



Institutional and Faculty Partnerships to Promote Learner Preparedness for Health Professions Education

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Abstract

By the year 2060, it is projected that 57% of the US population will be members of minority groups, with no one group being the majority. While there is increasing diversity of the population, there remain significant disparities in morbidity and mortality affecting minority groups, and persistent low numbers of underrepresented students in the health professions. Increasing the numbers of underrepresented minority students in health care and decreasing the disparity gap have been a priority for many institutions. Increasing diversity requires an approach that not only involves health professions schools but also involves undergraduate institutions, faculty, and other professionals who provide pre-health training to students. In 2018, a group of academic medicine leaders convened the Innovators, Collaborators, and Leaders conference with faculty at institutions across the state of North Carolina to discuss ways to improve learner preparedness for health professions education and increase numbers of underrepresented students pursuing health careers. In this manuscript, the authors share results from the conference and how institutional and faculty partnerships can promote learner preparedness for health professions education.

Keywords Health professions education · Faculty partnerships · Institutional partnerships

Introduction

The US Census Bureau projects that by the year 2060, 57% of the US population will be members of minority groups, with no one group being the majority (<https://www.census.gov/newsroom/releases/archives/population/cb12-243.html>). While US demographic statistics show increasing diversity of the population, there remain significant disparities in morbidity and mortality affecting minority groups, including

African Americans, Hispanics/Latinos, American Indians and Alaska Natives, and Asian Americans, Native Hawaiians, and other Pacific Islanders (<https://www.nhlbi.nih.gov/health/educational/healthdisp/about-health-disparities.htm>). Diversity in the US health care workforce is also limited and lags behind diversity in the population [1, 2]. Increasing the numbers of underrepresented minorities (URM) in health care may increase health access and care opportunities for underserved groups, as URM physicians are more likely to care for the medically underserved [3]. URMs in the health professions can include Black or African-American, Latinx, and Native American people. Creating partnerships among Historically Black Colleges and Universities (HBCUs), Native American Serving Institutions (NASIs), and predominantly white institutions (PWIs) can benefit all institutions, as PWIs can benefit from HBCU and NASI diversity and resilience, while HBCUs and NASIs can benefit from PWI resources and infrastructure [4–6]. Even though relationships among PWIs, HBCUs, and NASIs can be strained around issues of social justice, inequities in resource provision, and perceived little desire for such partnerships among PWIs [7], fostering these relationships is a challenge worth undertaking.

The inaugural Innovators, Collaborators, and Leaders (ICL) conference, held in November of 2018 at Elizabeth

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City State University, in Elizabeth City, NC, gathered a diverse group of professionals around the mission of increasing URM student representation in health professions, including medicine, dentistry, nursing, and allied health. The ICL conference was funded by an endowment grant and was designed to bring together faculty at HBCUs, a NASI, and PWIs within the state of North Carolina to (1) discuss the preparation of pre-health majors for health professions education across the state, (2) build camaraderie through candid discussions addressing the effects of historical inequities while highlighting the unique contributions of each institution towards building the health care pathway for URMs, (3) provide meaningful professional development activities for faculty participants, and (4) develop a strategy for North Carolina HBCUs, NASI, and PWIs to work collectively to increase the number of URM students entering health professions and graduate programs.

The two and a half day conference was organized by the Brody School of Medicine (BSOM) at East Carolina University (ECU), a community-based medical school with a mission to improve the health status of people living in North Carolina. Brody serves as a primary care leader for the state [8] and seeks to increase access to medical education for minority and disadvantaged students. Participating universities included Duke University, Elizabeth City State University, Fayetteville State University, High Point University, North Carolina Agricultural and Technical (A&T) State University, North Carolina Central University, Shaw University, St. Augustine's University, University of North Carolina at Chapel-Hill, University of North Carolina at Pembroke, and Winston-Salem State University. Agenda topics for the conference included professional identity formation, unpacking mentoring roles and models, mentoring learners for academic success, disruptive innovation ("do it and write about it"), developing successful scholarship, developing your networking platform, and developing your personal leadership. There was also a chancellors' panel where university leaders shared what they felt makes a successful faculty member.

