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of Diverse Students for Careers in the Health Professions



**NAMME**

NATIONAL ASSOCIATION OF MEDICAL MINORITY EDUCATORS, INC

# Journal of **BEST** **PRACTICES**

in **Health Professions Diversity:**  
Research, Education, and Policy

SPRING 2019

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## EDITOR'S FOREWORD

### Diversifying the Healthcare Workforce can Mitigate Health Disparities

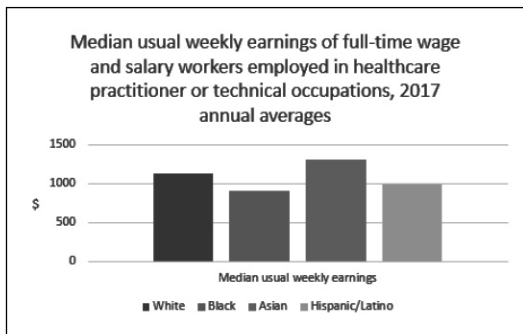


National data on health and related health behaviors consistently show higher rates of morbidity and mortality among individuals from racial/ethnic subgroups compared to Whites (National Center for Health Statistics, 2016, 2018). Over the past few decades, major advances in medicine and public health have contributed to improvements in the prevention and treatment of diseases and overall improvements in health in the United States. Despite these advances, disparities in health, healthcare access, and healthcare quality remain. Some health-related disparities can be attributed to differences in personal health behaviors (e.g., healthy eating, physical activity, healthy weight status). Personal health behaviors are also driven by social determinants of health (e.g., education, income, environment) that impact the choices an individual can make regarding his or her health. However, even when education, income, and environment are similar, disparities between minority racial/ethnic groups and Whites persist. Increasing evidence points to differences in healthcare access and healthcare quality as key contributors to health outcome disparities.

In 2004, the Sullivan Commission published *Missing Persons: Minorities in the Health Professions*. The report noted that demographics in the health professions had not kept pace with the rapidly changing demographics of the nation, resulting in a healthcare workforce that did not reflect the diverse populations served by the industry. In 2011, the US Department of Health and Human Services began implementing the HHS Action Plan to Reduce Racial and Ethnic Health Disparities (Jackson & Gracia, 2014). One of the five major goals included “strengthening the infrastructure and workforce of the nation’s health and human services” (p. 58).

Despite significant efforts to diversify the healthcare workforce, primarily physicians and nurses, African Americans make up only 8.2 percent of physicians/surgeons, 12.3 percent of registered nurses, and 10.6 percent of nurse practitioners (US Bureau of Labor Statistics [USBLS], 2018). Other allied health fields (e.g., dental hygiene, occupational therapy, pharmacy, physical therapy) remain largely White. While African Americans comprise 13 percent of the US population, data from the US Bureau of Labor Statistics indicate that only three healthcare occupations have a workforce that represents the national diversity (respiratory therapists, 16.6 percent; clinical laboratory technologists and technicians, 17.7 percent; and social workers, 23.5 percent). In all other healthcare professions (e.g., dentists, emergency medical technicians, occupational therapists, paramedics, pharmacists, physical therapists, and psychologists), African American representation is less than 10 percent. In some fields,

the proportion of African Americans is less than 1 percent (optometrists, 0.0 percent; chiropractors, 0.1 percent). In addition, when people of color do enter allied health fields, they are often overrepresented in entry-level positions with lower-skill levels. Overall, African Americans employed as healthcare practitioners or in technical occupations earn less than their White, Asian, and Hispanic/Latino counterparts (see Fig. 1; USBLS, 2018).



Theories suggest that lack of diversity can lead to a healthcare workforce lacking cultural competence, or the “. . . knowledge, skills, attitudes, and behavior required of a practitioner to provide optimal health care services to persons from a wide range of cultural and ethnic backgrounds. . . . Physicians and other health care profes-

sionals who are unmindful of the potential impact of language barriers, various religious taboos, unconventional explanatory models of disease, or traditional ‘alternative’ remedies are not only unlikely to satisfy their patients but, more importantly, are also unlikely to provide their patients with optimally effective care” (Cohen, Gabriel, & Terrell, 2002, p. 92). Disparities exist at every level of the healthcare system, including patients, providers, and systems and, unfortunately, “. . . providers, even though most often well meaning, are subject to implicit biases that can have a negative impact on interactions with minority patients and contribute to disparities” (Wheeler & Bryant, 2017, p. 1). A strong body of evidence points to ethnic minority providers being more likely to provide care for racial/ethnic minorities and disadvantaged patients, and race/ethnic concordance, the quality of patient-provider communication, and positive patient outcomes are strongly linked (Cooper & Powe, 2004). These findings clearly support the importance of a diverse workforce as a strategy to address health disparities.

Historically Black Colleges/Universities (HBCUs) have a unique role to play in diversifying the health professions. They were established with the primary purpose of educating African Americans during a time when most predominantly White institutions would not. Currently, more than 300,000 students are enrolled in more than 100 HBCUs. Data from the National Science Foundation show that most individuals from underrepresented minority groups who have a PhD in a STEM field earned a bachelor’s degree from an HBCU (Carter-Johnson, Inniss, & Lee, 2018). Evidence indicates that HBCU health professional schools and programs have a history and mission of providing culturally competent education and training for health professionals with a focus on addressing and reducing health disparities. White students enrolled in health professional programs at HBCUs also benefit from receiving culturally competent education and training as well as exposure to a diverse group of students

and faculty of color, which can provide rich experiences and opportunities to enhance their understanding of, sensitivity to, and appreciation for cultural differences among populations. About 17 percent of health profession degrees earned by African Americans are earned at HBCUs. At some HBCUs, health professions programs are the largest producers of graduates.

Successful, evidence-based practices are needed to understand how to recruit, engage, and graduate scholars of color in the health professions. HBCU faculty and students are becoming increasingly diverse, particularly in graduate and professional programs, and strategies are also needed to understand how to maintain the HBCUs' strong history of culturally competent training focused on addressing health disparities, regardless of the demographics of the faculty and students. In addition to HBCUs, the work of partner schools and organizations with similar missions is important for collectively moving toward a more diverse healthcare workforce.

We are proud that the *Journal of Best Practices in Health Professions Diversity* is led by an HBCU, Winston-Salem State University. The journal continues to publish work focused on maximizing recruitment and retention of culturally diverse students for careers in the health professions. We are pleased to publish articles in this issue that highlight holistic science and health programs that embrace diverse needs and learning styles, particularly those of students from underrepresented population subgroups, and that implement innovative strategies to improve their success. Three articles in this issue focus on strategies for improving academic performance among underrepresented students in health-related programs. These programs have the potential to become models for dissemination and implementation at schools across the nation and internationally. Two other articles highlight chronic disease among high-risk populations and underscore the importance of a diverse and qualified healthcare workforce. A final article raises the important question of whether academic medicine should consider abandoning the word *minority* to describe certain groups in favor of more inclusive and empowering language. Such a paradigm shift may be particularly important in efforts to diversify the healthcare workforce, particularly in fields that have been historically unrepresentative. Given the workforce shortage in most healthcare fields, it is imperative that we continue efforts to engage, support, and educate the most talented individuals from all population subgroups.

Melicia C. Whitt-Glover

A handwritten signature in black ink that reads "Melicia C. Whitt-Glover". The signature is written in a cursive, flowing style.

Editor-in-Chief

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## NAMME PRESIDENT FOREWORD

### In the Pipeline vs On the Pathway



A Google search of the phrase *in the pipeline* finds that it dates back to 1859 and means “in the process of being completed, delivered, or produced.” One example given: “the biggest heroin pipeline in history.” Another: “Affirmative action and educational *pipelines* play a vital role in . . .” and “*Pipeline programs* try to steer minority students into careers in medicine.” Use of the term *pipeline program* peaked in the late eighties, early nineties, when federal programs, such as the Health Career Opportunity Program (HCOP) of the Health Resources and Services Administration (HRSA), and initiatives like Project 3000 by 2000 abounded, and it remains a mainstay of our lexicon.

Perhaps it is time to pause and consider whether our students and community are in the pipeline or on the pathway. Reflect on that for a moment. In the pipeline or on the pathway: what comes to your mind when each of those phrases is used? *In the pipeline* conjures up confinement, restriction, the dark, control—controlling, in the sense that however the pipeline is constructed, its contents must flow either straight or winding, and where? Nowhere? In stark contrast, the definition of *pathway*, is “a way of achieving a specified result; a course of action.” Example given, “research has indisputably been part of the pathway to progress.” The term is often applied when describing students taking a specific opportunity to a specific end—say, a research pathway.

I submit that we should intentionally use Pathway Programs, rather than Pipeline Programs, to distinguish our initiatives from such negative and limiting associations as “School-to-Prison Pipeline,” a reference to systemic problems that drive young people of color from educational institutions to penal institutions! It’s a contemporary term used throughout the media and the education industry. Let’s change the reference because labels matter, and the people this term refers to matter!

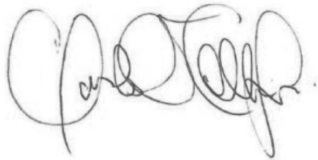
The National Association of Medical Minority Educators (NAMME), Inc., conscientiously strives to improve equitable representation of underrepresented individuals on the pathway toward the health professions. Since 1975, it has worked continuously to increase healthcare workforce diversity with the ultimate goal of creating better healthcare outcomes for communities of color.

The papers contained in this current volume of the *Journal of Best Practices* range from an examination of an effective pathway program for economically disadvantaged premed students to a challenge to use of the term *minority*.

A theme of review and continuous quality improvement characterizes the collection of papers presented. It reminds us that our institutions and organizations make a serious and intentional commitment to real change. We must dust off our diversity mission statements—those of us who have them—and rewrite them to include equity as the ultimate goal because there is no diversity or inclusion without equity,

In the pipeline or on the pathway? Your call!

Charles N. Collier, Jr., MS

A handwritten signature in black ink, appearing to read "Charles N. Collier, Jr.", written in a cursive style.

NAMME President

# Analysis of the Curriculum of a Summer Pipeline Program for Economically Disadvantaged Premedical Students in the Bronx, NY

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Care Stephenson-Hunter, PhD<sup>1</sup>; Tara Reyes Adames, BA<sup>1</sup>; Stacey Franco, BA<sup>1</sup>; H. Dean Hosgood, PhD<sup>2</sup>; Nereida Correa, MD, MPH<sup>1,3</sup>

**Author Affiliations:** <sup>1</sup>Department of Family and Social Medicine, <sup>2</sup>Department of Epidemiology and Population Health, <sup>3</sup>Department of Obstetrics & Gynecology and Women's Health, Albert Einstein College of Medicine, Bronx, New York

**Corresponding Author:** Cara Stephenson-Hunter, Department of Family and Social Medicine, Albert Einstein College of Medicine, Bronx, NY 10461 ([cara.stephenson-hunter@einstein.yu.edu](mailto:cara.stephenson-hunter@einstein.yu.edu))

## ABSTRACT

The authors analyze the curriculum of a summer pipeline program for underserved pre-medical students. They compare qualitative data on the delivery and experience of curricular activities obtained from 48 activity descriptions, participant surveys, and faculty/staff observations against the 15 American Association of Medical Colleges (AAMC) core competencies. Retrospective and follow-up data obtained from program applications and alumni surveys are used to describe the demographics and longitudinal career outcomes for the 228 participants from 2002 to 2018. The analysis identifies 10 fully addressed and 5 partially addressed AAMC competencies in the 6-week curriculum. Ninety-two graduates matriculated into medical school, 83 (90 percent) from groups underrepresented in medicine. A description of the curriculum and methods used to assess its objectives provides a framework for pipeline programs generally.

