and retention trainings.³⁴

25
26 The University of North Dakota School of Medicine and Health Sciences Center for Rural Health
27 utilizes the Community Apgar Project (CAP) to assist rural hospitals in North Dakota in identifying
28 strengths and challenges related to recruiting family medicine physicians through a research-
29 validated questionnaire. The CAP was developed by the family medicine residency of Idaho and
30 Boise State University. The University of North Dakota School of Medicine and Health Sciences
31 Department of Family and Community Medicine, the North Dakota Center for Rural Health, and
32 the North Dakota AHEC are currently utilizing the CAP process and methodology to examine what
33 makes a community health care facility a good training environment for health professions
34 education through a new tool called Health Professions Education in Rural Communities (HPERC).
35 HPERC will provide data that can help determine site readiness for developing an educational
36 campus for health professions students.³⁵

37
38 Rural Training Tracks (RTT) were first established by Providence Northwest Washington Medical
39 Group in 1986 in response to the lack of rural physicians produced by family medicine residency
40 programs. The original "1-2" model provides for one year in an urban sponsoring institution,
41 followed by two years in a more rural location. The initial programs experienced significant
42 hardship due to a lack of funding and a general decline in student interest in family medicine. In
43 response, a federally funded consortium of individuals and programs established the RTT
44 Technical Assistance program (RTT TA) in 2010 to sustain the 1-2 RTT as a national strategy in
45 training physicians for rural practice. While the project ended in August 2016, the RTT TA
46 program was responsible for the creation of the RTT Collaborative, which currently works to
47 sustain health professions education in rural places through mutual encouragement, peer learning,
48 practice improvement, and the delivery of technical expertise, all in support of a quality rural
49 workforce. In addition to providing technical assistance, the RTT Collaborative convenes an annual
50 meeting, which is hosted by a participating program, to provide a collaborative forum for problem
51 solving and innovation for the education of medical professionals in rural areas. A 2013 study

1 found that at least half of RTT graduates reside in rural areas after graduation, two to three times
2 the proportion of family medicine graduates overall, thereby demonstrating that RTTs are
3 beneficial to increasing the supply of rural physicians.³⁶ A 2016 report found that among RTT
4 graduates tracked after graduation (2008-2015), more than 35 percent of graduates were practicing
5 in rural areas during most of that time, about twice the proportion of family medicine residency
6 graduates overall. Rural practice choices were also persistent over time. Furthermore, the study
7 found that 56 percent of RTT graduates provided health care in primary care Health Professional
8 Shortage Areas (HPSAs) one year post-graduation, and by seven years post-graduation, 50 percent
9 were still in primary care HPSAs. These findings suggest that graduates of RTT programs provide
10 care to rural and underserved populations at higher proportions than family medicine residency
11 graduates overall, and these practice choices persist over time.³⁷ Opportunities to cultivate the RTT
12 Collaborative could be explored, as this collaborative provides a pathway to identify, encourage,
13 and incentivize qualified rural physicians to serve as preceptors and volunteer faculty for rural
14 rotations during residency. However, it should also be noted that several ACGME Review
15 Committees are now placing restrictions on distant sites that may impact the ability of urban
16 centers to offer rural rotations.

17
18 In 2008, the University of Washington School of Medicine: Washington, Wyoming, Alaska,
19 Montana, and Idaho (WWAMI) Program developed the Targeted Rural Underserved Track
20 (TRUST) initiative to ensure access to health care in rural and underserved areas. TRUST utilizes
21 an innovative four-year rural and underserved medical school curriculum that matches incoming
22 students with a mentor and a community in a rural environment that they will continue to connect
23 with during their four years of medical school. The goal of the TRUST program is to select
24 students with rural and underserved backgrounds who are most likely to return to these areas. The
25 students are also encouraged to choose specialties that serve those areas, generally a primary care
26 specialty such as family medicine, internal medicine, or pediatrics.

27
28 Texas Tech University Health Sciences Center School of Medicine developed a rural residency
29 track that provides residents with experience working one on one with a family physician
30 practicing full-spectrum care including: general and preventive medicine, operative procedures,
31 surgical obstetrics, and Texas-Mexico “border medicine” which focuses on improving health and
32 quality of life along the U.S.-Mexico border. The program aims to increase the number of family
33 medicine residents and mental health fellows providing care in both Midland and Odessa as well as
34 rural communities across West Texas and eastern New Mexico.

35
36 In 2010, Columbia University College of Physicians and Surgeons and Bassett Medical Center
37 joined forces to launch a new model of medical training to address the severe shortage of rural
38 physicians and train a new generation of doctors capable of leading health systems that promote
39 both quality of practice and cost-effective delivery of care.³⁸ Students begin their training for 18
40 months in Manhattan and then head to Cooperstown for two and a half years to obtain clinical
41 training. Students experience both an urban health care setting and a rural health care environment,
42 while being exposed to features not typically part of the medical school curriculum, such as
43 finance, risk management, patient safety, quality improvement, and medical informatics. In
44 addition, every Columbia-Bassett student receives grant funding at a minimum of \$30,000 per year
45 for all four years.

46
47 In 2019, Oregon Health & Science University (OHSU) and the University of California, Davis (UC
48 Davis) were awarded \$1.8 million by the AMA Reimagining Residency grant program to create
49 educational interventions designed to expand access to quality health care between Sacramento and
50 Portland through a network of teaching hospitals and clinics (in mostly rural areas). OHSU and UC
51 Davis partnered to establish a GME collaborative known as the California Oregon Medical

1 Partnership to Address Disparities in Rural Education and Health (COMPADRE). COMPADRE
2 places hundreds of medical students and resident physicians to train with faculty and community
3 physicians at 10 health care systems, 16 hospitals, and a network of Federally Qualified Health
4 Center partners throughout Northern California and Oregon. The main goals of COMPADRE are
5 to address health care workforce shortages in rural, tribal, urban, and other communities that lack
6 resources; increase access to physicians; and improve the health of patients from ethnic and racial
7 minoritized groups who are disproportionately affected by certain health conditions.³⁹

8
9 Additionally, the AMA also awarded \$1.8 million over five years to the University of North
10 Carolina School of Medicine to support the significant expansion of the Fully Integrated Readiness
11 for Service (FIRST) Program to new geographic areas of North Carolina and additional high needs
12 specialties including family medicine, general surgery, pediatrics, and psychiatry. The FIRST
13 Program was founded in 2015 at the University of North Carolina School of Medicine to link
14 family medicine workforce pathways from medical school to residency and to service in
15 rural/underserved North Carolina. Participating students have the opportunity to complete their
16 medical degree in three years, followed by the opportunity for placement with the Family Medicine
17 Residency program of North Carolina. FIRST scholar graduates commit to three years of service in
18 an underserved area of North Carolina, during which time they receive ongoing support from UNC
19 Family Medicine in partnership with the NC Office of Rural Health and Community Care, AHEC,
20 Piedmont Health Services, and the North Carolina Academy of Family Physicians.

21 22 UTILIZATION OF TELEHEALTH TO ADDRESS RURAL PHYSICIAN WORKFORCE 23 SHORTAGES

24
25 Telehealth broadly encompasses technology and health care fields that deliver education, health
26 care, and medical services over a distance. Telehealth modalities for physician/patient interaction
27 may be synchronous (live video), asynchronous (store and forward), remote patient monitoring, or
28 mobile health. In addition, telehealth in rural areas provides the ability for physicians to consult
29 with specialists. Telehealth allows for increased access to physicians, specialists, and other health
30 care professionals for patients in rural areas. In July 2016, the AMA conducted a comprehensive
31 study of physicians' motivations and requirements for the adoption of digital clinical tools. The
32 AMA repeated the study in 2019 to determine the degree to which adoption has occurred in the
33 past three years and to identify attitudinal shifts among physicians toward their use and adoption.
34 The 2019 study found an increase in the number of physicians who see a definite advantage in
35 digital tools; significant growth in the adoption of digital tools among all physicians regardless of
36 gender, specialty, or age; increased adoption of remote care tools such as tele-visits and remote
37 monitoring; and fairly high awareness of emerging technologies such as artificial or augmented
38 intelligence.

