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A Comparison of Two Regional Campus Systems and their Impact on Addressing Health Care Needs of the Underserved.

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Abstract

A major impact of the late 1970s Carnegie Commission on Higher Education's report titled *Higher Education and the Nation's Health* was the funding and development of Area Health Education Centers (AHECs).[1] AHECs were located in rural and medically underserved areas in the states, with a goal of developing medical education programs to improve the manpower needs of these underserved communities.[1] The University of North Carolina School of Medicine (UNC SOM), developed such a network in the 1970s to accomplish this task,[2] and this paper reflects upon the success of the UNC AHEC system as well as the Florida State University College of Medicine (FSU COM), regional campus distributive education model in achieving this goal. The legislature of the State of Florida specially created FSU COM with a mission focused on producing primary care doctors and physicians who serve the needs of rural, geriatric, underserved, and minority populations.[3] FSU COM's distributive medical education system has successfully accomplished this mission.[3,4] I completed medical school and residency in the UNC AHEC system, and I am currently a regional campus Dean at FSU COM.

Key Words: Area Health Education Centers, UNC School of Medicine, FSU College of Medicine, Regional Medical Campuses, Underserved populations, Underrepresented Racial and Ethnic Minorities (URMs), Rural Medicine, Distributive Medical Education

Introduction

Nationally, in 2016, 22 MD-granting U.S. medical schools had regional medical campuses (RMCs), that had been present for at least a decade.[5] A major goal in the creation of RMCs is to deliver medical manpower to rural and underserved areas of our country and to increase the number of primary care physicians who will practice in rural areas.[5,6,7] Improving diversity in the physician workforce is also a critical need as these doctors may be more willing to practice in rural areas where many minority and underserved patients reside. Unfortunately, underrepresented racial and ethnic minorities in medicine represent less than twelve percent of the physician workforce, while representing about thirty percent of the population of the United States.[8] Distributive models of medical education, with regional medical campuses located in underserved areas, are vital to correcting this imbalance in medical providers for rural, minority, and geriatric populations.[6,7] The University of North Carolina School of Medicine created AHEC programs in the 1970s to address this imbalance, and I started medical school in 1989 at UNC Chapel Hill with little understanding of this regional medical education structure. I completed my clerkships and electives at various AHEC programs across the state of North Carolina, and later completed an Internal Medicine residency program at the Greensboro, NC, AHEC program, before moving to Florida to practice general internal medicine. In 2003 I moved to Tallahassee, FL, to practice medicine and become a clinical faculty member at FSU COM. FSU COM quickly developed a regional campus system as well. This article details the benefits of having a regional medical education system in both states with respect to developing physicians who will choose to serve rural and underserved communities. It also comments on similarities and differences experienced during my studies at UNC

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SOM versus the structure of medical education at FSU COM.

Regional Medical Campuses and Distributive Medical Education

There is a burgeoning belief that regional medical campuses and community based distributive medical education can significantly impact the healthcare delivered in rural and underserved communities.[9,10,11] Medical student exposure to rural practice settings makes them more likely to eventually practice there.[6,11,12] Communities that have regional medical campuses are also better able to access the developing physician workforce, and better recruit as well as retain medical graduates in their communities.[6,12] Only 1 percent of medical care in the United States occurs at tertiary care centers, and a one to one student-clinical preceptor community teaching model exposes students to physicians who they may emulate by going into practice in similar rural and underserved communities.[6]

UNC SOM Regional AHEC System

As a third-year medical student at UNC, I traveled from one AHEC to another across the state while completing my 3rd year Clerkships at various community hospital sites. I had more medical encounters with patients in their own communities in this system. The UNC system had residencies at each AHEC so most of the time I was a medical student on a clinical team comprised of 3rd and 4th year students, interns, residents, and the attending faculty. We also worked day to day with community preceptors on some rotations, and had more one on one time with attending faculty at the AHEC campuses. This one on one student-attending preceptor relationship did not occur on rotations at the main medical campus in Chapel Hill. The distributive medical education at UNC SOM also enabled me to complete rotations in small towns across rural North Carolina, in Pittsboro and Red Springs, for outpatient Family Medicine. This was a transformative experience showing me the tremendous needs of rural and underserved patients, especially in Red Springs, where native Lumbee Indians suffered the highest rates of infant mortality and other maladies in the state of North Carolina.

This AHEC training system had, and continues to have, many positive impacts on addressing disparities in care in North Carolina. AHEC programs do a better job of enhancing diversity of the health professions workforce through outreach efforts in middle and high schools across North Carolina.[2] Rotating through AHEC sites leads to the production of more primary care physicians in North Carolina.[2] Residents who train at UNC's AHEC sites also remain in North Carolina to practice in greater percentages versus non-AHEC residency programs in North Carolina.[2] Furthermore, more cost-effective training may occur at AHEC sites due to the broader use of technology to expand access to health education.[2] On a personal level, my time as a medical student and resident gave me greater exposure to rural and underserved patient populations. This made me more comfortable with the idea of practicing medicine in the Panhandle of Florida where there are tremendous shortages of general internists. Also, while I am not a member of an underrepresented minority in medicine, I learned cultural competencies and the challenges underrepresented minority populations face as a medical student and resident through the UNC SOM system. Training I received in medical school as well as residency through the AHEC system at UNC SOM succeeded in giving me the confidence to know I could help address the needs of rural and geriatric patients in an underserved area.