**Keywords:** ■ AAMC Competencies ■ Curriculum Mapping ■ Gap Analysis ■ Pre Medical Pipeline ■ Underrepresented Minorities

## INTRODUCTION

Racial and ethnic health disparities are a growing concern for the United States (Chin et al., 2012; Flores & Tomany-Korman, 2008; Mead et al., 2008), and increasing the diversity of the US physician and allied health professional workforce is a well-documented necessary first step toward equity (Koh, Graham, & Glied, 2011; Smith, Nsiah-Kumi, Jones, & Pamies, 2009). Physicians from racial and ethnic minority groups improve the quality of care for minority and medically underserved populations through the delivery of culturally and linguistically appropriate care, improved patient communication, and increased physician trust (Dunlap et al., 2015; Traylor, Schmittziel, Uratsu, Mangione, & Subramanian, 2010). While Blacks/African Americans and Hispanics/Latinos comprise 13.4 percent and 18.1 percent of the US population, respectively, together they constitute only 8.5 percent of the physician workforce (AAMC, 2014; 2016; US Census Bureau, 2018). Estimates project that they will account for 42.1 percent of the US population by 2050 (Vespa, Medina, & Armstrong, n.d.). Further, medical school application and acceptance rates for minorities underrepresented in medicine (URM)—specifically, Blacks/African American and Hispanics/Latinos—have remained largely stagnant since the 1980s, despite national efforts to increase their representation (AAMC, 2016; Acosta, Poll-Hunter, & Eliason, 2017). The shortage of URM physicians coupled with the rapidly changing demographics of the US population challenge our ability to address the health needs of our diverse, often vulnerable communities (Xierali & Nivet, 2018).

Diversifying the physician workforce helps to promote quality health care for all underserved populations. URM physicians are more likely to serve uninsured, impoverished, and minority populations and to work in health-professions shortage areas than non-URM physicians (Grumbach & Chen, 2006; Walker, Moreno, & Grumbach, 2012; Xierali, Castillo-Page, Conrad, & Nivet, 2014; Xierali & Nivet, 2018; Xierali, Nivet, & Fair, 2014). However, URM and economically disadvantaged students face a number of challenges to medical school matriculation, including discouragement from college counselors and other professionals and lack of physician role models, educational preparation, and financial resources to meet medical school requirements (Alexander, Chen, & Grumbach, 2009; Freeman, Landry, Trevino, Grande, & Shea, 2016; Toretsky, Mutha, & Coffman, 2018; Uwaezuoke, 2018). Additional barriers include inadequate institutional resources, familial and social conflicts, and lack of mentorship and guidance during their undergraduate college experience (Barr, Gonzalez, & Wanat, 2008; Freeman et al., 2016; Toretsky et al., 2018; Uwaezuoke, 2018).

Pipeline programs like the Summer Undergraduate Mentorship Program (SUMP) at the Albert Einstein College of Medicine were created to address these factors in order to improve medical school application and matriculation rates of disadvantaged and URM students. SUMP was established in 2002, seven years prior to the Liaison Committee on Medical Education's 3.3 mandate added Diversity/Pipeline Programs and Partnerships to its accreditation standards for medical education programs (LCME, 2016). Since then, several pipeline programs have emerged to meet LCME diversity standards intended to facilitate the entry of students from diverse and disadvantaged backgrounds into medical schools.

Although many premedical pipeline programs like SUMP have arisen, clearly defined curricular objectives associated with program outcomes are often missing from the literature, especially for summer or brief interventions. Most of the literature centers on medical or graduate school matriculation outcomes, often achieved years after the intervention (Campbell, Berne-Anderson, Wang, Dormeus, & Rodriguez, 2014; Keith & Hollar, 2012). While career outcome data are important, short-term outcomes based on specific program objectives provide accountability benchmarks and opportunities for program evaluation.

Since SUMP's main objective is to prepare students to successfully matriculate into medical school, we decided to use the Association of American Medical Colleges' Competencies for Entering Medical Students to assess our curriculum (AAMC, n.d.-a). Pipeline programs designed to prepare students for medical and graduate school admission may benefit from including measurable outcomes related to the activities and intended program goals.

Our study illustrates the career path status of all participants in the 16-year-long program and analyzes the gaps between the AAMC Core competencies and SUMP 2017 curricular activities. Our objective was to assess the efficacy of the SUMP curriculum in preparing our URM and economically disadvantaged students for medical school matriculation.

## METHODS

### Program Description

The Summer Undergraduate Mentorship Program (SUMP) was established in 2002 as a 6-week pipeline program at the Albert Einstein College of Medicine in the Bronx, NY. The Bronx is one of the most diverse counties in the nation and the only NY county in which most residents are from minority backgrounds (US Census Bureau, 2017). It is also the poorest congressional district, with over 50 percent of residents living in high or extreme poverty, and the least healthy, ranking last out of the 62 NY counties for the past 8 years, (Austensen, Been, O'Regan, Rosoff, & Yager, 2016; Catilin, Jovaag, Van Dijk, & Remington, 2014; Lewis, Burd-Sharps, Garon, Gluskin, & Powers, 2016; US Census Bureau, 2017; University of Wisconsin Population Health Institute, 2018). High school completion rates are low (New York

State Education Department, 2017), and most areas of the Bronx are considered Health Profession Shortage Areas (Health Resources & Services Administration, n.d.).

SUMP is designed to meet the need for URM health professionals who can address the health disparities in this diverse community. It was initially funded as part of the Health Resources and Services Administration's (HRSA) Hispanic Center of Excellence (HCOE) program and then its Health Career Opportunities Program (HCOP). SUMP meets HCOP's goals by promoting the recruitment of qualified students from disadvantaged backgrounds and facilitating their entry into medical school and health professions schools through enrichment and mentoring activities. Additional funding from foundations obtained through Albert Einstein College of Medicine has sustained SUMP during periods without federal support.

### **Recruitment and Enrollment**

Applicants to SUMP are recruited through diversity fairs, school list-serves, online and social media advertisements, and printed brochures. Rising sophomores through recent college graduates from historically underserved racial and ethnic minority groups and/or educationally or economically disadvantaged backgrounds are eligible to apply. Applicants must have or be able to secure housing in or around New York City and commute to and from the program during the summer. Local transportation assistance is provided along with a stipend distributed at the end of the program. Each summer, SUMP accepts 10–14 students out of approximately 60–100 applications received through the online application portal. Each application is reviewed and rated by two faculty and/or staff members. Priority is given to applicants considered economically or educationally disadvantaged and/or from URM backgrounds. An official transcript, a letter of recommendation, and a personal statement are parts of the application. While a GPA over 3.0 is generally required, SUMP accepts applicants with lower GPAs who provide an explanation for their academic performance and whose recent grades illustrate an upward trend.

### **SUMP Curriculum**

The curriculum includes 15 hours of lectures, workshops, and activities delivered by health professionals each week. Students also complete a systematic literature review on a health disparity topic under the guidance of Einstein's medical librarians and MD/PhD candidates. In addition, students are paired with physician mentors with whom they complete 8–16 hours of clinical shadowing each week. The program also includes informal discussions led by SUMP alumni and an evening informational workshop for students' families.

## Data Collection and Analysis of Demographics and Career Outcomes

Descriptive data for program participants were obtained from SUMP applications completed between the years of 2002 and 2018. We gathered career and educational outcome data through follow-up surveys administered annually by program staff. Albert Einstein College of Medicine's Institutional Review Board deemed this study exempt. The Statistical Package for Social Sciences Version 21.0 (SPSS Inc., Chicago, IL) was used to conduct analyses for demographic and follow-up data.

## Curriculum Analysis

The AAMC Group on Student Affairs Committee on Admissions has developed 15 core competencies defined in 4 domains: Interpersonal, Intrapersonal, Thinking and Reasoning, and Science (see Appendix A; AAMC, n.d.-a). The competencies were developed in consultation with experts in medical education and advisory panels and are considered the standard for rating medical school applicants (AAMC, n.d.-b). Although our curriculum was not based on the AAMC core competencies, our faculty identified many commonalities. We itemized the AAMC's 15 competencies and SUMP's 2017 curricular activities to create a curriculum map (see Appendix B) and conduct a gap analysis, which consists of (1) listing current attributes and performance levels (what is), (2) cross-listing the factors required to achieve the desired objectives (what should be), and (3) identifying the gaps.

## Curriculum Mapping

A curriculum map is a matrix of the desired learning outcomes (AAMC core competencies) and the delivered activities (SUMP 2017). Our curriculum mapping and gap analysis is based on the University of Rhode Island's Student Learning, Outcomes Assessment, and Accreditation methodology (University of Rhode Island Graduate School, n.d.). A curriculum matrix was created with 48 SUMP 2017 calendar activities, grouped by 5 activity types, and 20 topics/themes (see Appendix C). The activity types were *lectures and workshops*, including didactic and interactive sessions; *clinical skills*, including experiential learning and simulation; research project, a systematic literature review and oral presentation on a health disparities topic; *mentorship*, defined as structured opportunities to interact with physicians, MD/PhD candidates, and program alumni; and *other activities*, including a trip to a correctional facility or a teambuilding exercise (see Appendix C). Three members of the SUMP leadership team used the curriculum matrix and the list of all 48 activities in the categories and subcategories to individually evaluate and record the degree to which SUMP 2017 activities met the AAMC competencies. Outcomes were labeled according to the following criteria: (I) The activity *introduces* a concept or a few aspects of the concept; (R) The activity *reinforces* a concept introduced

earlier or co-currently in the program; and (E) The activity *emphasizes* a reiterated concept to integrate it with material presented throughout the program.

### Gap Analysis

A gap analysis is a quantitative and qualitative comparison of current performance against a target or potential outcomes to identify disparities. The team members met to compare and discuss the results of their independently created curriculum maps. On factors where consensus was lacking, lecture materials and student feedback were adduced as supporting evidence. The team was conservative in its assessment of outcomes. Only curricular components that substantively contributed to the AAMC competencies were mapped, and this determination required the agreement of at least two team members. The team then decided on a single curriculum map to identify gaps in 2017 program activities based on the AAMC competencies.

## RESULTS

Of the 228 students who participated in SUMP between 2002 and 2018, 204 (90 percent) are URM. For the 224 participants for whom data were available, mean cumulative GPA (SD) at time of acceptance was 3.3 (0.36). Of the total 228, 133 matriculated (n=92) or are progressing toward matriculation (n=13) into medical school, and 118 (89 percent) of them are URM (see Table 1). Because 30 participants (13 percent) are still enrolled in college or recent graduates, they cannot be included in measuring the outcomes of interest. Additionally, we could not locate 24 participants (11 percent), so we could not determine their current educational and career outcomes. Of the alumni who matriculated into medical school, 49 (53 percent) are current medical students and 40 (43 percent) are practicing physicians (see Figure 1). Another 71 (41 percent) pursued other health/science-related professions or nonhealth science-related professions.

Based on the gap analysis, SUMP 2017 activities successfully introduced, reinforced, and emphasized 10 of the 15 AAMC competencies within the four domains (see Table 2). In the interpersonal domain, the curriculum introduced, reinforced, and emphasized service orientation, social skills, cultural competence, teamwork, and oral communication. In the intrapersonal domain, the curriculum introduced, reinforced, and emphasized two of the four competencies, reliability and dependability and capacity for improvement, but only introduced and reinforced ethical responsibility to self and others, resilience, and adaptability. In the thinking and reasoning domain, the curriculum introduced, reinforced, and emphasized two of the four competencies, scientific inquiry and written communication, while only introducing and reinforcing critical thinking and quantitative reasoning. Last, in the science domain, human behavior was emphasized, while living systems were only reinforced.