Conference details were managed by administrative leadership at BSOM (Senior Associate Dean for Academic Affairs and Interim Assistant Dean for Student Development and Counseling), along with the Eastern Area Health Education Center (AHEC). Eastern AHEC aims to bridge health care and education for health care professionals and community members in a rural region spanning 23 counties in eastern North Carolina. The ICL conference was specifically intended to foster relationships among faculty who help prepare minority learners for entry into health professions programs, which include nursing, medicine, dentistry, and allied health. Content for the conference included sessions on professional identity formation, mentoring, developing successful scholarship, networking, and leadership. The conference was organized as a series of large group sessions and panel discussions

that were facilitated by education leaders across the state, who were identified by conference organizers as leaders in the field. Presenters and panelists included a university chancellor, vice chancellor, dean, senior leader in academic affairs, learning skills specialist, and director for STEM education, among others. Faculty and community leaders with experience in mentorship, pipeline and outreach programs, and educational support needs also shared their expertise with conference attendees.

Conference attendees included 63% women, 27% men, and one attendee selecting a desire to self-describe gender. All attendees were faculty or staff at their respective institutions. Race/ethnicity data on the attendees were not captured. Academic departments or units represented at the conference included family medicine, diversity affairs, psychology, nursing, natural sciences, basic pharmaceutical sciences, public administration and political science, and pharmacy and health professions. Several health professionals attended the conference. Of faculty attendees, 27% were full professors, 27% were associate professors, and 10% assistant professors. Thirty-six percent reported other professional roles including social work program director, research operations manager, co-chair of a biological sciences department, student services director, health professions advisor, and computer science instructor. Sixty-three percent of attendees had between 7 and 20 years of total experience as a faculty member, while 12% had 6 years or less and 25% had more than 20 years of experience.

In this paper, we share perspectives from the ICL conference organized into two groups of themes: institutional-level action, including the need for institutional partnerships, particularly HBCU/NASI/PWI partnerships, and the needs of faculty at each type of institution. Based on identification of these needs, we provide recommendations for academic institutions wanting to explore multi-university partnerships and facilitate faculty success in diversifying the US health care workforce.

The Need for HBCU, NASI, and PWI Partnerships

Stop the STEM (Science, Technology, Engineering, and Math) Pipeline Leakage

Pipeline programs are designed to provide academic enrichment and exposure to health care and STEM for learners across the academic continuum. They can increase the number of underrepresented group members in STEM, by promoting learner recruitment and retention [9]. Pipeline programs are supported by evidence that shows increase in both the representation and the success of underrepresented groups in health

professions, ultimately leading to increasing numbers of minority health providers [10, 11].

Despite the success of pipeline programs, concerns have been raised that the STEM pipeline is leaking: i.e., learners are not progressing through STEM training to enter health careers, and existing programs do not accommodate enough learners to meet the demand [12, 13]. Specific challenges facing these programs include underprepared students, time constraints, instructional challenges, loss of autonomy, and resistance to change, to name a few. These barriers contribute to unsuccessful instructional practices and further contribute to STEM pipeline leakage [14]. Overcoming contributors to the STEM pipeline leak in North Carolina would require developing processes to control the geographic disadvantage, whereby resources are unequally distributed across the state. This disadvantage is especially compounded in the eastern part of the state, due to low socioeconomic status of residents, health inequities, rurality, and poorer health status [15, 16].

Resources provided for student success need to be accessible and affordable, as well as reflecting the fact that different challenges exist for traditional and non-traditional students [13]. Variability in students' preparation and prior experience, as well as variability in learning environments, can contribute to students dropping out of STEM disciplines. Learners need consistent, progressive, and systematic mentoring throughout their academic careers, as well as culturally welcoming and inclusive learning environments that provide the resources and staffing needed for academic success [13, 17, 18]. Since many pipeline programs may be hosted by one institution but ultimately prepare learners to continue their education at other institutions, academic institutions have to work collaboratively and be held mutually accountable for learner success and resource support [19]. This accountability should involve creating strategic partnerships, increasing awareness of pipeline leakage, and tracking progress of diversity in STEM programs at the institutional level [13].