39
40 Despite telehealth's promise as a means by which to alleviate the shortage of rural physicians, prior
41 to the flexibilities provided during the COVID-19 Public Health Emergency (PHE), telehealth
42 faced several barriers that hindered its widespread adoption in rural areas. Medicare's site of
43 service payment differences impact payments for telehealth services. For example, the originating
44 sites, which are based on the patient's location, were paid facility fees and the distant/receiving
45 sites were paid according to the Medicare physician payment schedule. Additionally, infrastructure
46 presents a challenge, in that many rural areas do not have access to adequate broadband service to
47 allow for the use of telehealth. During the PHE, Medicare has allowed patients to receive telehealth
48 services in their homes instead of having to go to a health care facility and has been paying for
49 telehealth services at in-person office rates. The PHE policies are expected to continue at least
50 through the end of 2021, and the AMA is supporting legislation that would make these flexibilities
51 permanent.

1 As licensure requirements vary by state, the need for physicians to be licensed in multiple states
2 can also present a burden and a barrier to telehealth implementation. To address this, in the past
3 few years licensure compacts have been implemented in medicine across state lines to allow for
4 provision of telehealth services to patients in these jurisdictions.⁴⁰ The Interstate Medical Licensure
5 Compact (IMLC), which the AMA supports, expedites the process for licensure in multiple states.
6 At the time of this report, 29 states, the District of Columbia, and Guam are members of the IMLC,
7 and six other states have introduced legislation to adopt the IMLC this year. One of the promises of
8 the IMLC is to reduce the burden of obtaining multiple state licenses to practice telehealth, while
9 maintaining the important state-based licensure structure.

10
11 Credentialing and privileging are also challenging in telehealth delivery in rural locations due to
12 the costs associated with credentialing. While the Centers for Medicare & Medicaid Services
13 (CMS) approved proxy credentialing in 2011, not all state policies align with proxy credentialing,
14 so this will remain a challenge in some areas.⁴¹

15
16 Despite these challenges, innovative models of health care delivery are being developed through
17 telehealth. For example, telehealth provider Avera eCARE partners with health care systems, rural
18 hospitals, outpatient clinics, and long-term care facilities to reach medically underserved
19 populations in South Dakota, North Dakota, Minnesota, Iowa, Nebraska, Montana, Wyoming, and
20 Kansas through telehealth. Avera eCARE has also expanded to include telehealth services for
21 intensive care, emergency departments, pharmacy, long-term care, and correctional facilities.
22 Avera eCARE programs seek to improve efficiencies while decreasing physician burnout and
23 turnover and keeping patients closer to home, all while improving quality of care.

24
25 Using telehealth in intensive care units (ICUs) began in 1982 when the first clinical trial was
26 conducted by Grundy et al. In Alaska, Providence Alaska Medical Center established in 2009 the
27 eICU system, a patient monitoring system that uses telehealth to help care for critically ill patients
28 in multiple hospitals from a single location. It is staffed with experienced intensivists and critical
29 care nurses who monitor patients' vital signs, medications, test results, and other data, continuously
30 analyzing their conditions. This allows critical care specialists to alert clinical staff at the bedside to
31 potential problems before they occur and to guide interventions. The eICU allows staff in
32 Anchorage, Alaska to help treat patients at three other hospitals in remote locations, while also
33 adding an extra layer of care for patients in the Anchorage ICU. It costs Providence \$2 million a
34 year to operate the system; the rural hospitals pay about \$40,000 a year to connect each bed to the
35 system. Research shows that these monies are well spent. A 2011 study in *JAMA* found that eICUs
36 prevent deaths by helping doctors follow best clinical practices and showed that eICUs cut two
37 days off the average length of an ICU stay.⁴²

38
39 Project ECHO[®] (Extension for Community Healthcare Outcomes) was created in 2003 to increase
40 chronic disease management capacity in rural New Mexico for patients with hepatitis C. To treat as
41 many such patients as possible, Project ECHO provided a free educational model and mentored
42 community physicians across New Mexico in how to treat patients with this condition. A 2011
43 study in the *New England Journal of Medicine* found that hepatitis C care provided by Project
44 ECHO-trained community physicians was as good as care provided by specialists at a university.⁴³
45 The Project ECHO model utilizes telementoring, a guided practice model through which the
46 participating clinician retains responsibility for managing the patient. Its principles include
47 appropriate use of technology to leverage scarce resources, sharing best practices to reduce
48 disparity, case-based learning to master complexity, and use of a web-based database to monitor
49 outcomes and the program has been expanded to address other clinical needs beyond hepatitis C
50 care.

1 *Utilization of Technology to Enhance Educational Needs for Rural Training Programs*

2
3 The PHE necessitated a sudden transition to remote learning in medical schools, and distance E-
4 learning emerged as a new method of teaching to maintain the continuity of medical education.
5 Distance E-Learning is defined as using computer technology to deliver training, including
6 technology-supported learning—either online, offline, or both.⁴⁴ Distance E-learning may be
7 beneficial in enhancing educational opportunities for trainees in rural training programs and
8 support alignment with the ACGME Common Program Requirements for scholarship by increasing
9 access to scholarly activities on quality improvement, population health, and teaching, in addition
10 to more classic forms of biomedical research as the focus for scholarship.

11
12 *Alternative Workforce Initiatives to Address the Physician Shortage in Rural Areas*

13
14 One approach to meeting demand for primary care is a redefinition, and often expansion, of the
15 scope of practice and licensure for non-physician practitioners, such as nurse practitioners and
16 physician assistants. Many states have taken steps to increase the procedures, treatments, actions,
17 processes, and authority that are permitted by law, regulation, and licensure for non-physician
18 primary care providers. According to the AMA Advocacy Resource Center, 16 states require
19 physician supervision or collaboration of nurse practitioners (NPs) to diagnose, treat, and prescribe;
20 10 states require physician supervision or collaboration of NPs to prescribe; 10 states require
21 physician supervision or collaboration for a certain number of hours or years; and 15 states plus the
22 District of Columbia allow NPs to practice independently.

23
24 DISCUSSION

25
26 Rural communities experience significant health disparities due to a number of institutional and
27 structural factors, such as limited access to health care specialists and subspecialists and limited job
28 opportunities for rural residents. According to the Centers for Disease Control and Prevention
29 (CDC), rates for the five leading causes of death in the United States—heart disease, cancer,
30 unintentional injury (including vehicle accidents and opioid overdoses), chronic lower respiratory
31 disease, and stroke—are higher in rural communities.⁴⁵ This inequality is intensified as rural
32 residents are less likely to have employer-provided health insurance coverage and, if they are poor,
33 are often not covered by Medicaid. Unfortunately, the supply of rural physicians has not met the
34 demand for health care services among these communities. To meet this need, investments are
35 needed to increase the number of students from rural areas and other students committed to rural
36 and family medicine who are enrolled in medical school and to increase resident exposure to rural
37 practice opportunities.