**Table 1: Race/Ethnicity, Sex, and Academic Year of the 228 Alumni from the 2002 to 2018 Cohorts of the Summer Undergraduate Mentorship Program at the Albert Einstein College of Medicine, 2018–2019<sup>a</sup>**

	<i>In Progress to Medical School<sup>b</sup></i>		<i>Matriculated into Medical School</i>		<i>Other Health Professions</i>		<i>Nonhealth Professions</i>		<i>Unknown<sup>c</sup></i>		<i>Total</i>	
No. of alumni	41		92		49		22		24		228	
<b>Race/Ethnicity (no.[%])</b>												
African American/Black	11	(26.8)	27	(29.3)	9	(18.4)	1	(4.5)	4	(16.7)	52	(22.8)
Hispanic/Latino	23	(56.1)	56	(60.9)	34	(69.4)	21	(95.5)	18	(75)	152	(66.7)
Asian	7	(17.1)	7	(7.6)	5	(10.2)	0	0	2	(8.3)	21	(9.2)
White	0	0.	2	(2.2)	1	(2)	0	0	0	0	3	(1.3)
<b>Sex (no.[%])</b>												
Female	25	(61)	63	(68.5)	37	(75.5)	15	(68.2)	19	(79.2)	159	(69.7)
Male	16	(39)	29	(31.5)	12	(24.5)	7	(31.8)	5	(20.8)	69	(30.3)
<b>Academic Year<sup>de</sup> (no.[%])</b>												
Rising Sophomore	3	(7.3)	23	(25.3)	14	(28.6)	2	(9.5)	4	(17.4)	46	(20.4)
Rising Junior	13	(31.7)	28	(30.8)	20	(40.8)	11	(52.4)	10	(43.5)	82	(36.4)
Rising Senior	21	(51.2)	28	(30.8)	12	(24.5)	8	(38.1)	6	(26.1)	75	(33.3)
Recent Graduate	4	(9.8)	12	(13.2)	3	(6.1)	0	0	3	(13)	22	(9.8)
<b>Cumulative</b>												
GPA <sup>fg</sup> mean (SD)	3.43	(0.27)	3.36	(0.36)	3.24	(0.37)	3.21	(0.35)	3.1	(0.39)	3.3	(0.36)

<sup>a</sup>Source: Annual data collection from Summer Undergraduate Mentorship Program student applications.

<sup>b</sup>Alumni in a structured Master's or postbaccalaureate program, studying for the MCAT, and/or currently applying to medical school.

<sup>c</sup>Alumni whose current educational and/or career outcomes could not be determined.

<sup>d</sup>Academic year of students at the time of acceptance into the program.

<sup>e</sup>Academic year is not available for three students.

<sup>f</sup>Mean cumulative overall GPA as indicated in academic transcripts at the time of acceptance into the program.

<sup>g</sup>Mean cumulative overall GPA is not available for four students.

**Table 2: 2017 Analysis of Gaps between Summer Undergraduate Mentorship Program 2017 Activities and AAMC Core Competencies**

AAMC Learning Competencies for Entering Medical Students		<b>I</b> <b>Introduced</b> (The activity <i>introduces</i> a concept or only a few aspects of the concept)	<b>R</b> <b>Reinforced</b> (The activity <i>reinforces</i> a concept introduced earlier or co-currently in the program)	<b>E</b> <b>Emphasized</b> (The activity <i>emphasizes</i> reiterated concepts to integrate them with material presented throughout the program)
<b>Interpersonal Competencies</b>	1. Service Orientation	FDNY CPR Training	Shadowing experience with physician	Community Service Project
	2. Social Skills	General Professional Development (2 workshops)	Patient-centered Care (2 lectures)	Shadowing experience with physician
	3. Cultural Competence	• Special Interest Topics (3 lectures) • MECIS Simulation Lab • Systematic Literature Review • Bronx Tour • Shadowing experience with physician • Riker's Island Field Trip • Health Disparities (9 lectures)		
	4. Teamwork	Teambuilding Exercise	MECIS Simulation Lab	Systematic Literature Review Final Research Presentation
	5. Oral Communication	General Professional Development (1 workshop)	Patient-centered Care (2 lectures)	Final Research Presentation
<b>Intrapersonal Competencies<sup>a</sup></b>	6. Ethical Responsibility to Self and Others	Special Interest Topics (1 lecture)	Riker's Island Field Trip	None

AAMC Learning Competencies for Entering Medical Students	<b>I Introduced</b> (The activity <i>introduces</i> a concept or only a few aspects of the concept)	<b>R Reinforced</b> (The activity <i>reinforces</i> a concept introduced earlier or co-currently in the program)	<b>E Emphasized</b> (The activity <i>emphasizes</i> reiterated concepts to integrate them with material presented throughout the program)	
	7. Reliability and Dependability	• Systematic Literature Review • Final Research Presentation • Research experience with MD/PhD Mentor		
	8. Resilience and Adaptability	Medical School Application Prep (1 workshop)	Informal “rap” sessions	None
	9. Capacity for Improvement	General Professional Development (3 workshops)	Medical School Application Prep (1 workshop)	Research experience with MD/PhD Mentor
<b>Thinking and Reasoning Competencies</b>	10. Critical Thinking	MECIS Simulation Lab	Systematic Literature Review	None
	11. Quantitative Reasoning	Medical Informatics	Systematic Literature Review	None
	12. Scientific Inquiry	• Systematic Literature Review • Final Research Presentation		
	13. Written Communication	General Professional Development (3 workshops)		Systematic Literature Review
<b>Science Competencies</b>	14. Living Systems	Special Interest Topics (2 lectures)	Anatomy Lab	None
	15. Human Behavior	• Special Interest Topics (2 Lectures) • Systematic Literature Review • Riker’s Island Field Trip • Health Disparities (9 lectures)		

<sup>a</sup>Shaded regions indicate AAMC competencies that were not emphasized in the SUMP curriculum.

Interpersonal was the only domain in which no gaps were found. We discovered five partial curriculum gaps, in which items were introduced and reinforced but not emphasized, in the intrapersonal (n = 2), thinking and reasoning (n = 2), and science domains (n = 1). The competencies were achieved through the topics covered in lectures and workshops, clinical shadowing, the research project, mentorship, and other activities. The exposure to other health professions topics did not address any of the AAMC competencies.

## **DISCUSSION**

### **SUMP Outcomes**

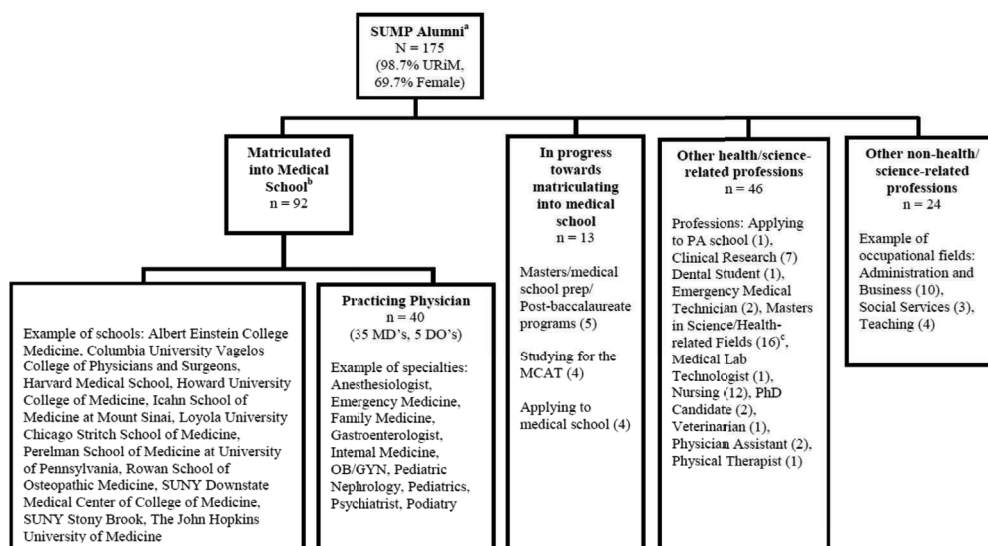
Our findings demonstrate successful career path outcomes for over half of SUMP graduates: 60 percent have matriculated into medical school or progressing toward it. Although our primary objective is to prepare disadvantaged and URM students to enter medical school, they are not limited to this track. Many graduates have pursued other health/science professions, thus meeting HCOP's health workforce diversity objectives; 28 graduates matriculated into doctoral programs in such areas as dentistry, physical therapy, and behavioral neuroscience and Master's programs in physician assistance and nursing.

### **SUMP Curriculum Outcomes**

Based on our curriculum gap analysis, our 2017 program activities addressed most of the AAMC core competencies. This success during a 6-week summer program demonstrates the efficiency of its design. The gap analysis provides an objective measure of our performance, while highlighting the AAMC core competencies that were not emphasized and presenting opportunities for assessment of competencies throughout the program. Career outcomes suggest that SUMP graduates are well prepared to gain acceptance to medical school.

### **Comparison to Other Pipeline Programs**

Although many pipeline programs are designed to support disadvantaged preprofessional candidates, notable differences set SUMP apart. Many interventions last for the full academic year or longer and include MCAT/academic support. Other programs recruit high-performing students from their own campuses, and some serve as a direct pathway to their affiliated medical schools (Campbell et al., 2014; Keith & Hollar, 2012). Despite its shorter duration, SUMP outcomes show URM matriculation rates into medical school comparable to those of Undergraduate Science Students Together Reaching Instructional Diversity and Excellence (USSTRIDE), a program that provides academic and social support to quali-



**Figure 1** Career path status of 175 Summer Undergraduate Mentorship alumni (2002-2016 cohorts) who are eligible for the outcomes of interest, 2018-2019. Abbreviation: URM indicates underrepresented minorities.

<sup>a</sup> 24 SUMP alumni are unknown/lost contact, and SUMP 2017-2018 cohorts are excluded

<sup>b</sup> 3 students matriculated into medical school but left.

<sup>c</sup> Master's in Clinical Nutrition (3), Master's in Engineering (1), Master's in Health Administration (1), Master's in Psychology (2), Master's in Public Health (5), Master of Science (1), Master of Science in Biotechnology Engineering (1), Master of Science in Neuropsychology (1), Master of Science in Translational Medicine (1)

fied students over their entire undergraduate career (Campbell et al., 2014). SUMP medical school matriculation rates are also consistent with those of the University of North Carolina at Chapel Hill School of Medicine's summer intensive Medical Education Development (MED) program, which exposes students to strategies for academic rigor and doing well on standardized admission tests (Keith & Hollar, 2012). Thus, while SUMP is a relatively brief program it is preparing disadvantaged premedical students as well as longer-term academically intensive pipeline programs.

## CONCLUSION

To address the areas highlighted in our gap analysis, new additions to the 2018 curriculum included the bioethical care of people and mental health first-aid training to meet the science and intrapersonal domains. SUMP will continue to evaluate program and student performance to provide competency-based interventions. It will also continue to perform gap analyses for program planning and assessment to reinforce the AAMC core competencies.

One limitation of this study is its reliance on recall and interpretation of SUMP curricular activities. The gap analysis used the 2017 calendar of events, which included lecture/workshop titles, and some subjectivity was involved in recalling their content. We launched an observation tool to record descriptive information about presentations and workshops as well as students' reactions to the content and delivery style. These tools aim to help us learn about any differences between the intended and experienced curriculum. Further, curricular activities, such as the family evening workshop, exposure to other health professions, lectures, and the suturing workshop, were included to address the needs of URM and economically disadvantaged students and their families, not the AAMC core competencies, and therefore were not assessed in the curriculum map. These activities prepare and motivate students and families to persist along the often steep and rocky premedical journey, which can be especially discouraging for first-generation college students. Many participants reported that the lack of experience with, and knowledge of, the medical school process often created family tension that further discouraged them from pursuing a career in medicine. Therefore, we developed the family workshop to impart the knowledge and resources needed to support their premedical preparation, including financial aid and medical school application planning information. This forum allows students and families to openly discuss their goals, fears, and questions about the medical school process with experienced faculty. SUMP also addresses social capital and the motivational needs of our students through physician mentors, many of whom belong to URM groups and/or practice in underserved communities.

While career outcomes for our graduates are promising, our study does not account for the complexity and number of factors that contribute to successful medical school matriculation, including those that arise between the time of participation and admission into a medical degree program. The SUMP leadership team is conducting a study to understand how some factors, such as discouragement and social support, affect our graduates' career paths and to better understand whether and how SUMP mediates these factors.

We hope that our findings and processes provide a framework for other pipeline programs with a similar focus and mission as well as opportunities for full or partial replication on other college campuses, as the Stanford Medical Youth Science Programs replicated at the University of San Diego School of Medicine (Winkleby, 2007). While pipeline programs can improve the medical career trajectory for disadvantaged students, more work is needed to address the inequalities in medical school matriculation and the lack of diversity in the physician workforce. We must understand how to design and share our interventions to best support the needs of URM and disadvantaged students.