Suggestions for addressing the leaky STEM pipeline require both institutional action and partnership with the local community. Collaboration with the community is important to promote learner success and program completion, as there is much medical school that can learn from community partnerships [20]. As many pipeline programs attract learners from local middle and high schools, in addition to college undergraduates [21], working with school administrators, teachers, and other staff can strengthen the relationships between health professions' schools and the communities which they serve. A holistic approach to learning that takes into account learners' distance traveled (i.e., obstacles that learners had to overcome to reach their present position) in addition to academic performance can identify learner strengths for navigating the pipeline. Programs should also recognize that students from underrepresented groups may experience anxiety and other emotional concerns that can negatively impact their academic

performance and overall well-being [22], and build in processes to address these concerns. Furthermore, institutions should recognize that women in STEM may have unique needs that are not readily addressed by STEM pipeline programs, and create the supportive environment that is needed for their success [23].

Maintaining accurate records, managing data appropriately, and reporting outcomes can help make programs sustainable and replicable and can help stop the leak of minority students from STEM disciplines. Tracking institutional progress can help individual institutions assume responsibility for improving practices and can provide useful information to potential program funders. Increased access to program information, creating strategic partnerships, and programming with data-driven interventions can increase positive outcomes for URM students [13]. Using innovative STEM technologies, monetizing teachers' ideas, providing summer opportunities to students, and research project materials to schools may also help with the leaky pipeline. Collaborative efforts to create STEM days at universities and a certified STEM school status may also advance progress towards this goal. For the struggling learner, using integrated multidisciplinary pedagogy in pre-med and pre-health courses may assist in identifying learner needs and mobilizing targeted resources. Providing opportunities for PWI, NASI and HBCU faculty to become better acquainted with resource availability and opportunities can foster the growth of partnerships among these institutions. Moreover, including HBCUs and NASIs in inter-institutional collaborations with research clusters and health care system partners at PWIs may increase chances for STEM involvement among URM learners [19].

Understand and Appreciate PWI, NASI, and HBCU Differences

Appreciating the differences among PWIs, NASIs, and HBCUs can be the bedrock of productive partnerships. Academic leaders should realize that PWIs, NASIs, and HBCUs share the same processes. However, because of different settings, historical injustices, inequity in resource allocation, and limited opportunities, HBCUs and NASIs face a different set of challenges than PWIs [5, 6]. Similar to the minority tax in academic medicine that causes individual minority faculty to suffer from isolation, lack of mentors, lack of faculty development, racism, diversity pressure and other disparities [24, 25], HBCUs, and NASIs face the tax of systemic racism that leads to limited resources and low performance expectations. This "HBCU/NASI institutional tax" should be further explored, characterized, and dismantled. Leaders of all institution types should work to bring about equitable distribution of resources for these institutions, and combat institutional racism in all areas of the academic environment (recognizing that it may be more prevalent in PWIs) [26]. Academic

leaders should also offer additional support for HBCUs and NASIs via funding, personnel, and infrastructure, to build upon the demonstrated success of HBCU medical schools in training black physicians [5].

At PWIs, leadership should incentivize faculty to foster partnerships and collaborations with HBCUs and NASIs and should develop plans to recruit URM graduates into faculty and leadership positions. Senior institutional leadership should also develop research opportunities for minority students to promote research and scholarship. Leadership at PWIs should study the history of racism and education inequity that impacts underrepresented minorities, to understand the unique challenges that impact this group [27]. PWI leadership needs to think beyond immediate situations to better understand social determinants of health, racism, and privilege systems that impact URM faculty in the health professions.

Partnerships around scholarship and research can be profitable and beneficial for PWIs, NASIs, and HBCUs. PWIs can collaborate with NASIs and HBCUs to increase the diversity of their cohorts, but in doing so, they must be culturally sensitive to historical injustices such as the Tuskegee Experiment and the use without consent of Henrietta Lacks' cells [28, 29]. Collaboration allows PWIs to access particular funding mechanisms that they would not have been eligible for without the participation of a HBCU or NASI partner institution. This partnership often offers bridge grants and start-up compensation to support new HBCU and NASI faculty research. Because minority faculty tend to conduct health disparities research more often [30], research partnerships between PWIs, NASIs, and HBCUs can have broader reach and more generalizable outcomes. These partnerships can also positively impact funding to HBCUs and NASIs, and increase numbers of collaborative publications [7].

