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Addressing the Rural and Underserved Healthcare Workforce Needs: Residency Specialty Selection and Workforce Outcomes of the WWAMI AHEC Scholars Program

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Abstract

Introduction

The availability of well-trained healthcare providers in rural and medically underserved areas in the United States is crucial for improving health outcomes. The Area Health Education Center (AHEC) Scholars program, funded by the Health Resources and Services Administration (HRSA), is a national effort to address these persistent healthcare shortages through a health professional student certificate program. This is a descriptive study of graduates of the University of Washington WWAMI AHEC Scholars program's residency selection and workforce outcomes.

Methods

From July 2022 to December 2023, our research team conducted a follow-up survey and online search to locate WWAMI AHEC Scholars graduates from the 2018 and 2019 cohorts. Data was collected on graduates' residency selection for MD/DO graduates. For all other participants, we documented their current healthcare professions, practice locations (rural and/or medically underserved areas), and whether the practice was a federally qualified health center.

Results

We located 94.1% (159) of WWAMI AHEC Scholars Graduates. Among the 47 MD/DO students, 61.7% (29) matched into primary care. Additionally, 13.4% (13) of participants from other healthcare programs were located in rural areas and 26.7% (26) in medically underserved areas, highlighting the program's impact on the current maldistribution of healthcare providers.

Conclusion

The WWAMI AHEC Scholars Program offers a promising model for encouraging rural and underserved practice. However, more outcome-based research is needed to understand the long-term impact of this program.

Introduction

The availability of well-trained providers is vital to improving population health. Without adequately trained providers, healthcare systems risk failing to provide proper care for patients and communities. Unfortunately, for decades, there has been a persistent shortage of healthcare workers in rural and historically marginalized urban areas in the United States. As of 2021, 61% of the designated primary care physician shortage areas are in rural areas. Rural areas encompass 20% of the US population, but only 10% of the physician workforce live in these communities.[1-3] Additionally, only 1% of the rural physician workforce graduated from a US medical school.[4] Urban under-resourced areas, particularly in

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racial and ethnic minority communities, experience similar healthcare shortages.[5]

In 2017, the Health Resources and Services Administration (HRSA) funded a landmark interprofessional program, AHEC (Area Health Education Centers) Scholars to bolster the future US healthcare workforce. The program goal is to "increase diversity among health professionals, broaden their distribution, enhance health care quality, and improve health care delivery to rural and underserved areas and populations".[6] Notably, the AHEC Scholars program is the largest and most comprehensive initiative for health professional students in the United States. The program is carried out by over 300 participating AHEC program offices and AHEC regional centers, with over 8,000 healthcare trainees participating annually.[7] Although this is a national program, local AHEC programs are independently managed in each state. While local AHECs have flexibility regarding the content and delivery methods of this two-year AHEC Scholars program, all programs include a mix of didactics, clinical experiences, and community engagement.

The University of Washington School of Medicine (UWSOM) has long served the largely rural region known as WWAMI (Washington, Wyoming, Alaska, Montana, and Idaho). UWSOM hosts the WWAMI AHEC Program Office.[8] At the time of this study, WWAMI AHEC had five AHEC Center Offices in Idaho and Washington State. The AHEC Center locations included Spokane, WA; Bellingham, WA; Moscow, ID; Pocatello, ID; and Boise, ID. The WWAMI AHEC Scholars is a two-year program. Students are required to complete two interprofessional courses that reflect important topics to prepare students for rural and urban under-resourced care. In addition to the didactics, participants also annually complete 40 clinical, community, or experiential learning hours. These experiences are required to be interprofessional and take place in a rural or urban under-resourced setting.

The three published studies on AHEC Scholars Program have focused on the short-term effectiveness of the program's curriculum.[6,9,10] Two of these studies reported that participants improved their preparedness to work in interprofessional teams.[6,9] However, given the scale of this HRSA-funded program and the resources invested, it is critical to understand the long-term impact of the AHEC Scholars program. In this descriptive study, we report on residency specialty selection and non-physician workforce outcomes of our 2018 and 2019 WWAMI AHEC Scholars cohorts. The workforce outcomes include healthcare occupations, with a focus on whether participants are practicing in rural or medically underserved areas (MUAs), and/or in federally qualified health centers (FQHCs).

Methods

Participants

This study included those WWAMI AHEC Scholars who graduated from the 2018 and 2019 cohorts and are in a medical residency or currently practicing some type of healthcare profession. Table One represents participant demographics data including, gender, race/ethnicity, school program, disadvantaged status, and rural background, which were collected from self-reported application data at matriculation.