38
39 The current structure of medical education is predominately based in metropolitan areas and
40 disproportionately exposes future physicians to medical practice in urban and suburban settings.³
41 While recruitment efforts have focused on strengthening the career pathways for those populations
42 traditionally underrepresented in medicine (URM), these efforts tend to target racial and ethnic
43 groups rather than explicitly targeting students from rural areas. Opportunities to increase rural
44 students' exposure to careers in medicine should be explored to help expand rural physician
45 pathways. Additionally, medical schools should consider rural background as an important
46 component of a diverse student body. Medical schools should consider widespread adoption of
47 holistic admissions practices that value a broad set of life and leadership experiences among
48 applicants.

49
50 Beyond educational interventions, efforts should be made to decrease rural hospital closures, as
51 physicians are not likely to practice in an area that is remote from a hospital. There is a symbiotic

1 relationship between physicians and hospitals; research has found that rural hospital closures are
2 associated with long-term decreases in the supply of rural physicians. Rural hospitals in states that
3 had expanded Medicaid as of April 2018 were less likely to close compared to rural hospitals in
4 states that had not expanded Medicaid. At the time this report was drafted, the North Carolina
5 Rural Health Research Program had identified 163 rural hospital closures, 35 percent of which
6 have occurred since 2016. In its 2018 report, the GAO found that from 2013 through 2017 rural
7 hospitals located in the U.S. South represented 77 percent of rural hospital closures; Medicare
8 Dependent Hospitals accounted for 25 percent; and for-profit rural hospitals 36 percent.

9
10 Addressing this issue is essential to ensuring an adequate supply of physicians for rural areas. The
11 Association of State and Territorial Health Officials (ASTHO) reports that states are using a variety
12 of measures to prevent rural hospital closures, including tax incentives, technical assistance, and
13 increased Medicaid reimbursement rates. States are also working to improve rural health care
14 access by creating new licensure options, reducing regulatory barriers for clinics that serve rural
15 populations, and exploring legislation that would recruit and train a rural health workforce.⁴⁶

16 17 RELEVANT AMA POLICY

18
19 Our AMA has numerous existing policies and directives that are relevant to the topic of rural
20 health; these are shown in the appendix.

21 22 SUMMARY AND RECOMMENDATIONS

23
24 Addressing the gap of rural health services in the U.S. requires a multifaceted approach. In its role
25 as convener of key organizations and stakeholders, our AMA continues to work to help identify
26 ways to encourage and incentivize qualified physicians to practice in our nation's underserved
27 areas. In addition, our AMA continues to advocate for state and national legislative action and
28 other efforts that (1) expand the health careers pathways for Americans in rural areas and others
29 interested in serving these populations; (2) fund residency training in rural areas; (3) promote
30 telehealth and training in telehealth as a promising paradigm to bridge the gaps in care in rural
31 areas; and (4) address the rising tide of rural hospital closures that threatens to further weaken the
32 health care infrastructure in the rural U.S.

33
34 The Council on Medical Education therefore recommends that the following recommendation be
35 adopted and the remainder of this report be filed:

- 36
37 1. That our AMA amend Policy H-465.988, "Educational Strategies for Meeting Rural Health
38 Physician Shortage," by addition and deletion to read as follows: (4) Our AMA will
39 encourage ACGME review committees to consider adding exposure to rural medicine as
40 appropriate, to encourage the development of rural program tracks in training programs
41 and increase physician awareness of the conditions that pose challenges and lack of
42 resources in rural areas. (5) Our AMA will encourage adding educational webinars,
43 workshops and other didactics via remote learning formats to enhance the educational
44 needs of smaller training programs. (Modify Current HOD Policy)
45
46 2. That our AMA monitor the status and outcomes of the 2020 Census to assess the impact of
47 physician supply and patient demand in rural communities. (Directive to Take Action)
48
49 3. That our AMA amend Policy H-200.954, "US Physician Shortage," by addition to read as
50 follows: "(13) will work to augment the impact of initiatives to address rural physician
workforce shortages." (Modify Current HOD Policy)

1
2
3
4
5
6
7
8
9
10
11
12
13
14

- 4. That our AMA reaffirm Policy H-465.988, “Educational Strategies for Meeting Rural Health Physician Shortage,” which states, in part “(1.a) Our AMA encourage medical schools and residency programs to develop educationally sound rural clinical preceptorships and rotations consistent with educational and training requirements, and to provide early and continuing exposure to those programs for medical students and residents. (1.b) Our AMA encourage medical schools to develop educationally sound primary care residencies in smaller communities with the goal of educating and recruiting more rural physicians.” (Reaffirm HOD Policy).

- 5. That our AMA amend Policy H-465.981, “Enhancing Rural Physician Practices,” by addition to read: “(5) Our AMA will undertake a study of structural urbanism, federal payment policies, and the impact on rural workforce disparities.” (Modify Current HOD Policy)

Fiscal note: \$500.

APPENDIX: RELEVANT AMA POLICY

D-305.967, "The Preservation, Stability and Expansion of Full Funding for Graduate Medical Education"

1. Our AMA will actively collaborate with appropriate stakeholder organizations, (including Association of American Medical Colleges, American Hospital Association, state medical societies, medical specialty societies/associations) to advocate for the preservation, stability and expansion of full funding for the direct and indirect costs of graduate medical education (GME) positions from all existing sources (e.g. Medicare, Medicaid, Veterans Administration, CDC and others).
2. Our AMA will actively advocate for the stable provision of matching federal funds for state Medicaid programs that fund GME positions.
3. Our AMA will actively seek congressional action to remove the caps on Medicare funding of GME positions for resident physicians that were imposed by the Balanced Budget Amendment of 1997 (BBA-1997).
4. Our AMA will strenuously advocate for increasing the number of GME positions to address the future physician workforce needs of the nation.
5. Our AMA will oppose efforts to move federal funding of GME positions to the annual appropriations process that is subject to instability and uncertainty.
6. Our AMA will oppose regulatory and legislative efforts that reduce funding for GME from the full scope of resident educational activities that are designated by residency programs for accreditation and the board certification of their graduates (e.g. didactic teaching, community service, off-site ambulatory rotations, etc.).
7. Our AMA will actively explore additional sources of GME funding and their potential impact on the quality of residency training and on patient care.
8. Our AMA will vigorously advocate for the continued and expanded contribution by all payers for health care (including the federal government, the states, and local and private sources) to fund both the direct and indirect costs of GME.
9. Our AMA will work, in collaboration with other stakeholders, to improve the awareness of the general public that GME is a public good that provides essential services as part of the training process and serves as a necessary component of physician preparation to provide patient care that is safe, effective and of high quality.
10. Our AMA staff and governance will continuously monitor federal, state and private proposals for health care reform for their potential impact on the preservation, stability and expansion of full funding for the direct and indirect costs of GME.
11. Our AMA: (a) recognizes that funding for and distribution of positions for GME are in crisis in the United States and that meaningful and comprehensive reform is urgently needed; (b) will immediately work with Congress to expand medical residencies in a balanced fashion based on expected specialty needs throughout our nation to produce a geographically distributed and appropriately sized physician workforce; and to make increasing support and funding for GME programs and residencies a top priority of the AMA in its national political agenda; and (c) will continue to work closely with the Accreditation Council for Graduate Medical Education, Association of American Medical Colleges, American Osteopathic Association, and other key stakeholders to raise awareness among policymakers and the public about the importance of expanded GME funding to meet the nation's current and anticipated medical workforce needs.
12. Our AMA will collaborate with other organizations to explore evidence-based approaches to quality and accountability in residency education to support enhanced funding of GME.
13. Our AMA will continue to strongly advocate that Congress fund additional graduate medical education (GME) positions for the most critical workforce needs, especially considering the current and worsening maldistribution of physicians.