Understand and Appreciate the History of HBCUs and NASIs and the Resources They Provide

Despite a myriad of challenges that stem from limited resources for training, financial inequities, and smaller faculty pools, HBCUs and NASIs continue to make unmatched gains for resources provided for underrepresented students and faculty. HBCUs and NASIs aim to address the barriers to education that underrepresented students and faculty face [24]. This includes lack of mentors, limited social support, and sometimes lower standardized test performance [4, 6]. At these institutions, race-concordant role models send a clear message that minority student success in science and in medical school is plausible and likely [4, 6]. At HBCU medical schools, although matriculating cohorts have lower average MCAT scores than PWI institutions, graduation rates, residency match rates, and board certification achievement are all on par with the performance of URM physicians who attended PWI medical schools [4].

Academic leaders should recognize that HBCUs and NASIs oftentimes have perceptions of diversity beyond color, and that faculty diversity of thought influences student learning in a positive way. Leaders should increase resources and opportunities for external funding for these institutions, as they are often research leaders in the areas of health disparities and health equity. HBCUs and NASIs are also educational resources for the nation and can educate the nation on global effectiveness in health care delivery with their rich diversity. Therefore, directed support is needed to strengthen student engagement at these institutions, develop intensive course offerings, provide service learning opportunities, and create opportunities for learners to participate in research projects and internships that emphasize critical thinking.

A particular value of the learning environment at HBCUs and NASIs is their emphasis on learning in concert with service to underserved and disadvantaged populations [4]. HBCUs are known for missions that include service to underserved populations and for greater contributions to minority health professionals in medicine than PWIs [31]. These institutions and their graduates work to overcome disadvantages in early childhood education and school quality, lack of role models, financial stressors, bias, stereotyping, and racism. In particular, to combat receiving fewer funding opportunities than PWIs [32], HBCUs and NASIs work to develop diverse research portfolios in STEM [33].

Identified Faculty Needs at HBCUs, NASIs and PWIs

Support Professional Identity Formation for Faculty Development

Regardless of the institution, all faculty need to learn about classroom and research needs in their discipline through faculty development training programs [34, 35]. Academic institutions should provide career and faculty development opportunities that allow faculty to launch and progress in their careers. Faculty development should include time for reflection, supportive mentorship, and frequent feedback. When given the opportunity to reflect and interject personal narratives into teaching and receive meaningful feedback and evaluations, faculty develop compassion, humanistic attitudes, and values that can be transferred to the students they teach [34, 36]. Appropriate funding, staff, and other resources should be provided to ensure faculty success. Junior faculty should be supported to develop an academic area of expertise by writing grants, publishing papers, and engaging in collaborative research projects, as these endeavors can lead to increased funding for the institution [37]. Faculty should be encouraged to be innovative, trained in the skill of negotiation, serve as role models for other faculty and students, and be aggressive

yet humble in their dedication to learners and the mission of the institution. Faculty should use peer mentoring and teamwork in order to develop new skills and address problem areas [38, 39].

Provide Funding, Space, and Staffing for Faculty Research and Scholarship

It is important for faculty to appreciate the importance of research and scholarship for their professional growth and the growth of their students. Faculty would benefit from training early in their career on how to generate research ideas and collaborate with colleagues. Peer networks around research ideas and across institutions should be developed and sustained to support inter-institutional collaboration. Nontraditional funding streams should be pursued, and institutional efforts to streamline processes for institutional review board and other approvals for research should be prioritized. Academic institutions should deploy resources to overcome administrative challenges to conducting research, such as inadequate laboratory space or personnel. Furthermore, adequate funding and staffing for faculty research may facilitate and promote student engagement in research projects [40]. Core resources for research, training in research, streamlining research infrastructure, recognizing faculty efforts, and providing opportunities for career advancement all contribute to whether a faculty member will successfully engage in research. Moreover, institutions' ability to recruit, develop, and promote faculty researchers will determine whether departments successfully embrace new techniques and technologies [35].