**APPENDIX A: CATEGORIES AND DEFINITIONS OF THE AAMC CORE COMPETENCIES FOR ENTERING MEDICAL STUDENTS**

<i>Competency Categories</i>	<i>Competency</i>	<i>Definition</i>
<b>Interpersonal Competencies</b>	Service Orientation	Demonstrates a desire to help others and sensitivity to others' needs and feelings; demonstrates a desire to alleviate others' distress; recognizes and acts on his/her responsibilities to society locally, nationally, and globally
	Social Skills	Demonstrates an awareness of others' needs, goals, feelings, and the ways that social and behavioral cues affect peoples' interactions and behaviors; adjusts behaviors appropriately in response to these cues; treats others with respect
	Cultural Competence	Demonstrates knowledge of socio-cultural factors that affect interactions and behaviors; shows an appreciation and respect for multiple dimensions of diversity; recognizes and acts on the obligation to inform their own judgment; engages diverse and competing perspectives as a resource for learning, citizenship, and work; recognizes and appropriately addresses bias in themselves and others; interacts effectively with people from diverse backgrounds
	Teamwork	Works collaboratively with others to achieve shared goals; shares information and knowledge with others and provides feedback; puts team goals ahead of individual goals
	Oral Communication	Effectively conveys information to others using spoken words and sentences; listens effectively; recognizes potential communication barriers and adjusts approach or clarifies information as needed

(continued)

## APPENDIX A (continued)

<i>Competency Categories</i>	<i>Competency</i>	<i>Definition</i>
<b>Intrapersonal Competencies</b>	Ethical Responsibility to Self and Others	Behaves in an honest and ethical manner; cultivates personal and academic integrity; adheres to ethical principles and follows rules and procedures; resists peer pressure to engage in unethical behavior and encourages others to behave in honest and ethical ways; develops and demonstrates ethical and moral reasoning
	Reliability and Dependability	Consistently fulfills obligations in a timely and satisfactory manner; takes responsibility for personal actions and performance
	Resilience and Adaptability	Demonstrates tolerance of stressful or changing environments or situations and adapts effectively to them; is persistent, even under difficult situations; recovers from setbacks
	Capacity for Improvement	Sets goals for continuous improvement and for learning new concepts and skills; engages in reflective practice for improvement; solicits and responds appropriately to feedback
<b>Thinking and Reasoning Competencies</b>	Critical Thinking	Uses logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems
	Quantitative Reasoning	Applies quantitative reasoning and appropriate mathematics to describe or explain phenomena in the natural world
	Scientific Inquiry	Applies knowledge of the scientific process to integrate and synthesize information, solve problems, and formulate research questions and hypotheses; is facile in the language of the sciences and uses it to participate in the discourse of science and explain how scientific knowledge is discovered and validated
	Written Communication	Effectively conveys information to others using written words and sentences

(continued)



**APPENDIX A** (continued)

<i>Competency Categories</i>	<i>Competency</i>	<i>Definition</i>
<b>Science Competencies</b>	Living Systems	Applies knowledge and skill in the natural sciences to solve problems related to molecular and macro systems including biomolecules, molecules, cells, and organs
	Human Behavior	Applies knowledge of the self, others, and social systems to solve problems related to the psychological, socio-cultural, and biological factors that influence health and well-being

**APPENDIX B: CURRICULUM MAP OF THE AAMC CORE COMPETENCIES AND SUMMER UNDERGRADUATE MENTORSHIP PROGRAM 2017 ACTIVITIES AND CUMULATIVE OUTCOME OF CURRICULAR COMPONENTS**

		<p><b>SUMP Activities</b></p> <p>Some curricular components may not align directly with AAMC Core Competencies. They are incorporated into the curriculum to comply with the following guidelines outlined by HRSA/HCOFP: recruitment of UiM students; facilitating entry into health professions school; counseling, mentoring, and other retention activities; financial aid dissemination; primary care exposure activities; development of a more competitive applicant pool; and stipends</p>																						
		Lectures and Workshops			Clinical Skills			Research Project		Mentorship		Other Activities												
		General Professional Development	Medical School Application	Prep	Exposure to other health professions	Health Disparities	Patient-Centered Care	Special Interest Topics	Suturing Lab	MECIS Simulation Lab	Anatomy Lab	FN DY CPR Training	Medical Informatics	Systematic Literature Review	Final Research Presentation	Shadowing experience with physician mentor	Research experience with MD/PhD mentor	Informal "rap sessions"	The Bronx Tour	Teambuilding Exercise	Riker's Island Field Trip	Community Service Project		
<p><b>*Map Legend:</b>  I = Introduced  R = Reinforced  E = Emphasized</p>	Interpersonal Competencies											I				R							E	
	1. Service Orientation																							
	2. Social Skills	I (2 Workshops)					R (2 Lectures)										E							
	3. Cultural Competence					I, R, E (9 Lectures)		E (3 Lectures)		E				E		E			E		E			
	4. Teamwork									R				E						I				
	5. Oral Communication	I (1 Workshop)					R (2 Lectures)								E									

**SUMP Activities**

Some curricular components may not align directly with AAMC Core Competencies. They are incorporated into the curriculum to comply with the following guidelines outlined by HRSA/HCOFP: recruitment of UiM students; facilitating entry into health professions school; counseling, mentoring, and other retention activities; financial aid dissemination; primary care exposure activities; development of a more competitive applicant pool; and stipends

The AAMC Learning Competencies for Entering Medical Students

<p>Intrapersonal Competencies</p>	<p>6. Ethical Responsibility to Self and Others</p>									
<p>7. Reliability and Dependability</p>										
<p>8. Resilience and Adaptability</p>	<p>I (1 Workshop)</p>							<p>R</p>		
<p>9. Capacity for Improvement</p>	<p>I (3 Workshops)</p>						<p>E</p>			
<p>Thinking and Reasoning Competencies</p>	<p>10. Critical Thinking</p>			<p>I</p>			<p>R</p>			
<p>11. Quantitative Reasoning</p>						<p>I</p>				
<p>12. Scientific Inquiry</p>						<p>E E</p>				
<p>Science Competencies</p>	<p>13. Written Communication</p>	<p>I (3 Workshops)</p>					<p>E</p>			
<p>14. Living Systems</p>				<p>R</p>						
<p>15. Human Behavior</p>		<p>I, R, E (9 lectures)</p>		<p>E</p>	<p>(2 Lectures)</p>	<p>E</p>	<p>(2 Lectures)</p>		<p>E</p>	

\*Learning outcomes are labeled I, for introduced, R, for reinforced, and E, for emphasized using the following criteria: (1) The activity introduces a concept or only a few aspects of the concept; (2) the activity reinforces a concept introduced earlier or co-currently in the program; (3) the activity emphasizes reiterated concepts to integrate them with material presented throughout the program

Shaded regions indicate AAMC competencies that were not emphasized in the SUMP curriculum.

**APPENDIX C: A BREAKDOWN OF THE CURRICULUM MATRIX INTO 5 ACTIVITY TYPES AND 20 TOPICS/THEMES WITH THEIR CORRESPONDING LECTURES, WORKSHOPS, ACTIVITIES, TRIPS, PROJECTS, AND EVENTS.**

<i>SUMP Activity</i>	<i>Topics/Themes</i>	<i>Description</i>
Lectures (L) & Workshops (W)	General Professional Development	• Mind Your Manners (W) [2,13] • Networking 101 (W) [2] • How to Give Your Best Speech (W) [5] • Journaling (W) [13] • Reflective Writing (W) [13] • Résumé Building (W)
	Medical School Application Prep	• Overview and Best Study Practices for the MCAT [8] • Medical School Admissions and Financial Aid • Tour through AMCAS • General Study Strategies
	Exposure to other Health Professions	• So You Like Research?: Considered MD/PhD? • Exploring a Career in Public Health • Health Psychology and PhD Programs
	Health Disparities [3,15]	• Health Problems in Urban Communities • Bronx Health Disparities Jeopardy • Maternal Health and the Bronx • Culture and Health • Infant Mortality and Health Disparities • Housing and Health • Immigrant Health in the Pediatric Population • Public Health Case Study • Diversity in Medical/Scientific Training and Disparities in Health Care
	Patient-centered Care [2,5]	• At the Bedside: Professionalism, Communications, and Family-centered Care • Doctor-Patient Communications and Care
	Special Interest Topics	• International Health Programs • Implicit Bias Workshop [3] • Nutrition Challenges and Innovation [3] • Promoting Population Health [3] • Neonatal Palliative Care [6] • The Affordable Care Act • Obesity in Children [14] • Adverse Childhood Experiences (ACEs) [15] • Signs and Symptoms of Lung Disease [14] • Autism Spectrum Disorders [15]

(continued)

## APPENDIX C (continued)

<i>SUMP Activity</i>	<i>Topics/Themes</i>	<i>Description</i>
Clinical Skills	Suturing Lab	Students learn and practice suturing techniques from a current health professional
	MECIS Simulation Lab [3,4,5,10]	Discussion/activity using manikins and role play to demonstrate diabetes, opioid overdose, gunshot wounds, and patient-provider communication scenarios
	Anatomy Lab [14]	Students receive an anatomy lecture followed by a structured lab that introduces them to the body's organ systems and their functions
	FDNY CPR Training [14]	Students complete on-site CPR training from FDNY officials
Research Project	Medical Informatics [11]	Students receive a 3-part series that includes an introduction to PubMed, Endnote, and health statistics
	Systematic Literature Review [3,4,7,10,11,12,13,15]	Two-student teams complete a literature review on a health topic of their choice under the guidance of an MD/PhD mentor and medical librarians at Einstein
	Final Research Presentation [4,5,7,12]	Student teams present their research findings to Einstein faculty and staff, family, and friends
Mentorship	Shadowing experience with physician mentor [1,2,3]	Each student is assigned two clinical mentors whom they shadow twice a week for five weeks in the summer
	Research experience with MD/PhD mentor [7,9]	Student teams meet with research mentors at least twice a week to develop final research projects
	Informal "rap sessions" [8]	SUMP alumni, current medical students, and physicians share experiences and offer advice to current SUMP students
Other Activities	The Bronx Tour [3]	Students explore NGOs and community health centers in the Bronx to become familiar with its patient populations and community needs
	Teambuilding Exercise [4]	Students are instructed to build a complex puzzle in silence, prompting them to use nonverbal communication cues to successfully complete the assignment
	Correctional Facility [3,6,15]	Students receive a lecture on health and substance use among the incarcerated population and on-site Narcan training
	Community Service Project [1]	Students volunteer at a farmer's market at Harlem Hospital

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# Perceived Risk of Cardiovascular Disease and Health Behaviors in Black College Students

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Rhonda Robinson<sup>1</sup>, DNP, MSN, NP-C; Kristina B. Roberson<sup>1</sup>, DNP, MPA, APRN, NP-C; Elijah O. Onsomu<sup>1</sup>, PhD, MPH, MS, MCHES; Catherine Dearman<sup>3</sup>, PhD, RN, CNS; Yolanda M. Nicholson<sup>4</sup>, DNP, NP-C; Amanda Alise Price<sup>5</sup>, PhD; Vanessa Duren-Winfield<sup>2</sup>, PhD, MS

**Author Affiliations:** <sup>1</sup>Division of Nursing, <sup>2</sup>Department of Healthcare Management, <sup>3</sup>Department of Exercise Physiology, Winston-Salem State University, Winston-Salem, North Carolina, <sup>4</sup>College of Nursing, University of South Alabama, Mobile, Alabama, <sup>5</sup>Student Health Center, North Carolina A&T State University, Greensboro, North Carolina

**Corresponding Author:** Kristina B. Roberson, Division of Nursing, Winston-Salem State University, Winston-Salem, NC 27110 ([robersonkm@wssu.edu](mailto:robersonkm@wssu.edu))

## ABSTRACT

For college students, the transition from adolescence to young adulthood can be a time of increased stress and negative health behaviors, such as poor diet and physical inactivity, that may lead to cardiovascular disease (CVD), the primary cause of death in the United States. Blacks are disproportionately prone to CVD. Perception of disease risk is a critical predictor of engagement in healthy lifestyle activities intended to reduce CVD development. This project examined the relationship between perceived risk of CVD and health behaviors in Black HBCU students aged 18–25 years. All participants (n = 14) perceived that they were not at risk for heart disease within the next 10 years. Almost half (n = 6, 42.86%) had moderately high CVD risk scores, and three (21.43%) were at high risk for developing CVD. Scores on the subscales for dread risk, risk, and unknown risk were 28.29, 37.67, and 43.86, respectively.