14. Our AMA will advocate that the Centers for Medicare and Medicaid Services allow for rural and other underserved rotations in Accreditation Council for Graduate Medical Education (ACGME)-accredited residency programs, in disciplines of particular local/regional need, to occur in the offices of physicians who meet the qualifications for adjunct faculty of the residency program's sponsoring institution.
15. Our AMA encourages the ACGME to reduce barriers to rural and other underserved community experiences for graduate medical education programs that choose to provide such training, by adjusting as needed its program requirements, such as continuity requirements or limitations on time spent away from the primary residency site.
16. Our AMA encourages the ACGME and the American Osteopathic Association (AOA) to continue to develop and disseminate innovative methods of training physicians efficiently that foster the skills and inclinations to practice in a health care system that rewards team-based care and social accountability.
17. Our AMA will work with interested state and national medical specialty societies and other appropriate stakeholders to share and support legislation to increase GME funding, enabling a state to accomplish one or more of the following: (a) train more physicians to meet state and regional workforce needs; (b) train physicians who will practice in physician shortage/underserved areas; or (c) train physicians in undersupplied specialties and subspecialties in the state/region.
18. Our AMA supports the ongoing efforts by states to identify and address changing physician workforce needs within the GME landscape and continue to broadly advocate for innovative pilot programs that will increase the number of positions and create enhanced accountability of GME programs for quality outcomes.
19. Our AMA will continue to work with stakeholders such as Association of American Medical Colleges (AAMC), ACGME, AOA, American Academy of Family Physicians, American College of Physicians, and other specialty organizations to analyze the changing landscape of future physician workforce needs as well as the number and variety of GME positions necessary to provide that workforce.
20. Our AMA will explore innovative funding models for incremental increases in funded residency positions related to quality of resident education and provision of patient care as evaluated by appropriate medical education organizations such as the Accreditation Council for Graduate Medical Education.
21. Our AMA will utilize its resources to share its content expertise with policymakers and the public to ensure greater awareness of the significant societal value of graduate medical education (GME) in terms of patient care, particularly for underserved and at-risk populations, as well as global health, research and education.
22. Our AMA will advocate for the appropriation of Congressional funding in support of the National Health care Workforce Commission, established under section 5101 of the Affordable Care Act, to provide data and health care workforce policy and advice to the nation and provide data that support the value of GME to the nation.
23. Our AMA supports recommendations to increase the accountability for and transparency of GME funding and continue to monitor data and peer-reviewed studies that contribute to further assess the value of GME.
24. Our AMA will explore various models of all-payer funding for GME, especially as the Institute of Medicine (now a program unit of the National Academy of Medicine) did not examine those options in its 2014 report on GME governance and financing.
25. Our AMA encourages organizations with successful existing models to publicize and share strategies, outcomes and costs.
26. Our AMA encourages insurance payers and foundations to enter into partnerships with state and local agencies as well as academic medical centers and community hospitals seeking to expand GME.

27. Our AMA will develop, along with other interested stakeholders, a national campaign to educate the public on the definition and importance of graduate medical education, student debt and the state of the medical profession today and in the future.

28. Our AMA will collaborate with other stakeholder organizations to evaluate and work to establish consensus regarding the appropriate economic value of resident and fellow services.

29. Our AMA will monitor ongoing pilots and demonstration projects, and explore the feasibility of broader implementation of proposals that show promise as alternative means for funding physician education and training while providing appropriate compensation for residents and fellows.

30. Our AMA will monitor the status of the House Energy and Commerce Committee's response to public comments solicited regarding the 2014 IOM report, Graduate Medical Education That Meets the Nation's Health Needs, as well as results of ongoing studies, including that requested of the GAO, in order to formulate new advocacy strategy for GME funding, and will report back to the House of Delegates regularly on important changes in the landscape of GME funding.

31. Our AMA will advocate to the Centers for Medicare & Medicaid Services to adopt the concept of Cap-Flexibility and allow new and current Graduate Medical Education teaching institutions to extend their cap-building window for up to an additional five years beyond the current window (for a total of up to ten years), giving priority to new residency programs in underserved areas and/or economically depressed areas.

32. Our AMA will: (a) encourage all existing and planned allopathic and osteopathic medical schools to thoroughly research match statistics and other career placement metrics when developing career guidance plans; (b) strongly advocate for and work with legislators, private sector partnerships, and existing and planned osteopathic and allopathic medical schools to create and fund graduate medical education (GME) programs that can accommodate the equivalent number of additional medical school graduates consistent with the workforce needs of our nation; and (c) encourage the Liaison Committee on Medical Education (LCME), the Commission on Osteopathic College Accreditation (COCA), and other accrediting bodies, as part of accreditation of allopathic and osteopathic medical schools, to prospectively and retrospectively monitor medical school graduates rates of placement into GME as well as GME completion.

33. Our AMA encourages the Secretary of the U.S. Department of Health and Human Services to coordinate with federal agencies that fund GME training to identify and collect information needed to effectively evaluate how hospitals, health systems, and health centers with residency programs are utilizing these financial resources to meet the nation's health care workforce needs. This includes information on payment amounts by the type of training programs supported, resident training costs and revenue generation, output or outcomes related to health workforce planning (i.e., percentage of primary care residents that went on to practice in rural or medically underserved areas), and measures related to resident competency and educational quality offered by GME training programs.

D-400.985, "Geographic Practice Cost Index"

Our AMA will: (1) use the AMA Physician Practice Information Survey to determine actual differences in rural vs. urban practice expenses; (2) seek Congressional authorization of a detailed study of the way rents are reflected in the Geographic Practice Cost Index (GPCI); (3) advocate that payments under physician quality improvement initiatives not be subject to existing geographic variation adjustments (i.e., GPCIs); and (4) provide annual updates on the Centers for Medicare and Medicaid Services efforts to improve the accuracy of Medicare Economic Index weights and geographic adjustments and their impact on the physician payment schedule, and AMA advocacy efforts on these issues.

D-400.989, "Equal Pay for Equal Work"

Our AMA: (1) shall make its first legislative priority to fix the Medicare payment update problem because this is the most immediate means of increasing Medicare payments to physicians in rural states and will have the greatest impact; (2) shall seek enactment of legislation directing the General Accounting Office to develop and recommend to Congress policy options for reducing any unjustified geographic disparities in Medicare physician payment rates and improving physician recruitment and retention in underserved rural areas; and (3) shall advocate strongly to the current administration and Congress that additional funds must be put into the Medicare physician payment system and that continued budget neutrality is not an option.

H-200.949, Principles of and Actions to Address Primary Care Workforce

1. Our patients require a sufficient, well-trained supply of primary care physicians--family physicians, general internists, general pediatricians, and obstetricians/gynecologists--to meet the nation's current and projected demand for health care services.
2. To help accomplish this critical goal, our American Medical Association (AMA) will work with a variety of key stakeholders, to include federal and state legislators and regulatory bodies; national and state specialty societies and medical associations, including those representing primary care fields; and accreditation, certification, licensing, and regulatory bodies from across the continuum of medical education (undergraduate, graduate, and continuing medical education).
3. Through its work with these stakeholders, our AMA will encourage development and dissemination of innovative models to recruit medical students interested in primary care, train primary care physicians, and enhance both the perception and the reality of primary care practice, to encompass the following components: a) Changes to medical school admissions and recruitment of medical students to primary care specialties, including counseling of medical students as they develop their career plans; b) Curriculum changes throughout the medical education continuum; c) Expanded financial aid and debt relief options; d) Financial and logistical support for primary care practice, including adequate reimbursement, and enhancements to the practice environment to ensure professional satisfaction and practice sustainability; and e) Support for research and advocacy related to primary care.
4. Admissions and recruitment: The medical school admissions process should reflect the specific institution's mission. Those schools with missions that include primary care should consider those predictor variables among applicants that are associated with choice of these specialties.
5. Medical schools, through continued and expanded recruitment and outreach activities into secondary schools, colleges, and universities, should develop and increase the pool of applicants likely to practice primary care by seeking out those students whose profiles indicate a likelihood of practicing in primary care and underserved areas, while establishing strict guidelines to preclude discrimination.
6. Career counseling and exposure to primary care: Medical schools should provide to students career counseling related to the choice of a primary care specialty, and ensure that primary care physicians are well-represented as teachers, mentors, and role models to future physicians.
7. Financial assistance programs should be created to provide students with primary care experiences in ambulatory settings, especially in underserved areas. These could include funded preceptorships or summer work/study opportunities.
8. Curriculum: Voluntary efforts to develop and expand both undergraduate and graduate medical education programs to educate primary care physicians in increasing numbers should be continued. The establishment of appropriate administrative units for all primary care specialties should be encouraged.
9. Medical schools with an explicit commitment to primary care should structure the curriculum to support this objective. At the same time, all medical schools should be encouraged to continue to change their curriculum to put more emphasis on primary care.