TABLE 1 - WWAMI AHEC Scholars: 2018 and 2019 Cohort Graduates - Self-reported Demographics and Training Programs at Matriculation (N=159)

Race and Ethnicity	
White	108
Asian	25
Hispanic or Latino	14
Black or African American	4
Middle Eastern	2
Asian and Pacific Islander	1
African	1
Multi-racial	1
Other	2
N/A	1
Gender	
Female	127
Male	30
Other	2
Rural Community	
No	147
Yes	12
Economically/Environmentally Disadvantaged Background	
No	100
Yes	45
Not sure	14

Training Programs	
Medical Doctor	45
Doctor of Nursing Practice	20
Naturopathic Medicine	16
Physician Assistant (MEDEX)	16
Registered Nursing	7
Doctor of Dental Surgery	7
Doctor of Pharmacy	6
Doctor of Physical Therapy	6
Dietetics	5
Master's in Occupational Therapy	5
Dental Hygiene	4
Master's in Physician Assistant Studies	3
Master's in Athletic Training	2
Osteopathic Medicine	2
Clinical Psychology	2
Prosthetics and Orthotics	2
Physical Therapy Assistant	1
Other*	10

*Clinical Mental Health Counseling, Doctor of Audiology, Occupational Therapy Assistant, Healthcare Administration, Master's in Social Work, Master's in Acupuncture, Radiographic Sciences, Substance Abuse Disorder Professional, Master's in Public Health, Respiratory Therapy

Identifying practice and practice location

From January to December 2023, our research team conducted an online search for the current practice sites of WWAMI AHEC Scholars graduates from the 2018 and 2019 cohorts. This search included LinkedIn, hospitals, healthcare facility websites, the online directory of all active National Provider Identifiers, and the Idaho Licensure Database.[11,12] Information collected included the name and address of the practice location and professional occupation or role. Each source was cross-checked with at least one additional source or data point to ensure data reliability as much as possible.

Defining Rural, Medically Underserved and Federally Qualified Healthcare Centers

Our team used the Rural Health Information Hub (RHIH) website to determine which practice locations were rural and/or medically underserved areas (MUA).[13] For our study, we considered practice locations in Rural-Urban Commuting Areas (RUCA) codes 4 through 10 as rural. This includes communities of 49,999 or smaller.[14] We used the HRSA Federally Qualified Health Centers and look-alike website to confirm FQHC practice sites.[15]

Results

Our research team located 94.1% (159) WWAMI AHEC Scholars Graduates from the 2018 and 2019 cohorts. Of the graduates, 95.6% (152) were working in healthcare at the time of our research. Table Two lists the current professions and specialties of the graduates. Physicians represented the largest number of graduates, 29.6% (47). Among the physician group, 61.7% (29) were in primary care residencies, including internal medicine-primary care and family medicine. No students were matched into a pediatrics residency. 31.9% (15) were in non-primary care residencies. Following physicians, nursing 16.4% (26) and physician assistants 11.3% (18) comprised the most represented healthcare professions in the WWAMI AHEC Scholar Cohort.

TABLE 2. WWAMI AHEC Scholars: 2018 and 2019 Cohort Graduates located through online search - Profession and Specialty (N=159)

Profession/Specialty	Percent	N(159)
Total Physicians (45 MD and 2 DO)	29.6%	47
Primary Care*		29
Non-Primary Care**		15
Have not graduated primary program		3
Total Nursing	16.4%	26
Nurse Practitioner		19
Registered Nurse		7
Physician Assistant	11.3%	18
Total Rehabilitation	8.8%	14
Physical Therapist		6
Occupational Therapist		4
Prosthetist-Orthotist		2
Physical Therapist Assistant		1
Occupational Therapy Assistant		1
Total Naturopathic Doctors	8.2%	13
Have not graduated primary program		2
Total Dentistry	6.9%	11
Dentists		7
Dental Hygienist		4
Total Pharmacist	3.8%	6
Have not graduated primary program		1
Other Healthcare	4.4%	7
Non-healthcare	4.4%	7
Behavioral/Mental Health	3.1%	5
Dietitians	3.1%	5

Notes:

*Primary care providers include family medicine, internal medicine and pediatrics.

Graduates were found working in primary care, including internal medicine – primary care and family medicine. There were no pediatric residencies.

** Non-primary care providers identified in our study include Obstetrics & Gynecology, Anesthesiology, Emergency Medicine, General Surgery, Psychiatry, Radiation Oncology, and Urology.