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Total scores for perceived risk of heart disease ranged from 20 to 80. The Spearman's correlation between these Black college students' perceived dread risk and health responsibility was positive and moderately correlated ( $r_s = 0.62, p = 0.019$ ). A negative and moderate correlation was demonstrated between unknown perceived risk and health responsibility ( $r_s = -0.54, p = 0.046$ ). Thus, higher risk perception is correlated with greater health responsibility, while low risk perception is correlated with less health responsibility. Barriers to healthy lifestyle behaviors identified by the sample included lack of time and sleep, physical inactivity, cost, convenience of unhealthy foods, and low perception of developing CVD. A major implication is the benefit of implementing interventions to modify risk perception and college-specific barriers that increase CVD risk.

**Keywords:** ■ Black College Students ■ Cardiovascular ■ HBCU ■ Health Behaviors ■ Risk Perception

## INTRODUCTION

Cardiovascular disease (CVD), including heart disease and stroke, is the leading cause of death in the United States and disproportionately affects Blacks (Benjamin et al., 2017). An estimated 92.1 million US adults have at least one type of CVD, and approximately 129 million are projected to have some form of CVD by 2030 (Benjamin et al., 2017). In North Carolina, heart disease is the leading cause of death in Blacks (Carnethon et al., 2017; North Carolina State Center for Health Statistics [NCSCHS], 2019).

CVD is a heavy burden on the US healthcare system. The annual indirect cost from loss of productivity and direct medication and other treatment costs total approximately \$400 billion and are projected to rise to over \$275 billion and \$818 billion, respectively, for a total of roughly \$1 trillion annually in 2030 (Benjamin, et al., 2017).

According to Gepner et al. (2017), CVD involves conditions that affect the structures and/or functions of the heart, such as atherosclerosis, which generally begins between 10–20 years of age. Plaque buildup within the arterial walls of the heart narrows the arteries, preventing blood flow, and resulting in a heart attack or stroke.

CVD incidence is a health disparity. Current research indicates that at least 40 percent of young Blacks have two or more risk factors (Sarpong, Curry, & Williams, 2017) and earlier onset of CVD than the overall US population (Tran et al., 2017). According to the World Heart Federation (2017), the more risk factors an individual has, the higher likelihood of CVD, unless action is taken to modify risk and work on prevention.

For college students, the transition from adolescence to young adulthood can be a time of increased stress, poor diet, and physical inactivity, with the risk of overweight and obesity.

These risks particularly affect Blacks, who have a higher propensity to develop CVD (Benjamin et al. 2017; Jones, Freudenburg, & Mongiello, 2015). Mozaffarian et al. (2016) report that 25 percent of non-Hispanic Blacks have the highest prevalence of physical inactivity compared to other ethnic groups. Bell, Lutsey, Windham, and Folsom (2013) report that in the United States, 69 percent of men and 82 percent of women are overweight, while 37.5 percent of men and 56.9 percent of women are obese. Despite current preventive measures to assess and improve students' knowledge of general CVD risk (Melnik, Panza, Zaleski, & Taylor, 2015), the literature reports a general underappreciation of disease risk, actual CVD risk factors, and potential development of CVD precursors. Overweight and obesity are well-known contributors to this risk in young adults (Lai, Ward, & Bolin, 2015; Petr et al., 2014).

According to the National Center for Education Statistics (NCES) (n.d.), Black students comprise 13 percent of the total US undergraduate student population. Approximately 75 percent of Black college graduates attended a Historically Black College and University (HBCU). Valentine et al. (2012) report that among 91 HBCU students, well over half (63 percent,  $n = 57$ ) were overweight/obese and not meeting physical activity guidelines (62 percent,  $n = 56$ ) recommending <30 minutes per day. These findings substantiate the challenges to health behaviors on HBCU campuses. HBCUs contribute significantly to the educational progress of Black students, but few studies have targeted Black young adults enrolled in HBCUs to examine the perceptions that influence heart-healthy lifestyle behaviors (Carnethon et al., 2017; Duren-Winfield et al., 2011; Holland et al., 2014; NCES, n.d.). The level of perception regarding the development of CVD and other chronic diseases serves as a critical predictor of engagement in healthy lifestyle behavior that reduces risk (Goosby et al., 2015; Petr et al. 2014). College campuses provide opportunities for early interventions aimed at disease prevention and management, and they should incorporate tools to evaluate perceptions of CVD risk, actual risk factors, and health behaviors in students.

The literature indicates that 80 percent of CVD diagnoses could have been prevented by lifestyle and behavioral changes (Appiah & Capistrant, 2017). An individual's perception of CVD risk is a significant predictor of the likelihood that he or she will participate in and maintain healthy lifestyle behaviors (Goosby et al., 2015; Petr et al., 2014), particularly vital for those at high risk. Increased perception of risk may stimulate acceptance of preventive strategies (Carnethon et al., 2017; Goldstein et al., 2014). Abshire, Lennie, Moser, and Mudd-Martin (2016) found that young adults perceive themselves to have a low risk of developing CVD and that the primary barrier to college students engaging in healthy lifestyle behaviors is their underappreciation of the long-term ramifications of their current health behaviors.

In agreement with previous research, Petr et al. (2014) suggest that individuals who perceive themselves as susceptible believe the condition may have serious health consequences. A greater perceived threat prompts individual to modify their lifestyle behaviors to avoid harm and gain favorable outcomes (Abshire et al., 2016). Al-Nakeeb, Lyons, Dodd, and Al Nuaim (2015) add that individuals who identify themselves as less vulnerable to CVD are less likely

to modify unhealthy behaviors. Goldstein et al. (2014) find that health behaviors are influenced by social environment, access, convenience, and time constraints.

This project examines the relationship between perceived risk of CVD and health behaviors in Black students, aged 18–25 years, enrolled in a health education course at an HBCU. Its findings will inform campus-based policies, risk-reduction programs, and healthy heart interventions for use by faculty teaching in health education courses, Advanced Practice Nurses (APRNs), and other providers employed at student health centers. It will answer the following questions about Black students, aged 18–25 years, enrolled in an HBCU: What are their perceptions of CVD risk? What health-promoting behaviors do they practice? Are their perception of CVD risk and health-promoting behavior related?

### **Theoretical Framework**

The project examines the modifying factors in Pender's Health Promotion Model, which recognizes the relationships between concepts, although the Health Belief Model would have been equally appropriate. The Health Promotion Model uses constructs of holistic nursing perspectives to encompass an individual's multidimensional interactions with physical environments and interpersonal relationships and identifies health-promoting behavior and ways to manage barriers to change as the ultimate outcomes (Butts & Rich, 2018; Winter, Sheats, & King, 2016). Butts and Rich (2018) elaborate that individuals learn health behaviors in the context of family, community, and availability of resources for healthful living. The Health Promotion Model is most relevant to the current project because it considers the complex interrelationship among the idea of health-behavior change as a process, motivation to change, and intention to change. Success is influenced by establishing an accurate perception of disease risk.

## **METHODS**

### **Design, Setting, and Sample**

This project used a mixed-methods design. It was conducted on the 117-acre campus of an HBCU located in a southeastern US city as a collaboration among the disciplines of nursing, exercise science, and health administration. The university currently enrolls roughly 5,107 students of whom 3,728 (73 percent) self-identify as Black (Winston-Salem State University [WSSU], 2018).

A convenience sample was recruited from students enrolled in a 3 credit-hour undergraduate health-education course addressing CVD and chronic disease risk factors and lifestyle behaviors. Students were recruited using a flyer distributed by the instructor during class, email, and the learning management system. Inclusion criteria were self-identified Black race,

age 18–25 years, and enrolled as a student in the health-education course. There were no exclusion criteria. Self-identified non-Black students were offered the opportunity to participate to avoid any perception of partiality. A priori power analysis indicated a minimum sample size of 67 to achieve at least .80 power to detect significance, with two-tailed significance set at 0.05. This estimate was based on an effect size = 0.30 (Critical  $r = 0.20$ ). After accounting for a 15 percent attrition rate, the final sample size needed for the project was 77.

### **Outcome Measures**

**Perceived CVD risk:** Perceived CVD risk is the individual's perception of the probability of developing heart disease. It was measured by the Perceived Risk of Heart Disease Scale (PRHDS), a 20-item instrument that asks general questions that are hence relatively free of content specific to any subpopulation (Ammouri & Neuberger, 2008). It takes approximately 20 minutes to complete with reverse scoring for the following questions: 6, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20. Each item on the scale has a 4-point Likert response option ranging from 1 (strongly disagree) to 4 (strongly agree). Item scores are summed to obtain a total scale score ranging from 20 to 80. PRHDS has three subscales. Questions 1, 2, 4, 5, 7, 8, and 9 address dread risk, or a perceived lack of control or catastrophic consequences, and align with high perceived CVD risk. Questions 3, 11, 12, 14, 15, and 16 address perceptions that a hazard has few known consequences. Questions 6, 10, 13, 17, 18, 19, and 20 address unknown risk, or the perception that hazards are new or delayed in their manifestation. Responses categorize individuals on a scale from low to high perceived CVD risk. Total scale reliability is 0.80. Cronbach's alpha internal consistency reliability coefficients were 0.80 for the dread risk subscale, 0.72 for the risk subscale, and 0.68 for the unknown risk subscale. The Kaiser–Meyer–Olkin Measure of Sampling Adequacy (KMO) test (0.931) and the Bartlett's test of sphericity ( $p < 0.0005$ ) verify the validity of the scale (Ammouri & Neuberger, 2008).

**Actual CVD risk:** Actual CVD risk was defined as conditions that escalate risk of disease development, including age, gender, family history, hypertension, diabetes, smoking, obesity, and overweight (Centers for Disease Control and Prevention [CDC], 2015). It was measured using the Healthy Heart Score Tool designed by Chiuve et al. (2014) to validate CVD risk predictions based upon modifiable risk factors. This tool may serve as an early screening instrument to identify individuals with elevated risk of developing CVD within 20 years by examining their modifiable lifestyle CVD risk factors, such as smoking, alcohol consumption, BMI, exercise, and diet (Chiuve et al., 2014). Following survey completion, participants reviewed their personal risk score ranging from low (green), moderate (yellow), to high (red) and printable tips to guide areas for improvement, such as “Try a variety of nuts, including almonds, pistachios, and cashews.” Validation of the tool assessed good discrimination (abil-

ity to distinguish between individuals who report CVD events and those who do not) using the Gronnesby-Borgan test and Harrell's C-index. Statistical significance was set at  $p < 0.01$  (Chiueve et al., 2014).

**Health Behaviors:** The Health-Promoting Lifestyle Profile II (HPLP II) was used to measure health-promoting behavior, conceptualized as a multidimensional pattern of self-initiated actions and perceptions that serve to maintain or enhance the individual's level of wellness, self-actualization, and fulfillment (Nassar & Shaheen, 2014). The 52-item scale employs a 4-point response format to measure the frequency of self-reported health-promoting behaviors in the domains of health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. Construct validity was documented, with a positive correlation between the PRHDS and HPLP II ( $r = .20$  to  $.39$ ). Total scale reliability was 0.94. Cronbach's alpha internal consistency reliability coefficients were 0.84 for total questions and healthy eating (0.84), health responsibility (0.84), physical activity (0.82), stress management (0.82), and spiritual growth (0.83) (Nassar & Shaheen, 2014). HPLP II subscales address health responsibility with questions 3, 9, 15, 21, 27, 33, 39, 45, and 51; physical activity with questions 4, 10, 16, 22, 28, 34, 40, and 46; nutrition with questions 2, 8, 14, 20, 26, 32, 38, 44, and 50; spiritual growth with questions 6, 12, 18, 24, 30, 36, 42, 48, and 52; interpersonal relations with questions 1, 7, 13, 19, 25, 31, 37, 43, and 49; and stress management with questions 5, 11, 17, 23, 29, 35, 41, and 47. Results from this tool allow researchers to investigate factors and patterns associated with a health-promoting lifestyle in addition to the outcomes of interventions designed to alter lifestyle.