10. All four years of the curriculum in every medical school should provide primary care experiences for all students, to feature increasing levels of student responsibility and use of ambulatory and community-based settings.

11. Federal funding, without coercive terms, should be available to institutions needing financial support to expand resources for both undergraduate and graduate medical education programs designed to increase the number of primary care physicians. Our AMA will advocate for public (federal and state) and private payers to a) develop enhanced funding and related incentives from all sources to provide education for medical students and resident/fellow physicians, respectively, in progressive, community-based models of integrated care focused on quality and outcomes (such as the patient-centered medical home and the chronic care model) to enhance primary care as a career choice; b) fund and foster innovative pilot programs that change the current approaches to primary care in undergraduate and graduate medical education, especially in urban and rural underserved areas; and c) evaluate these efforts for their effectiveness in increasing the number of students choosing primary care careers and helping facilitate the elimination of geographic, racial, and other health care disparities.

12. Medical schools and teaching hospitals in underserved areas should promote medical student and resident/fellow physician rotations through local family health clinics for the underserved, with financial assistance to the clinics to compensate their teaching efforts.

13. The curriculum in primary care residency programs and training sites should be consistent with the objective of training generalist physicians. Our AMA will encourage the Accreditation Council for Graduate Medical Education to (a) support primary care residency programs, including community hospital-based programs, and (b) develop an accreditation environment and novel pathways that promote innovations in graduate medical education, using progressive, community-based models of integrated care focused on quality and outcomes (such as the patient-centered medical home and the chronic care model).

14. The visibility of primary care faculty members should be enhanced within the medical school, and positive attitudes toward primary care among all faculty members should be encouraged.

15. Support for practicing primary care physicians: Administrative support mechanisms should be developed to assist primary care physicians in the logistics of their practices, along with enhanced efforts to reduce administrative activities unrelated to patient care, to help ensure professional satisfaction and practice sustainability.

16. There should be increased financial incentives for physicians practicing primary care, especially those in rural and urban underserved areas, to include scholarship or loan repayment programs, relief of professional liability burdens, and Medicaid case management programs, among others. Our AMA will advocate to state and federal legislative and regulatory bodies, among others, for development of public and/or private incentive programs, and expansion and increased funding for existing programs, to further encourage practice in underserved areas and decrease the debt load of primary care physicians. The imposition of specific outcome targets should be resisted, especially in the absence of additional support to the schools.

17. Our AMA will continue to advocate, in collaboration with relevant specialty societies, for the recommendations from the AMA/Specialty Society RVS Update Committee (RUC) related to reimbursement for E&M services and coverage of services related to care coordination, including patient education, counseling, team meetings and other functions; and work to ensure that private payers fully recognize the value of E&M services, incorporating the RUC-recommended increases adopted for the most current Medicare RBRVS.

18. Our AMA will advocate for public (federal and state) and private payers to develop physician reimbursement systems to promote primary care and specialty practices in progressive, community-based models of integrated care focused on quality and outcomes such as the patient-centered medical home and the chronic care model consistent with current AMA Policies H-160.918 and H-160.919.

19. There should be educational support systems for primary care physicians, especially those practicing in underserved areas.
20. Our AMA will urge urban hospitals, medical centers, state medical associations, and specialty societies to consider the expanded use of mobile health care capabilities.
21. Our AMA will encourage the Centers for Medicare & Medicaid Services to explore the use of telemedicine to improve access to and support for urban primary care practices in underserved settings.
22. Accredited continuing medical education providers should promote and establish continuing medical education courses in performing, prescribing, interpreting and reinforcing primary care services.
23. Practicing physicians in other specialties--particularly those practicing in underserved urban or rural areas--should be provided the opportunity to gain specific primary care competencies through short-term preceptorships or postgraduate fellowships offered by departments of family medicine, internal medicine, pediatrics, etc., at medical schools or teaching hospitals. In addition, part-time training should be encouraged, to allow physicians in these programs to practice concurrently, and further research into these concepts should be encouraged.
24. Our AMA supports continued funding of Public Health Service Act, Title VII, Section 747, and encourages advocacy in this regard by AMA members and the public.
25. Research: Analysis of state and federal financial assistance programs should be undertaken, to determine if these programs are having the desired workforce effects, particularly for students from disadvantaged groups and those that are underrepresented in medicine, and to gauge the impact of these programs on elimination of geographic, racial, and other health care disparities. Additional research should identify the factors that deter students and physicians from choosing and remaining in primary care disciplines. Further, our AMA should continue to monitor trends in the choice of a primary care specialty and the availability of primary care graduate medical education positions. The results of these and related research endeavors should support and further refine AMA policy to enhance primary care as a career choice.

H-200.954, "US Physician Shortage"

Our AMA:

- (1) explicitly recognizes the existing shortage of physicians in many specialties and areas of the US;
- (2) supports efforts to quantify the geographic maldistribution and physician shortage in many specialties;
- (3) supports current programs to alleviate the shortages in many specialties and the maldistribution of physicians in the US;
- (4) encourages medical schools and residency programs to consider developing admissions policies and practices and targeted educational efforts aimed at attracting physicians to practice in underserved areas and to provide care to underserved populations;
- (5) encourages medical schools and residency programs to continue to provide courses, clerkships, and longitudinal experiences in rural and other underserved areas as a means to support educational program objectives and to influence choice of graduates' practice locations;
- (6) encourages medical schools to include criteria and processes in admission of medical students that are predictive of graduates' eventual practice in underserved areas and with underserved populations;
- (7) will continue to advocate for funding from public and private payers for educational programs that provide experiences for medical students in rural and other underserved areas;
- (8) will continue to advocate for funding from all payers (public and private sector) to increase the number of graduate medical education positions in specialties leading to first certification;

(9) will work with other groups to explore additional innovative strategies for funding graduate medical education positions, including positions tied to geographic or specialty need;

(10) continues to work with the Association of American Medical Colleges (AAMC) and other relevant groups to monitor the outcomes of the National Resident Matching Program; and

(11) continues to work with the AAMC and other relevant groups to develop strategies to address the current and potential shortages in clinical training sites for medical students.

(12) will: (a) promote greater awareness and implementation of the Project ECHO (Extension for Community Health care Outcomes) and Child Psychiatry Access Project models among academic health centers and community-based primary care physicians; (b) work with stakeholders to identify and mitigate barriers to broader implementation of these models in the United States; and (c) monitor whether health care payers offer additional payment or incentive payments for physicians who engage in clinical practice improvement activities as a result of their participation in programs such as Project ECHO and the Child Psychiatry Access Project; and if confirmed, promote awareness of these benefits among physicians.