Table 3 presents the workforce outcomes of WWAMI AHEC Graduates in rural areas, medically underserved areas (MUAs) and federally qualified health centers (FQHCs). Among AHEC Scholars in the workforce, 13.4% (13) are practicing in rural communities. Those practicing in MUAs represent 26.7% (26) of the graduates, with 20.6% (20) of them located in non-rural areas. Additionally, 13.4% (13) of the graduates are employed at FQHCs. We found no statistically significant difference between gender and practice location for rural areas, MUA or FQHCs. For our workforce outcome analysis, we excluded physicians in residencies (49), students who have not graduated from their primary training program (6), and individuals in non-healthcare roles (7).

TABLE 3. WWAMI AHEC Scholars: 2018 and 2019 Cohort Graduates - Workforce Outcomes for Rural, Medically Underserved Areas (MUAs) and Federally Qualified Health Centers (FQHC)*** (N=97)**

	Rural * Total	MUA** Total	MUA Rural	MUA Non-Rural	FQHC*** Total
Outcome	13.4% (13)	26.7% (26)	6.2% (6)	20.6% (20)	13.4% (13)

Notes:
Table excludes physicians in residencies (49), students who have not graduated from their primary training program (6), and individuals in non-healthcare roles (7).

***Rural (RUCA ≥ 4):** Locations with a RUCA code greater than or equal to 4 are considered rural.
****Medically underserved areas (MUAs):** Geographic areas where there is a shortage of health services.
*****Federally Qualified Health Centers (FQHCs):** Outpatient clinics that qualify for reimbursement under Medicaid and Medicare.

Discussion

Over one-third of the WWAMI AHEC Scholars graduates were found to be practicing in rural and/or medically underserved areas. We also found a noteworthy percentage of MD and DO students that matched into a primary care residency. Based on 2024 Main Residency Match Data, 36.8% of US Allopathic and Osteopathic graduates matched into family medicine, internal Medicine-primary care, and pediatrics.[13] In contrast, our WWAMI AHEC students matched at a rate of 61.7% for these primary care specialties. Several other primary care focused training programs have reported comparable match rates to the AHEC Scholars Program.[23] Several medical schools, independent of the AHEC Scholars Program, have also demonstrated their curricula to be influential in promoting rural and underserved practice.[16-19] We plan to conduct follow-up studies specifically targeting physicians who have graduated from the WWAMI AHEC Scholars Program once they have completed their residencies and have entered the workforce.

In general, there is a scarcity of literature examining the impact of non-physician healthcare professional training programs on student career choice and location. Several studies of nursing, dentistry, pharmacy and public health programs have shown an increase in student interest in rural or underserved careers upon completing these programs.[20-22] However, there are no longitudinal studies that document rural and/or underserved practice selection following healthcare training programs. Our workforce outcomes in this study are encouraging. However, they also highlight the critical need for more longitudinal research to track the career trajectories, particularly of non-physician healthcare providers. Growing this body of research will allow programs like the AHEC Scholars to compare outcomes and ultimately help determine their comparative efficacy.

While the WWAMI AHEC Scholars program shows promise regarding graduates practicing in rural and underserved areas, workforce retention literature underscores the importance of preparedness for a unique community and work life in these communities. Retention in rural and underserved areas is influenced by several factors, including the level of preparedness and support healthcare professionals receive during their training.[24,25] Studies have shown, for example, that programs emphasizing rural healthcare exposure, cultural competence, and interprofessional education enhance the readiness of healthcare professionals to remain in these sometimes-challenging environments.[26,27] It is important to note that many of these training and preparedness factors are integral components of the WWAMI AHEC Scholars program. This curricular approach may not only influence healthcare professionals toward rural and underserved practice but also potentially play a role in long-term retention and successful integration into these communities.

Limitations

This descriptive study relied primarily on publicly accessible information via internet searches. Therefore, there is a possibility that some information was inaccurate. Further, this information is a snapshot in time. Healthcare professionals may relocate or change their practice specialties after the data collection period. We chose not to report the practice locations of physician graduates of the WWAMI AHEC Scholars Program. Although they make up 29.6% of our study participants, they were in residency training programs at the time of this study. Additional studies will be needed to determine their practice locations post-residencies. Finally, this study did not have a control group in which to compare outcomes. It is also important to acknowledge that participants expressed some interest in rural or under-resourced healthcare when they matriculated in the program, thus reducing this study's generalizability.

Conclusions

The WWAMI AHEC Scholars two-year certificate program is a local effort of a national program aimed at promoting rural and urban under-resourced careers. Preliminary workforce outcomes are encouraging; however, more studies are needed to validate this program's effectiveness in contributing to the development and retention of healthcare providers in rural and urban under-resourced communities.

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