FSU COM Regional Medical Campus System

As impactful as the AHEC education model was for me at UNC, Florida State University College of Medicine's innovative educational program has had an even greater impact on producing primary care physicians, and leading to residents returning to Florida to practice in rural areas.[3,4] FSU COM utilizes community-based clinical training at six statewide regional campuses and two rural sites. It is a culmination of planning how to meet a critical

national need to create primary care physicians, especially those who will care for the elderly and underserved.[3,4] The Florida State University College of Medicine was established in 2000 when it was the first new MD-granting medical school in the U.S. in over a quarter century. The clinical medical education for FSU medical students is done in communities across the state in local clerkship faculty members' offices and operating rooms, with over 2,300 FSU COM clerkship faculty teaching students across six regional campuses.[4] After the second year of medical school, FSU's 120 medical students leave the main teaching campus at Florida State University in Tallahassee, Florida, to go to one of six statewide Regional Campuses located in Pensacola, Tallahassee, Daytona Beach, Orlando, Ft. Pierce, or Sarasota. Additionally, students can be placed at two rural track locations in Marianna and Immokalee, FL, as well as at a rural training site in adjacent Thomasville, Georgia.

Figure 1: Map of FSU COM Regional Campus System

The foundation for FSU COM's regional campus system is the importance of the local community. A community board exists at each campus and comprises the key stakeholders with respects to healthcare delivery in the community. This board helps to select each regional campus dean and then helps to vet physicians who are chosen to be regional faculty, while also developing widespread community support for FSU COM. The regional dean then recruits campus clerkship directors from practicing community physicians, who then recruit community doctors to serve as clerkship faculty (clinical preceptors), for medical students at each regional campus. What this means for students at FSU COM is that they receive their education in the community, obtaining a one-on-one education with community doctors, where they can see the needs of patient populations, many of whom are minority, geriatric, or underserved, throughout the state. FSU COM students consistently receive higher percentile marks on USMLE Step 2 CK and CS examinations than they do on Step 1, and this helps validate the clinical training model.[3] The students also have done well in matching to residency programs of their choice, and residency program directors consistently rate FSU COM graduates as very well-prepared for graduate medical education.[3] Finally, FSU COM graduates are entering primary care residencies at much higher rates than the national average, with more than 55% of all graduates entering primary care residencies when obstetrics-gynecology is included with family medicine, internal medicine, and pediatrics in that calculation.[3,4] Graduates of other U.S. medical schools during this time have matched in those specialties 44.2 percent of the time.[4] Through 2014, 53 percent of FSU alumni matching in Internal Medicine residency programs did not subspecialize.[4] Data from 2012 indicate that nationally about 79 percent of graduating Internal Medicine residents pursued fellowship training.[4] Family Medicine is another specialty where FSU COM has excelled in terms of Match Day data.[4] Between 2005-2017 13.7 percent of FSU COM graduates matched in Family Medicine, while all other U.S. medical schools matched 8.1 percent of their graduates into Family Medicine residency programs.[4] Liaw, Cheifetz, et al. looked at match rates into Family Medicine among RMC graduates from 2007-2009 and found the RMC match rate to be 14.2 percent vs. 7.9 percent when comparing RMC vs. non-RMC medical school match rates into

Family Medicine.[13] This supports the data from FSU COM's Match Day results in Family Medicine, and is further evidence that medical schools with regional medical campuses have a much greater likelihood of matching students into Family Medicine residency programs.

FSU COM has developed a highly popular and successful community-based model through the regional campus system. It has been strongly supported by both physician preceptors as well as medical students. Match rates into primary care, and the creation of general internists vs. internal medicine subspecialists, have both exceeded national averages over the past decade, again validating FSU COM's mission statement.[3,4]

Conclusion

Addressing gaps in healthcare delivery must include training physicians and other health care professionals who will meet the needs of rural, minority, underserved, and geriatric populations. The regional medical education I received during medical school and residency through the UNC AHEC system, succeeds in addressing these critical needs, as does FSU College of Medicine's regional campus structure.[2,3,4] Common learning methods and conditions leading to these results include the one to one student-clinical preceptor teaching model utilized by both systems. Another similarity is the placement of medical students in rural and community settings where there are shortages of medical professionals. Finally, exposure to rural and manpower shortage areas also gives these communities the opportunity to recruit future physicians, and medical students who train in such settings are more comfortable with returning to such non-urban environments. If medical schools truly intend to create more primary care physicians, FSU and UNC can serve as successful models of how to develop regional medical campuses/education that meet the needs of underserved populations. This comparison highlights some of the differences between UNC and FSU, while also showing how both regional medical campus systems help produce physicians who will address critical healthcare manpower needs.

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