H-200.972, "Primary Care Physicians in Underserved Areas"

1. Our AMA should pursue the following plan to improve the recruitment and retention of physicians in underserved areas:
 - (a) Encourage the creation and pilot-testing of school-based, faith-based, and community-based urban/rural family health clinics, with an emphasis on health education, prevention, primary care, and prenatal care.
 - (b) Encourage the affiliation of these family health clinics with local medical schools and teaching hospitals.
 - (c) Advocate for the implementation of AMA policy that supports extension of the rural health clinic concept to urban areas with appropriate federal agencies.
 - (d) Encourage the AMA Senior Physicians Section to consider the involvement of retired physicians in underserved settings, with appropriate mechanisms to ensure their competence.
 - (e) Urge hospitals and medical societies to develop opportunities for physicians to work part-time to staff health clinics that help meet the needs of underserved patient populations.
 - (f) Encourage the AMA and state medical associations to incorporate into state and federal health system reform legislative relief or immunity from professional liability for senior, part-time, or other physicians who help meet the needs of underserved patient populations.
 - (g) Urge hospitals and medical centers to seek out the use of available military health care resources and personnel, which can be used to help meet the needs of underserved patient populations.
2. Our AMA supports efforts to: (a) expand opportunities to retain international medical graduates after the expiration of allocated periods under current law; and (b) increase the recruitment and retention of physicians practicing in federally designated health professional shortage areas.

H. 240.971, "Elimination of Payment Differentials Between Urban and Rural Medical Care"

Our AMA (1) supports elimination of Medicare reimbursement differentials between urban and rural medical care; and (2) supports efforts to inform the Congress of the impact of such programs on the rural population.

H-400.988, "Medicare Reimbursement, Geographical Differences"

The AMA reaffirms its policy that geographic variations under a Medicare payment schedule should reflect only valid and demonstrable differences in physician practice costs, especially liability premiums, with other non-geographic practice cost index (GPCI) -based adjustments as needed to remedy demonstrable access problems in specific geographic areas.

(Sub. Res. 82, A-89 Reaffirmed: BOT Rep. DD, I-92 Reaffirmed: CMS Rep. 10, A-03 Reaffirmation A-06 Reaffirmation I-07 Reaffirmation A-08 Reaffirmation A-09 Reaffirmed: BOT Action in response to referred for decision Res. 212, A-09 Modified: CMS Rep. 4, A-11 Reaffirmed: CMS Rep. 1, I-11 Reaffirmed in lieu of Res. 122, A-12 Reaffirmed in lieu of Res. 113, A-13)

H-465.979, "Economic Viability of Rural Sole Community Hospitals"

Our AMA: (1) recognizes that economically viable small rural hospitals are critical to preserving patient access to high-quality care and provider sustainability in rural communities; and (2) supports the efforts of organizations advocating directly on behalf of small rural hospitals provided that the efforts are consistent with AMA policy.

H-465.980, "Rural Community Health Networks"

AMA policy is that development of rural community health networks be organized using the following principles: (1) Local delivery systems should be organized around the physical, mental and social needs of the community; (2) Clinical decision-making and financial management should reside within the community health network whenever feasible with physicians retaining responsibility for a network's medical, quality and utilization management; (3) Savings generated by community health networks should be reinvested in the local health care delivery system, rather than redirected elsewhere, since rural health systems and economies are fundamentally intertwined; (4) Patients should retain access to the spectrum of local health services, thereby preserving patient-physician relationships and continuity of care; and (5) Participation in rural community health networks should be voluntary, but open to all qualified rural physicians and other health care providers wishing to participate.

H-465.981, "Enhancing Rural Physician Practices"

The AMA: (1) supports legislation to extend the 10% Medicare payment bonus to physicians practicing in rural counties and other areas where the poverty rate exceeds a certain threshold, regardless of the areas' Health Professional Shortage Area (HPSA) status; (2) encourages federal and state governments to make available low interest loans and other financial assistance to assist physicians with shortage area practices in defraying their costs of compliance with requirements of the Occupational Safety and Health Administration, Americans with Disabilities Act and other national or state regulatory requirements; (3) will explore the feasibility of supporting the legislative and/or regulatory changes necessary to establish a waiver process through which shortage area practices can seek exemption from specific elements of regulatory requirements when improved access, without significant detriment to quality, will result; and (4) supports legislation that would allow shortage area physician practices to qualify as Rural Health Clinics without the need to employ one or more physician extenders.

H-465.982, "Rural Health"

The AMA: (1) encourages state medical associations to study the relevance of managed competition proposals to meeting health care needs of their rural populations; (2) encourages state associations to work with their respective state governments to implement rural health demonstration projects; and (3) will provide all adequate resources to assist state associations in dealing with managed competition in rural areas.

H-465.989, "Rural Health"

It is the policy of the AMA that: (1) the AMA closely monitor the impact of balance billing restrictions mandated by the Budget Reconciliation legislation on reimbursement levels and access to care in rural areas, and take action as needed to moderate that impact; (2) the AMA closely monitor implementation of the legislation establishing essential access community hospitals and rural primary care hospitals, to ensure that this program is implemented in a manner conducive to high quality of patient care and consistent with Association policy concerning the functions and supervision of physician assistants and nurse practitioners; (3) state medical associations be encouraged to monitor similarly and to influence any legislation or regulations governing the development and operation of such limited service rural hospital facilities in their own jurisdictions; and (4) the AMA establish liaison with the American Hospital Association, Congress and the Centers for Medicare & Medicaid Services regarding any further development of essential access community hospitals and rural primary care hospitals grants.

H-465.990, "Closing of Small Rural Hospitals"

Our AMA encourages legislation to reduce the financial constraints on small rural hospitals in order to improve access to health care.

H-465.994, "Improving Rural Health"

1. Our AMA (a) supports continued and intensified efforts to develop and implement proposals for improving rural health care, (b) urges physicians practicing in rural areas to be actively involved in these efforts, and (c) advocates widely publicizing AMA's policies and proposals for improving rural health care to the profession, other concerned groups, and the public.

2. Our AMA will work with other entities and organizations interested in public health to:

- Identify and disseminate concrete examples of administrative leadership and funding structures that support and optimize local, community-based rural public health.
- Develop an actionable advocacy plan to positively impact local, community-based rural public health including but not limited to the development of rural public health networks, training of current and future rural physicians in core public health techniques and novel funding mechanisms to support public health initiatives that are led and managed by local public health authorities.
- Study efforts to optimize rural public health.

H.465.997, "Access to and Quality of Rural Health Care"

- (1) Our AMA believes that solutions to access problems in rural areas should be developed through the efforts of voluntary local health planning groups, coordinated at the regional or state level by a similar voluntary health planning entity. Regional or statewide coordination

of local efforts will not only help to remedy a particular community's problems, but will also help to avoid and, if necessary, resolve existing duplication of health care resources.

(2) In addition to local solutions, our AMA believes that on a national level, the implementation of Association policy for providing the uninsured and underinsured with adequate protection against health care expense would be an effective way to help maintain and improve access to care for residents of economically depressed rural areas who lack adequate health insurance coverage. Efforts to place National Health Service Corps physicians in underserved areas of the country should also be continued.