**Student Experience:** Direct student experience was assessed using a 5-question survey. Multiple-choice questions 1–4 assessed attitude toward health responsibility, motivations to improve health, and barriers to prevention. The fifth, open-ended question asked what each participant gained from completing the surveys that assessed perceived risk, actual risk, and health behaviors. This survey was developed from prior studies exploring awareness, attitudes, lifestyle, and risk of heart disease (McDonnell et al., 2014).

## Data Collection

Data were collected using structured, self-administered surveys. Students had the option of completing them during designated class time or outside class using online survey software. Surveys were intentionally presented and completed in the following order: PRHDS, Healthy Heart Score Tool, HPLP II, and Student Experience Survey. To protect privacy, participants received a project number and were instructed to use the number to label their questionnaires.

## Data Analysis

Data analysis included the use of descriptive statistics and bivariate correlation to examine categorical variables, including race, age, and sex, expressed as frequencies and percentages. The independent variable was perceived risk of CVD (PRHDS), and the dependent variable was health behaviors (HPLP II). Spearman rank correlation was selected to examine the relationship between perceived risk of CVD using the PRHDS subscales (dread risk, risk, unknown risk) and health-promoting behaviors using HPLP II subscales (health responsibility, physical activity, nutrition, interpersonal relations, spiritual growth, and stress management). Results from the Healthy Heart Score Tool (actual CVD risk), HPLP II (health behaviors), and PRHDS (perceived risk of CVD) were expressed as frequencies and percentages. IBM SPSS Version 24.0 computer software was used for all quantitative analyses (IBM Corp, 2016). Relationships were considered statistically significant at a p-value less than 0.05. Qualitative thematic analysis was used to analyze open-ended experience survey responses.

## Approvals

The university's Institutional Review Board approved the project. The course instructor provided written project support and facilitated the use of class time for survey completion.

## RESULTS

### Sample Characteristics

The recommended minimum sample size was not met. Of the 30 enrolled students, only 14 consented to participate, representing a 46.67 percent participation rate. The self-identified ethnicity of all participants was Black or African American (n = 14) with 8 identifying as men. They ranged in age from 18–25 years with a mean age of  $\pm 20$ –21 years. Seven participants were aged 20–21 years; six aged 22–23 years, and only one aged 24–25 years.

### Perceived CVD Risk/PRHDS

Responses to the PRHDS are represented in Table 1. Of the 14 respondents, unexpected results were noted in response to the statement, "There is a good chance I will get heart disease within the next 10 years." Only 4 strongly disagreed, and another 6 disagreed. In response to the statement, "I am very healthy, so my body can fight off heart disease," 10 agreed. Participant responses to "People my age do not get heart disease" indicated 9 agreed. Similarly, 8 agreed that "People my age are too young to get heart disease." Further, 10 disagreed with the statement, "A person who gets heart disease has no chance of being cured." Last, responses



**Table 1. Perceived Risk of Heart Disease Subscales (PRHDS)**

Questions	Instrument Scoring							
	Strongly Disagree		Disagree		Agree		Strongly Agree	
	n	%	n	%	n	%	n	%
<b>Dread Risk Score 28.29</b>								
1. There is a possibility that I have heart disease	5	35.71	6	42.86	2	14.29	1	7.14
2. There is a good chance I will get heart disease during the next 10 years	4	28.57	6	42.86	3	21.43	1	7.14
4. I have a high chance of getting heart disease because of my past behaviors	3	21.43	5	35.71	5	35.71	1	7.14
5. I feel sure that I will get heart disease	4	28.57	8	57.14	2	14.29	-	-
7. It is likely that I will get heart disease	3	21.43	8	57.14	3	21.43	-	-
8. I am at risk for getting heart disease	2	15.38	6	46.15	5	38.46	-	-
9. It is possible that I will get heart disease	3	21.43	3	21.43	8	57.14	-	-
<b>Risk Score= 37.67</b>								
3. A person who gets heart disease has no chance of being cured	2	14.29	10	71.43	2	14.29	-	-
11. I am too young to have a heart disease*	-	-	4	28.57	7	50	3	21.43
12. People like me do not get heart disease*	-	-	5	35.71	6	42.86	3	21.43
14. I am not worried that I might get heart disease*	-	-	6	42.86	6	42.86	2	14.29
15. People my age are too young to get heart disease*	-	-	3	21.43	8	57.14	3	21.43
16. People my age do not get heart disease*	-	-	2	14.29	9	64.29	3	21.43
<b>Unknown Risk Score 43.86</b>								
6. Healthy lifestyle habits are unattainable*			4	28.57	5	35.71	5	35.71
10. I am not doing anything now that is unhealthy to my heart*			3	21.43	8	57.14	3	21.43
13. I am very healthy, so my body can fight off heart disease*			3	21.43	10	71.43	1	7.14
17. My lifestyle habits do not put me at risk for heart disease*	1	7.14	3	21.43	7	50	3	21.43
18. No matter what I do, if I am going to get heart disease, I will get it*	-	-	1	7.14	7	50	6	42.86
19. People who don't get heart disease are just plain lucky*	-	-	-	-	8	57.14	6	42.86
20. Heart disease has an unknown cause*	-	-	3	21.43	3	21.43	8	57.14
<b>Overall Score Range from 20-80</b>								

\*Reverse scored questions

**Table 2. Responses to Perception of Risk of Heart Disease Subscales**

Risk Levels	Strongly Disagree		Disagree		Agree		Strongly Agree	
	n	%	n	%	n	%	n	%
Dread Risk	2	14.29	2	14.29	8	57.14	2	14.29
Risk	-	-	1	7.14	7	50	6	42.86
Unknown Risk	-	-	-	-	5	35.71	9	64.29

to the statement, “People who don’t get heart disease are just plain lucky,” indicated that 8 agreed, and 6 strongly agreed. Overall, perceived risk of heart disease item scores are summed to obtain a total scale score ranging from 20 to 80. The subscales for dread risk had a score of 28.29; risk had a score of 37.67; and unknown risk score was 43.86.

Responses to the Perception of Risk of Heart Disease Scale (PRHDS) subscales are represented in Table 2. All 14 participants responded to the PRHDS. Unexpected findings with regard to the dread risk subscale show that 71.43 percent either agreed (n = 8) or strongly agreed (n = 2) that they have no control over the disease process. Responses to the risk subscale show that 92.86 percent either agreed (n = 7) or strongly agreed (n = 6) that they are aware of disease outcomes and consequences. The overall results for the unknown risk subscale show that 100 percent either agreed (n = 5) or strongly agreed (n = 9) that disease manifestation, progression, and/or harm can be delayed.

### Actual CVD Risk/Healthy Heart Score

Results from the Healthy Heart Score Tool designed to measure respondents’ actual CVD risk related to current modifiable risk factors indicated that of the 14 participants, 3 (21.43 percent) had ideal risk for CVD over the next 10 years; at least 2 (14.28 percent) were in the slightly elevated category; 6 (42.86 percent) had moderately high CVD risk; and 3 (21.43 percent) had high CVD risk (see Fig. 1).

### Health-Promoting Behaviors/HPLP II

All 14 participants responded to the HPLP II. Unexpected results were found for questions about nutrition, choosing a diet low in fat, saturated fat, and cholesterol: 3 responded never and 8 indicated that only sometimes did they choose the healthy options, and 4 indicated often. For physical activity, three participants reported that they never follow a planned exercise program; 7 indicated sometimes; 3 indicated often; and only 1 indicated routinely. Responses to questions concerning health responsibility revealed that 2 never, 6 sometimes, 5 often, and 1 routinely asked for information from health professionals about how to take good care

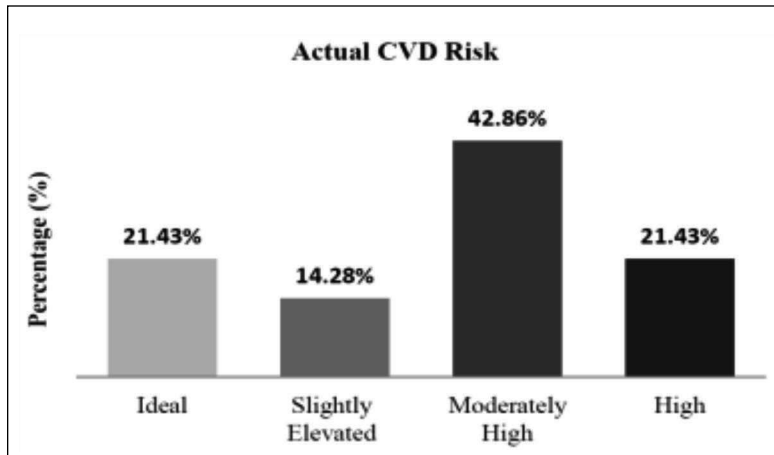


Figure 1. Healthy Heart Score Representing Actual CVD Risk

of themselves. With regard to reading or watching TV programs about improving health, 7 responded never, 3 sometimes, and 4 often do so. In relation to interpersonal relations, 8 indicated that they often spent time with close friends. In relation to stress management, specifically, getting enough sleep, 3 said never, 6 sometimes, 3 often, and 2 routinely. In regard to practicing relaxation or meditation for 15–20 minutes daily, 4 said never, 6 sometimes, 3 often, and 1 routinely. In relation to spiritual growth, 8 reported that they routinely believe that they have a purpose in life (see Table 3).

Overall, unexpected participant findings from the HPLP II subscales were observed, with 8 reporting that they often and 4 reporting that they routinely engage in activities associated with health responsibility; 5 indicated that they often and 5 that they routinely engage in some type of physical activity; 6 reported that they often and 4 that they routinely engage in healthy nutrition lifestyle behaviors; 12 reported that they routinely support spiritual growth activities; and 5 reported that they often and 7 that they routinely engage in activities that enhance interpersonal relations and stress management (see Table 4).

#### Correlation between Perceived Risk/PRHDS and Health Behaviors/HPLP II Subscales

The Spearman correlation used to evaluate the relationship between these college students' perceived CVD risk (PRHDS) and health-promoting behaviors (HPLP II) found a significant positive moderate correlation between health responsibility and perceived dread risk ( $r_s = 0.62$ ;  $p = 0.019$ ) and a significant negative moderate correlation between health responsibility and unknown perceived risk ( $r_s = -0.54$ ;  $p = 0.046$ ); with health responsibility explaining 38.44 percent and 29.16 percent variation in perceived dread risk and unknown perceived risk, respectively (see Table 5).