Provide Consistent Mentoring and Mentorship Training for Faculty

Mentorship has been found to bring benefits not only to the mentee but to the faculty who work with them. Faculty who mentor students have a better relationship with their students, may have more diverse ideas for research projects, and may be viewed more favorably for promotion and tenure [40]. Faculty should be provided with basic mentoring tools such as literature on mentoring, resources on how to mentor, protected time for mentorship, and funding support to mentor students and peers successfully. Faculty should have opportunities to learn how to approach the challenges of mentoring relations, how to utilize the products of mentoring for scholarship and research, and how to overcome common barriers that interfere with an effective mentoring relationship, including factors related to the duration of the mentoring relationship, the number of students served, the structure of the mentoring program, student demographics, and faculty interest [40]. Mentorship models that foster success for both mentors and mentees should be explored with all faculty members, with a focus on project development, research methods, and establishment of infrastructure support

that is equitable and effective [37]. Mentorship training should include how to mentor learners across different cultures and backgrounds [18]. Specific mentorship for underrepresented faculty should be considered to address the minority tax, microaggressions, bias, and how to best approach race discordant mentorship relationships [24, 41].

Employ Processes to Overcome Faculty Challenges at Different Institution Types

Minority Faculty at PWIs URM faculty need to be aware of institutionalized racism, diversity pressures, and non-acceptance of their varied backgrounds and cultures [24, 30]. School leadership needs to support the professional competency of URM faculty, ensure that promotion and tenure guidelines are clear and accessible, and provide resources for building scholarship. Faculty need assistance from the institution to find mentors and role models, confront negative perceptions that often come with being a member of a minority group, and plan how to maintain personal and professional identities [42]. They should be supported to have academic freedom and freedom of expression in the workplace, along with emotional support and support to deal with negative comments and behaviors directed towards them [41, 43]. Senior leaders at PWIs should lead the charge in support and resource provision [44]. In addition, they should employ purposeful processes to promote the retention of underrepresented faculty and undergo training opportunities to better understand how to support underrepresented groups [42].

Faculty at HBCUs and NASIs Faculty at these institutions need leadership support and resources to overcome the multi-role challenge of being a teacher, advisor, mentor, researcher, clinician, and scholar. Junior-level faculty should not be placed in administrative roles early in their careers as it may lead to promotion disparities due to having less time for scholarship and publications, which are needed elements for advancement [24, 45]. In addition, faculty should not be over-worked. Leaders should strive to increase research support, resources, and infrastructure, and expect scholarly productivity that is commensurate with the protected time and resources that are made available to faculty. Supervisors should receive mentorship on research and scholarship to provide appropriate guidance in these areas to junior faculty. Furthermore, research efforts should be viewed as important and equally as valuable as teaching and service.

Recognize and Mobilize Resources for Faculty Success

Regardless of appointment at a PWI, NASI, or HBCU, faculty should have clear communication from senior level administrators and department chairs, as faculty often lack guidance on institutional support and resource availability [46–48].

Resources should be deployed to individual faculty for support and not only provided to the department chair or a senior administrator. Faculty should be compensated for their work, and their assignments should reflect their expertise [48]. Their opinions and “on-the-ground” experience should be valued, as oftentimes administrators do not engage in research and may not be aware of the challenges faced by the junior faculty. Leaders should provide mechanisms for data collection and reporting to track institutional progress and guide the future direction of the institution. Leaders should also mobilize mentors at other institutions to jumpstart innovation and productivity. Finally, leaders at all schools should monitor and share the progress of well-prepared students who graduate and join the health care workforce, support minority grant awards, and development of new pedagogies to sustain the pipeline training students from underrepresented groups to begin their careers in STEM.

Conclusion

The ICL conference provided suggestions to assist faculty who are supporting students interested in pre-health careers as well as suggestions for HBCU/NASI/PWI multi-institutional partnerships. The initial work of this conference led to the formation of an ICL steering committee, which was populated from conference attendees interested in continuing this work. A subsequent meeting of the steering committee was held in 2019 to discuss conference outcomes in the light of conference objectives, develop a plan for writing this manuscript, and share results with stakeholders and partners. Subsequent planning continues but has been slowed due to the coronavirus pandemic. While this was a small-scale, inaugural event, information concerning the ICL conference and other diversity-related outreach efforts are found on the website of the Office of Diversity Affairs of the Brody School of Medicine [49]. This resource also includes outcomes data for pipeline and outreach programs aimed in increasing numbers of underrepresented minorities in medicine. Further work is needed to create and grow institutional partnerships to foster the academic success of faculty across the health professions.

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Compliance with Ethical Standards

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