D-255.985, "Conrad 30 - J-1 Visa Waivers"

1. Our AMA will: (A) lobby for the reauthorization of the Conrad 30 J-1 Visa Waiver Program; (B) advocate that the J-1 Visa waiver slots be increased from 30 to 50 per state; (C) advocate for expansion of the J-1 Visa Waiver Program to allow IMGs to serve on the faculty of medical schools and residency programs in geographic areas or specialties with workforce shortages; (D) publish on its website J-1 visa waiver (Conrad 30) statistics and information provided by state Conrad 30 administrators along with a frequently asked questions (FAQs) document about the Conrad 30 program; (E) advocate for solutions to expand the J-1 Visa Waiver Program to increase the overall number of waiver positions in the US in order to increase the number of IMGs who are willing to work in underserved areas to alleviate the physician workforce shortage; (F) work with the Educational Commission for Foreign Medical Graduates and other stakeholders to facilitate better communication and information sharing among Conrad 30 administrators, IMGs, US Citizenship and Immigration Services and the State Department; and (G) continue to communicate with the Conrad 30 administrators and IMGs members to share information and best practices in order to fully utilize and expand the Conrad 30 program.
2. Our AMA will continue to monitor legislation and provide support for improvements to the J-1 Visa Waiver program.
3. Our AMA will continue to promote its educational or other relevant resources to IMGs participating or considering participating in J-1 Visa waiver programs.
4. As a benefit of membership, our AMA will provide advice and information on Federation and other resources (but not legal opinions or representation), as appropriate to IMGs in matters pertaining to work-related abuses.
5. Our AMA encourages IMGs to consult with their state medical society and consider requesting that their state society ask for assistance by the AMA Litigation Center, if it meets the Litigation Center's established case selection criteria.

REFERENCES

- ¹ AAMC. 2020. New AAMC Report Confirms Growing Physician Shortage. <https://www.aamc.org/news-insights/press-releases/new-aamc-report-confirms-growing-physician-shortage>. Accessed February 5, 2021.
- ² Orłowski, J., and Dill, M. September 2017. Rural America Faces Shortage of Physicians to Care for Rapidly Aging Population. *Aging Today*. <https://www.asaging.org/blog/rural-america-faces-shortage-physicians-care-rapidly-aging-population>. Accessed February 21, 2020.
- ³ Shipman, S. A., Wendling, A., Jones, K. C., Kovar-Gough, I., Orłowski, J. M., & Phillips, J. 2019. The Decline In Rural Medical Students: A Growing Gap In Geographic Diversity Threatens The Rural Physician Workforce. *Health Affairs*, 38(12), 2011-2018. <https://www.healthaffairs.org/doi/10.1377/hlthaff.2019.00924>. Accessed September 1, 2021.
- ⁴ Council, H. A. 2012. Race & ethnicity in rural America. *Rural Research Briefs*, April, 1283-88. http://ruralhome.nonprofitsoapbox.com/storage/research_notes/rrn-race-and-ethnicity-web.pdf. Accessed January 28, 2020.
- ⁵ Martin, J. C., Avant, R. F., Bowman, M. A., Bucholtz, J. R., Dickinson, J. R., & Evans, K. L. (2004). Future of Family Medicine project leadership, committee (Mar–April 2004). The future of Family Medicine: a collaborative project of the family medicine community. *Ann Fam Med*, 2, S3-32. <https://doi.org/10.1370/afm.130>. Accessed September 1, 2021.
- ⁶ AAFP. 2014. Rural Practice, Keeping Physicians In (Position Paper). <https://www.aafp.org/about/policies/all/rural-practice-paper.html>. Accessed January 29, 2020.
- ⁷ Young, A., Chaudhry, H. J., Pei, X., Arnhart, K., Dugan, M., & Steingard, S. A. (2019). FSMB census of licensed physicians in the United States, 2018. *Journal of Medical Regulation*, 105(2), 7-23. Accessed on September 8, 2021 from <https://www.fsmb.org/siteassets/advocacy/publications/2018census.pdf>.
- ⁸ Jaret, P. (2020). Attracting the next generation of physicians to rural medicine. Association of American Medical Colleges. Accessed on September 10, 2021 from <https://www.aamc.org/news-insights/attracting-next-generation-physicians-rural-medicine>.
- ⁹ Cromartie, J. (2020). Modest Improvement in Nonmetro Population Change During the Decade Masks Larger Geographic Shifts (No. 1473-2020-608). Accessed on September 10, 2021 from <https://www.ers.usda.gov/amber-waves/2020/july/modest-improvement-in-nonmetro-population-change-during-the-decade-masks-larger-geographic-shifts>
- ¹⁰The Robert Graham Center. (July 2005; Policy Paper Number 31). The Family Physician Workforce: The Special Case of Rural Populations. Accessed from March 27, 2020 from <https://www.graham-center.org/rgc/publications-reports/publications/one-pagers/workforce-rural-2005.html>
- ¹¹ MacQueen, I.T., Maggard-Gibbons, M., Capra, G., Raaen, L., Ulloa, J.G., Shekelle, P.G., Miake-Lye, I., Beroes, J.M. and Hempel, S., 2018. Recruiting Rural Healthcare Providers Today: a Systematic Review of Training Program Success and Determinants of Geographic Choices. *Journal of General Internal Medicine*, 33(2), p.191.
- ¹² Komaromy, M., Grumbach, K., Drake, M., Vranizan, K., Lurie, N., Keane, D., & Bindman, A. B. (1996). The role of black and Hispanic physicians in providing health care for underserved populations. *New England Journal of Medicine*, 334(20), 1305-1310.
- ¹³ Pathman, D. E., Steiner, B. D., Jones, B. D., & Konrad, T. R. 1999. Preparing and retaining rural physicians through medical education. *Academic medicine: journal of the Association of American Medical Colleges*, 74(7), 810-820.

- ¹⁴ LaRavia, D., Calvert, J., Zavala, J., Smith, O.D., Talley, S., Gingrich, D., Polk, D., Granholm, M. and Lawson, N., 2002. Keeping physicians in rural practice. American Academy of Family Physicians Rural Recruitment and Retention Position Paper.
- ¹⁵ U.S Government Accountability Office. 2020. Rural Hospital Closures: Affected Residents Had Reduced Access to Health Care Services. Accessed February 5, 2021 from <https://www.gao.gov/products/GAO-21-93>.
- ¹⁶ Germack, H. D., Kandrack, R., & Martsolf, G. R. 2019. When rural hospitals close, the physician workforce goes. Health Affairs, 38(12), 2086-2094. <https://www.healthaffairs.org/doi/abs/10.1377/hlthaff.2019.00916>. Accessed January 28, 2020.
- ¹⁷ Hung, P., Kozhimannil, K., Closure of Hospital Obstetric Services Disproportionately Affects Less-Populated Rural Counties. (April 2017). University of Minnesota Rural Health Research Center. Retrieved from http://rhrc.umn.edu/wp-content/files_mf/1491501904UMRHRCOBclosuresPolicyBrief.pdf
- ¹⁸ Searing, A., Cohen Ross, D. Medicaid Expansion Fills Gaps in Maternal Health Coverage Leading to Healthier Mothers and Babies. (May 2019). Georgetown University Health Policy Institute, Center for Children and Families. Retrieved from https://ccf.georgetown.edu/wp-content/uploads/2019/05/Maternal-Health_FINAL-1.pdf.
- ¹⁹ Holmes, G. M., Kaufman, B. G., and Pink, G. H. Webcast on Financial Distress and Closures of Rural Hospitals. Rural Health Research Gateway webinar on September 21, 2017. Hosted by HRSA. Archived webinar presentation slides from <https://www.ruralhealthresearch.org/webinars/financial-distress-closures-of-rural-hospitals>. Accessed February 21, 2020.
- ²⁰ Navigant Consulting, Inc. 2019. The Potential Impact of a Medicare Public Option on U.S. Rural Hospitals and Communities: A Scenario Analysis. <https://americashealthcarefuture.org/wp-content/uploads/2019/10/Navigant-Rural-Public-Option-FINAL-8.19.pdf>, Accessed February 21, 2020.
- ²¹ Merritt Hawkins (2020). Final-year Medical Residents. A Survey Examining the Career Preferences, Plans and Expectations of Physicians Completing Their Residency Training. Accessed on September 10, 2021 from https://www.merrithawkins.com/uploadedFiles/MerrittHawkins_Final_Year_Medical_Residents_Survey_2019.pdf
- ²² Eden, J., Berwick, D., & Wilensky, G. 2014. Graduate Medical Education That Meets the Nation's Health Needs. National Academies Press. 500 Fifth Street NW, Washington, DC 20001.
- ²³ Henderson, T. M. 2013. Medicaid graduate medical education payments: A 50-state survey. Association of American Medical Colleges. https://nosorh.org/wp-content/uploads/2016/02/Data-and-Medicare-Expansion-Tim-Henderson-Medicaid_GME_2015_Data.pdf. Accessed January 29, 2020.
- ²⁴ Spero, J. C., Fraher, E. P., Ricketts, T. C., & Rockey, P. H. (2013). GME in the United States: a review of state initiatives. Cecil G. Sheps Center for Health Services Research, The University of North Carolina at Chapel Hill.
- ²⁵ Wynn, B.O. 2012. (unpublished). GME Financing models. Presentation to IOM Committee on the Governance and Financing of Graduate Medical Education. Washington, DC. September 5, 2012.
- ²⁶ Wynn, B. O., Guarino, C. M., Morse, L., & Cho, M. (2006). Alternative ways of financing graduate medical education. Rand Health. <https://aspe.hhs.gov/system/files/pdf/74846/report.pdf>. Accessed February 21, 2020.