**Table 3. Health-Promoting Lifestyle Profile II (HPLP II)**

Question	Instrument Scoring							
	Never		Sometimes		Often		Routinely	
	n	%	n	%	n	%	n	%
<b>Health Responsibility</b>								
3 Report any unusual signs or symptoms to a physician or other health professional	2	14.28	6	42.86	5	35.71	1	7.14
9 Read or watch TV programs about improving health	7	50	3	21.43	4	28.57	0	0
15 Question health professionals in order to understand their instructions	3	21.43	6	42.86	4	28.57	1	7.14
21 Get a second opinion when I question my health care provider's advice	4	28.57	7	50	3	21.43	1	7.14
27 Discuss my health concerns with health professionals	3	21.43	4	28.57	5	35.71	2	14.28
33 Inspect my body at least monthly for physical changes/danger signs	2	14.28	0	0	9	64.29	3	21.43
39 Ask for information from health professionals about how to take good care of myself	2	14.28	6	42.86	5	35.71	1	7.14
45 Attend educational programs on personal health care	8	57.14	4	28.57	2	14.28	0	0
51 Seek guidance or counseling when necessary	3	21.43	6	42.86	3	21.43	2	14.28
<b>Physical Activity</b>								
4 Follow a planned exercise program	3	21.43	7	50	3	21.43	1	7.14
10 Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, aerobic dancing, using a stair climber)	5	35.71	7	50	0	0	2	14.28

Table 3 (continued)

Question	Instrument Scoring							
	Never		Sometimes		Often		Routinely	
	n	%	n	%	n	%	n	%
16 Take part in light-to-moderate physical activity (such as sustained walking 30–40 minutes 5 or more times a week)	4	28.57	3	21.43	5	35.71	2	14.28
22 Take part in leisure-time (recreational) physical activity	3	21.43	8	57.14	4	21.43	0	0
28 Do stretching exercises at least 3 times per week	2	14.28	9	64.29	2	14.28	1	7.14
34 Get exercise during usual daily activities (such as walking during lunch, using stairs instead of elevators, parking car away from destination and walking)	1	7.14	5	35.71	6	42.86	2	14.28
40 Check my pulse rate when exercising	6	42.86	3	21.43	3	21.43	2	14.28
46 Reach my target heart rate when exercising	2	14.28	7	50	5	35.71	0	0
<b>Nutrition</b>								
2 Choose a diet low in fat, saturated fat, and cholesterol	3	21.43	8	57.14	4	21.43	0	0
8 Limit use of sugars and food containing sugar (sweets)	3	21.43	6	42.86	4	28.57	1	7.14
14 Eat 6–11 servings of bread, cereal, rice, and pasta each day	4	28.57	6	42.86	2	14.28	2	14.28
20 Eat 2–4 servings of fruit each day	3	21.43	10	71.43	1	7.14	0	0
26 Eat 3–5 servings of vegetables each day	2	14.28	8	57.14	4	14.28	2	14.28
32 Eat 2–3 servings of milk, yogurt, or cheese each day.	3	21.43	6	42.86	4	28.57	1	7.14
38 Eat only 2–3 servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day	5	35.71	5	35.71	4	28.57	0	0

(continued)

Table 3 (continued)

Question	Instrument Scoring							
	Never		Sometimes		Often		Routinely	
	n	%	n	%	n	%	n	%
44 Read labels to identify nutrients, fats, and sodium content in packaged food	4	28.57	7	50	2	14.28	1	7.14
50 Eat breakfast	3	21.43	7	50	2	14.28	2	14.28
<b>Spiritual Growth</b>								
6 Feel I am growing and changing in positive ways	2	14.28	3	21.43	5	35.71	4	28.57
12 Believe that my life has purpose	3	21.43	1	7.14	2	14.28	8	57.14
18 Look forward to the future	2	14.28	3	21.43	4	28.57	5	35.71
24 Feel content and at peace with myself	3	21.43	2	14.28	8	57.14	4	7.14
30 Work toward long-term goals in my life	2	14.28	2	14.28	6	42.86	4	28.57
36 Find each day interesting and challenging	2	14.28	8	57.14	4	28.57	0	0
42 Am aware of what is important to me in life	2	14.28	4	28.57	3	21.43	5	35.71
48 Feel connected with some force greater than myself	1	7.14	4	28.57	4	28.57	5	35.71
<b>Interpersonal Relations</b>								
1 Discuss my problems and concerns with people close to me	3	21.43	6	42.86	4	28.57	1	7.14
7 Praise other people easily for their achievements	2	14.28	1	7.14	7	50	4	28.57
13 Maintain meaningful and fulfilling relationships with others	2	14.28	3	21.43	7	50	2	14.28
19 Spend time with close friends	1	7.14	3	21.43	8	57.14	4	14.28

(continued)

Table 3 (continued)

Question	Instrument Scoring							
	Never		Sometimes		Often		Routinely	
	n	%	n	%	n	%	n	%
25 Find it easy to show concern, love, and warmth to others	2	14.28	2	14.28	6	42.86	4	28.57
31 Touch and am touched by people I care about	4	28.57	1	7.14	8	57.14	4	7.14
37 Find ways to meet my needs for intimacy	1	7.14	7	50	5	35.71	1	7.14
43 Get support from a network of caring people	3	21.43	4	28.57	6	42.86	1	7.14
49 Settle conflicts with others through discussion and compromise	3	21.43	4	28.57	6	42.86	1	7.14
<b>Stress Management</b>								
5 Get enough sleep	3	21.43	6	42.86	3	21.43	2	14.28
11 Take some time for relaxation each day	2	14.28	6	42.86	5	35.71	1	7.14
17 Accept those things in my life that I cannot change	4	28.57	2	14.28	7	50	1	7.14
23 Concentrate on pleasant thoughts at bedtime	4	28.57	5	35.71	3	21.43	2	14.28
29 Do stretching exercises at least 3 times per week	3	21.43	7	50	3	21.43	1	7.14
35 Balance time between work and play	1	7.14	5	35.71	5	35.71	3	21.43
41 Practice relaxation or meditation for 15-20 minutes daily	4	28.57	6	42.86	3	21.43	1	7.14
47 Pace myself to prevent tiredness	1	7.14	9	64.29	4	28.57	0	0

**Table 4. Health-Promoting Lifestyle Profile II (HPLP II) Subscales**

<i>HPLP II Subscales</i>	<i>Never</i>		<i>Sometimes</i>		<i>Often</i>		<i>Routinely</i>	
	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
Health Responsibility	1	7.14	1	7.14	8	57.14	4	28.57
Physical Activity	1	7.14	3	21.43	5	35.71	5	35.71
Nutrition	1	7.14	3	21.43	6	42.86	4	28.57
Spiritual Growth	1	7.14	1	7.14	-	-	12	85.71
Interpersonal Relations	1	7.14	1	7.14	5	35.71	7	50
Stress Management	1	7.14	1	7.14	5	35.71	7	50

**Table 5. Spearman Correlation between PRHDS and HPLP II Subscales**

<i>Spearman's rho</i> <i>Correlation</i>	<i>Dread Risk</i>	<i>Risk</i>	<i>Unknown Risk</i>
Health Responsibility	.617*	-.175	-.54*
<i>p-value</i>	.019	.549	.046
Physical Activity	.329	.044	-.136
<i>p-value</i>	.251	.881	.642
Nutrition	.494	.118	-.215
<i>p-value</i>	.072	.687	.46
Spiritual Growth	.309	-.111	-.303
<i>p-value</i>	.283	.706	.292
Interpersonal Relations	.498	.229	-.223
<i>p-value</i>	.07	.431	.444
Stress Management	.177	.229	.02
<i>p-value</i>	.546	.431	.945

\* Correlation is significant at  $p = 0.05$  (2-tailed).

\*\* Correlation is significant at  $p = 0.01$  (2-tailed).



### Experience Survey Responses

Following survey completion, all participants ( $n = 14$ ) responded yes to the question, “Will you take action to improve health?” When asked, “Why will you take new action(s) to improve your own health?” 10 responded to live longer; 3 had seen/heard/read something related to heart health; and only 1 was prompted by a friend or family member. When asked about things that might prevent healthy behaviors, 5 cited sleep deprivation; 9 cited lack of personal time; 8 cited stress; 9 cited cost-effectiveness; and 6 said that society works against efforts to be healthy. When asked to “list one thing gained from completing surveys,” responses included: a better understanding of personal health; “I learned? a little bit more about myself”; “I see areas I need to improve on with my health”; “I even discovered things about myself that I thought were good and it turns out need improvement as well”; “I need to change my habits”; “I need to walk more”; “I’m unhealthy”; “it’s never too early to worry about your heart health”; and “my health is up to me.”

### DISCUSSION

Despite advances in identifying risk factors for CVD and evidence-based CVD management strategies, CVD disparities persist for Blacks (Goldstein et al., 2014). This population continues to have poorer overall CVD health than any other race/ethnic group (Carnethon et al., 2017). The findings of this project indicate an immense need to identify Black HBCU students’ perceptions of disease risk and health behaviors. Their ability to recognize how their perceptions of risk for developing chronic diseases, particularly CVDs, and their health behaviors affect their overall health has great importance for improving it.

The first project question asked about perceptions of CVD risk. Participants overall perceived themselves to be at low risk for developing CVD. On average, they were found to have a higher unknown risk (low perception of CVD risk), and very few had dread risk (high perception), although the actual risk for many is relatively high. Nine (64.26 percent) reported that they perceive no threat, while ten (71.4 percent) reported that they “are not worried about getting heart disease.” These results are comparable to those of Yahia et al. (2014), who found that over two-thirds of students indicated that heart disease affects the older population, and Imes and Lewis (2014), whose study participants perceived themselves at low risk for developing CVD, when in fact they had an increased risk related to the high prevalence of such traditional CVD risk factors as high cholesterol, physical inactivity, alcohol and tobacco use, unhealthy diet choices, and hypertension. Of the 14 participants in the study reported here, six (42.84 percent) had moderate and three (21.43 percent) had high CVD risk. Thakkar (2016) found that accurate self-perception is associated with improved health behaviors. In this project, a large number of participants reported that they were not doing anything now that was unhealthy for their heart but did not report overall health-

promoting behaviors. These results indicate a need to help students to understand their risk more accurately in order to influence their health behaviors. Identifying their health-related perceptions, beliefs, values, and goals may help college students to improve their health behaviors as they adjust to their new freedom.

The literature indicates that the best defense against CVD is a healthy diet and lifestyle (Fitzgerald, Smith, & Thompson, 2014; Saint Ongea & Krueger, 2017). Overall, responses did not indicate healthy lifestyle behaviors. HPLP II results showed unhealthy diet choices, lack of physical activity, lack of interest in engaging in health-improvement conversations, sleep deprivation, and no interest in engaging in relationship techniques, such as yoga and socializing. These findings align with prior reports linking the increased risk for obesity and chronic disease among Blacks to diets high in saturated-fat meats, sodium, and sugars (Carnethon et al., 2017; Davis et al., 2014; Goldstein et al., 2014; Linde et al., 2014; Saint Ongea & Krueger, 2017). Yahia et al. (2014) report that although the students in their study acknowledged the significance of cultural norms, they did not translate them into personal CVD risk factors that would influence behavior change and healthy lifestyles choices.

Project findings support a significant positive moderate correlation between perception of CVD risk and health-promoting behaviors ( $r_s = .62, p = 0.019$ ) and a significant negative moderate correlation relationship between health responsibilities and unknown risk ( $r_s = -.54, p = 0.046$ ). These findings are consistent with prior studies investigating this relationship among college students; despite having access to healthy food choices on campus, participants preferred less healthy items they perceived as more readily accessible (Abshire et al., 2016; Carnethon et al., 2017; Fitzgerald, Smith, & Thompson, 2014). In this project, participants identified numerous barriers to consuming healthier foods, including time, cost, and availability. More than half responded that people their age do not and are too young to get heart disease. Yahia et al. (2014) also found that two-thirds of students believed CVD affects an older population, and 93 percent did not equate unhealthy lifestyle behaviors (physical inactivity, poor diet) with elevated cholesterol and vessel changes that contribute to CVD. Carnethon et al. (2017) found that cultural norms were barriers to sound health behaviors and beliefs and adherence to health recommendations. For example, physical activity may be perceived as work, thus undesirable. Collectively, these findings demonstrate a need for interventions that identify and influence perceptions and include family, peers, and providers to prompt healthier behaviors (Fitzgerald et al., 2014).

The Health Promotion Model focuses on risk perception, allowing participants to be their own agents of health change. This project supports the idea that if students accurately identify health risks, they will engage in health-promoting activities. Advanced practice providers can assist by encouraging healthy activities like aerobics or other physically oriented classes. Educators can assist by building assignments focused on health promotion into course curricula. Administrators can assist by making healthy foods available in vending machines and cafeterias.

### **Limitations**

While the results from this study are consistent with the literature, they should be understood with caution as the convenience sample size was small ( $n = 14$ ). The project was initiated late in the semester, which may have contributed to the lack of participation, and future projects should begin earlier. Further, participant self-reporting may not be accurate, and the behaviors were not objectively monitored and measured. As a strength, this project is one of few to measure perceived risk of CVD and health behaviors among Black students in a college setting.

### **Implications for Future Practice and Research**

This project has implications for healthcare practice, education, policy, and research. Campus-based health and student health professionals must recognize the importance of accurately assessing CVD risk and sharing accurate information with Black college students. PRHDS, Healthy Heart Score, and HPLP II are feasible tools. Evidence-based practices that influence perceptions of the risk of developing heart disease and promote healthy behaviors must be implemented to reduce and manage CVD risk among future generations. Educators should build assignments that focus on risk perception and health promotion into course curricula. This practice would teach students about the influence of perception on health behaviors and help them to assess risk factors accurately. They may be influenced to modify risky health behaviors, such as poor nutrition, physical inactivity, and tobacco use, early to prevent or ameliorate CVD. Policy implications include making healthier foods available in vending machines and dining venues. Future studies should incorporate more students from underrepresented backgrounds to expose possibly unique perceptions of CVD risk and the type of perceptions that drive CVD prevention behaviors. Many chronic disease risk factors are prevalent in the young adult population (Arts, Fernandez, & Lofgren, 2014), and research evaluating the outcomes of evidence-based practices that promote healthy behaviors among them will be beneficial.