- ²⁷ Consolidated Appropriations Act of 2021, H.R. 133, 116th Cong. (2020) (enacted). <https://rules.house.gov/sites/democrats.rules.house.gov/files/BILLS-116HR133SA-RCP-116-68.pdf>. Accessed February 5, 2021.
- ²⁸ National Health Service Corps. 2019. NHSC Builds Healthy Communities: 2019 (infographic). <https://bhw.hrsa.gov/sites/default/files/bhw/loans-scholarships/bhw-nhsc-infographic.pdf>. Accessed January 29, 2020.
- ²⁹ NHRA. January 2012. Care Workforce Distribution and Shortage Issues in Rural America Policy Brief. <https://www.ruralhealthweb.org/getattachment/Advocate/Policy-Documents/HealthCareWorkforceDistributionandShortageJanuary2012.pdf.aspx?lang=en-US>. Accessed January 28, 2020.
- ³⁰ Congressional Research Service. 2013. Health Workforce Programs in Title VII of the Public Health Service Act. <https://www.hsdl.org/?view&did=744097>. Accessed January 29, 2020.
- ³¹ National Rural Health Association (NHRA). February 2014. FMG/J1 Visa Waiver Physicians Policy Brief. <https://www.ruralhealthweb.org/getattachment/Advocate/Policy-Documents/FMG4.pdf.aspx?lang=en-US>. Accessed January 28, 2020.
- ³² Maryland Department of Health. Area Health Education Centers. <https://pophealth.health.maryland.gov/Pages/Area-Health-Education-Centers.aspx>. Accessed February 5, 2021.
- ³³ Area of Health Education Centers. 2018. AHEC Mission and History website. <https://www.nationalahec.org/index.php/about-us/mission-history>. Accessed January 29, 2020.
- ³⁴ 3RNet. 2014. 3RNet History and Timeline. <https://www.3rnet.org/Portals/0/About/PDFs/3RNet%20History%20and%20Timeline.pdf>. Accessed January 29, 2020.
- ³⁵ Center for Rural Health. 2020. Community Apgar Project website. Accessed January 29, 2020 from <https://ruralhealth.und.edu/projects/community-apgar-project>
- ³⁶ Patterson, D.G., Longenecker, R., Schmitz, D., Xierali, I.M., Phillips, R.L. and Skillman, S.M., 2012. Rural residency training for family medicine physicians: graduate early-career outcomes. Rural Training Track Technical Assistance Program Policy Brief.
- ³⁷ Patterson, D.G., Schmitz, D., Longenecker, R., Andrilla, C.H.A., February 2016. Family medicine Rural Training Track residencies: 2008-2015 graduate outcomes. Seattle, WA: WWAMI Rural Health Research Center, University of Washington. Retrieved from https://depts.washington.edu/fammed/rhrc/wp-content/uploads/sites/4/2016/02/RTT_Grad_Outcomes_PB_2016.pdf
- ³⁸ Miller, M. 2010, August 26. Medical students take unique approach to training. *The Cooperstown Crier*. Retrieved from https://www.coopercrier.com/news/local_news/medical-students-take-unique-approach-to-training/article_acfc5e79-83c6-5c98-b507-a21c8f0be257.html
- ³⁹ Oregon Health & Science University. June 5, 2019. COMPADRE: Five-year, \$1.8M Award Aims to Transform Health Care in Rural California and Oregon. <https://research.ucdavis.edu/compadre-five-year-1-8m-award-aims-to-transform-health-care-in-rural-california-and-oregon/>. Accessed January 29, 2020.
- ⁴⁰ Center for Telehealth and eHealth Law. 2018. Nursing Licensure Compact Goes Live. <https://ctel.org/2018/01/nurse-licensure-compact-goes-live/>. Accessed January 29, 2020.

- ⁴¹ Center for Connected Health Policy. 2019. Telehealth Policy Barriers Fact Sheet. <https://www.cchpca.org/sites/default/files/2019-02/TELEHEALTH%20POLICY%20BARRIERS%202019%20FINAL.pdf>. Accessed January 29, 2020.
- ⁴² Lilly CM, Cody S, Zhao H, et al. University of Massachusetts Memorial Critical Care Operations Group Hospital mortality, length of stay, and preventable complications among critically ill patients before and after tele-ICU reengineering of critical care processes. *JAMA*. 2011 Jun 1;305(21):2175–83. DOI: <http://dx.doi.org/10.1001/jama.2011.697>.
- ⁴³ Arora, S., Thornton, K., Murata, G., Deming, P., Kalishman, S., Dion, D., Parish, B., Burke, T., Pak, W., Dunkelberg, J. and Kistin, M., 2011. Outcomes of treatment for hepatitis C virus infection by primary care providers. *New England Journal of Medicine*, 364(23), pp.2199-2207.
- ⁴⁴ Al-Balas, M., Al-Balas, H.I., Jaber, H.M. et al. Distance learning in clinical medical education amid COVID-19 pandemic in Jordan: current situation, challenges, and perspectives. *BMC Med Educ* 20, 341 (2020). <https://doi.org/10.1186/s12909-020-02257-4>
- ⁴⁵ Garcia MC, Faul M, Massetti G, et al. Reducing Potentially Excess Deaths from the. *MMWR Surveill Summ* 2017;66(No. SS-2):1–7. DOI: [http://dx.doi.org/10.15585/mmwr.ss6602a1external icon](http://dx.doi.org/10.15585/mmwr.ss6602a1external%20icon).
- ⁴⁶ Association of State and Territorial Health Officials. August 27, 2019. The Impact of Rural Hospital Closures and State Responses. <https://www.astho.org/StatePublicHealth/The-Impact-of-Rural-Hospital-Closures-and-State-Responses/08-27-19/>. Accessed January 29, 2020.
- ³⁸ Physician Shortage GME Cap Flex Act of 2020, S.3390, 116th Congress. (2020). <https://www.congress.gov/bill/116th-congress/senate-bill/3390?s=1&r=4>