### **CONCLUSION**

Negative health behaviors that increase CVD risk may develop as young adults embrace the college setting, and the influence of peers, parents, and social environments shifts (Linde et al. 2014; Nassar & Shaheen, 2014). This project examined Black college students' perceived risk of CVD and its effects on their health behavior. Findings suggest that although participants perceive a low risk of developing CVD, they are actually at increased risk due to the high prevalence of such factors as physical inactivity, smoking, unhealthy diet choices, and stress. The project highlights the value of incorporating the PRHDS and HPLP II tools into

campus health center assessment protocols as well as course and campus activities to identify and correct inaccurate perceptions and promote healthy behavior. Healthcare professionals and educators must come together to design, implement, and evaluate health behavioral change interventions for college students to reduce and manage CVD risk among future generations.

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# Using Simulation to Teach Biosafety and Interprofessional Principles to Students Underrepresented in the Healthcare Professions

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Matthew Fifolt, PhD, MEd<sup>1</sup>; Marjorie L. White, MD, MPPA, MA<sup>2</sup>; Lisa C. McCormick, DrPH, MPH<sup>3</sup>

**Author Affiliations:** <sup>1</sup>School of Public Health, Department of Health Care Organization and Policy, <sup>2</sup>School of Medicine, Department of Pediatric Emergency Medicine, <sup>3</sup>School of Public Health, Department of Environmental Health Science, University of Alabama at Birmingham, Birmingham, Alabama

**Corresponding Author:** Matthew Fifolt, School of Public Health, Department of Health Care Organization and Policy, University of Alabama at Birmingham, 1665 University Boulevard, Birmingham, AL 35294 ([mfifolt@uab.edu](mailto:mfifolt@uab.edu))

## ABSTRACT

To meet growing demands to diversify the healthcare workforce, programs for underrepresented students must educate and engage them in meaningful learning experiences. In this article, we describe the Summer Health Professions Education Program at a prestigious public university in the southeast; specifically, a training session in donning and doffing personal protective equipment for biological hazards. This training session introduces students to valuable biosafety skills and familiarizes them with the concepts of simulation and interprofessional education. We believe that healthcare simulations that scaffold student learning, encourage reflective practice, and model the increasingly interdependent nature of healthcare delivery can begin to answer the call for greater diversity in our nation's healthcare workforce.

**Keywords:** ■ Biosafety ■ Experiential Learning ■ Interprofessional Education ■ Simulation ■ Underrepresented Populations



## INTRODUCTION

According to the US Census Bureau, the nation is becoming more racially and ethnically diverse. In 2018, 60.7 percent of Americans self-identified as non-Hispanic White. By 2060, estimates suggest that this former majority will comprise just 44 percent of the population, while Hispanics will comprise 29 percent; African Americans, 14 percent; Asians, 9.3 percent; and people of two or more backgrounds, 6.2 percent (Colby & Ortman, 2015). Despite these shifting demographics and the well-documented health disparities that accompany them, current minorities remain underrepresented in the healthcare professions (Bouye, McCleary, & Williams, 2016; National Center for Health Workforce Analysis, 2017).

Notwithstanding advancements on several health indicators, such as life expectancy and infant mortality, some minorities in the United States experience a disproportionate burden of preventable disease, death, and disability (Centers for Disease Control and Prevention [CDC], 2018) and poorer outcomes from several preventable and treatable diseases compared to the general population (Jackson & Gracia, 2014). In its seminal report, “Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care,” the Institute of Medicine (IOM; 2003) demonstrated these inequities. One of the key recommendations was to increase the proportion of underrepresented minority groups in the healthcare workforce.

Valentine, Wynn, and McLean (2016) argue that increasing the racial and ethnic diversity of the US healthcare workforce is essential for addressing the following four priorities: providing culturally competent care to burgeoning minority communities, expanding healthcare access to the poor and underserved, fostering research in neglected areas that disproportionately affect minority populations, and growing the diverse pool of executives and policymakers responsible for optimal management of the US healthcare system. Similarly, Congresswoman Robin Kelly (D-Illinois) stated in the 2015 Kelly Report: “People of color make up the fastest growing segment of our population, and an increasingly large number of our healthcare recipients. Therefore, they should also make up a larger percentage of our health workforce” (p. 11).

Researchers have identified strategies to increase the diversity of the US healthcare workforce, including (a) revisiting the admissions processes of health professions schools and identifying equitable practices to enhance student admission, matriculation, and completion; (b) enhancing academic preparation of diverse students to boost their academic success at the K-12 level; (c) increasing public knowledge about health careers; (d) providing support to students and families in navigating the admissions and financial aid processes; and (e) promoting student training programs for underrepresented populations (Bouye et al., 2016; Valentine et al., 2016).

Regarding this last recommendation, a number of federally supported student training programs and other managed training, internship, and fellowship programs for underrepresented students interested in pursuing careers in healthcare are emerging (Health Resources

and Services Administration [HRSA], 2017; Robert Wood Johnson Foundation [RWJF], 2019). They range in size and scope, but all aim to increase the diversity of the nation's healthcare workforce and its capacity to offer high-quality, culturally competent care within underserved communities (HRSA, 2017). This article describes an instructional best-practice approach for undergraduate students in the Summer Health Professions Education Program (SHPEP) at the University of Alabama at Birmingham (UAB).

### Theoretical Framework

We framed this article through the lens of experiential learning, an active strategy in which students learn through experience and reflection (Kolb, 2015). Healthcare simulations of procedures like donning and doffing personal protective equipment comprise one of the many practice-based experiences that US colleges and universities offer to enhance students' classroom curriculum. Simulations can occur in simulation labs and centers (*in sim*) or hospital settings (*in situ*) and are characterized as either immersive or procedural. Immersive simulations focus on caring for patients and/or family members in realistic situations, while procedural simulations provide opportunities for participants to master technical skills or procedures (Lopreiato, 2016).

Consistent with Kolb's (1984) cycle of experiential learning, simulations are designed to reflect the four stages of learning in which students (1) encounter a new situation or experience; (2) observe and reflect on the experience; (3) analyze the results and draw conclusions; and (4) apply their new-found knowledge to future encounters. Gaba (2004) describes healthcare simulations as a technique to "replace or amplify real experiences with guided experiences that evoke or replicate substantial aspects of the real world in a fully interactive manner" (p. 12). As a form of experiential learning, simulations are considered vital for improving communication and fostering collaboration among healthcare providers and thereby improving safety outcomes (Kolb, 1984; Miller, Riley, Davis, & Hansen, 2008; Poore, Cullen, & Scharr, 2014). Additionally, the Agency for Healthcare Research and Quality (AHRQ; 2015) identifies the following benefits of conducting healthcare simulations: they optimize learning conditions; provide valuable feedback to the learner; integrate many cross-disciplinary skills; and prioritize patient and learner safety. The experiential nature of healthcare simulations guides the overall structure of this training course and informs our interpretation of student satisfaction and engagement with it.

### ABOUT THE PROGRAM

The Summer Health Professions Education Program (SHPEP) is a free, six-week summer enrichment program focused on improving access to information and resources for college students interested in the healthcare professions. Funded by the Robert Wood Johnson Foun-

dation, it is implemented at 12 universities across the nation and aims to “strengthen the academic proficiency and career development of students underrepresented in the health professions and prepare them for a successful application and matriculation to health professions schools” (RWJF, 2019).

Qualified applicants must be freshmen, sophomores, or community college students at the time of application; have a minimum grade point average of 2.4/4.0; be a US citizen, permanent resident, or have been granted deferred action for childhood arrivals (DACA) status by US Citizenship and Immigration Services; and not have previously participated in the program. Additional considerations include students who identify with a group that is racially or ethnically underrepresented in the health professions; come from an economically or educationally disadvantaged background; and/or demonstrate an interest in issues affecting underserved populations (RWJF, 2019).

Annually, UAB receives more than 400 applications from across the country to fill the 80 spots in SHPEP. Through this program, students are introduced to a wide array of classroom and field-based experiences. In this descriptive article, we focus on one specific training session: donning and doffing personal protective equipment (PPE)—clothing, gloves, masks, goggles—to address biological hazards (OSHA, 2019). This session was designed and delivered by the Deep South Biosafety Worker Training Program (WTP), one of eight programs funded by the National Institute of Environmental Health Sciences (NIEHS) to provide disease-safety training for individuals in high-risk occupations. Prior to instruction, trainers participated in structured simulation facilitator development courses and demonstrated experience and proficiency in biosafety training. Moreover, they reflected the diversity of UAB, which is consistently ranked among the most diverse universities in the country (Rohan, 2019). This project was approved by the university’s Institutional Review Board (IRB-120822005).

### **Interprofessional Education**

According to the World Health Organization (WHO, 2010), “Interprofessional education occurs when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes” (p. 7). Simulations are frequently used to familiarize health professions students with the concept of interprofessional education (IPE) and have been endorsed by the WHO as an effective way to help healthcare professionals learn how to work well in teams (WHO, 2013). As a strategy to defend against the increasing fragmentation of US healthcare, the IOM (2010) has advocated for using IPE as a component of all continuing education endeavors. Similarly, Costello and colleagues (2017) identified “interprofessional simulations” as a teaching strategy that shows great promise for promoting teamwork among the healthcare professions. Since SHPEP is a pipeline program, planners identified IPE as a critical element of training for students interested in the healthcare professions.

## Course Design

The training course is divided into two parts. In part one, students complete an online awareness module developed by the Deep South Biosafety Worker Training Program. Additional online resources include the CDC Disease Conditions website and the Pathogen Safety Data Sheets from the Public Health Agency of Canada. In part two, students attend a four-hour, instructor-led operations course, participating in various simulations of donning and doffing PPE. In this *flipped classroom* approach, necessary knowledge is acquired prior to participatory learning, so instructors can maximize student-centered learning during simulation time (Gilboy, Heinerichs, & Pazzaglia, 2015; Persky & McLaughlin, 2017).

## Personal Protective Equipment Simulation

Building upon knowledge gained from the online awareness module, instructors rotated students through a series of hands-on simulations to practice the skills healthcare providers need to protect themselves from infectious disease threats. To ensure high levels of student/instructor contact, instructors divide the total SHPEP cohort into groups of approximately 15 to achieve a student/faculty ratio of 5:1. For each training session, instructors randomize participants into one of the three different roles in the simulation: (a) healthcare worker, (b) donning/doffing expert, and (c) donning/doffing evaluator/observer. Students have opportunities to simulate each role and receive immediate instructor feedback.

In this training activity, students use an approved Ebola virus checklist to don and doff PPE and evaluate adherence to standard protocols for avoiding contamination. After the “healthcare workers” don the PPE, instructors check them for potential breaches and apply Glo Germ™, a luminescent gel that glows brightly when exposed to ultraviolet light (Clay et al., 2015). Next, students doff the PPE, and instructors use ultraviolet flashlights to check it for areas of contamination. At the conclusion of the activity and before students switch roles, instructors and students debrief about the experience, record their observations, and discuss lessons learned. This approach demonstrates the principles of deliberate practice with expert coaching and effective observation (Harris, Eccles, & Shatzer, 2017).

## METHODS

After completing the donning-and-doffing training simulation, students receive an email request to complete an evaluation via Qualtrics™, an online survey platform. Of the 78 students who participated in the simulation, 72 submitted surveys for a response rate of 92 percent. Table 1 shows the demographic data for student participants. However, respondents were not required to answer all the survey questions, so response rates differ by question. Moreover, student demographics were not linked to survey responses to protect participant confidentiality, so inferences cannot be made based on specific student characteristics.

**Table 1: Demographics for SHPEP Participants**

<i>Characteristic</i>	<i>N</i>	<i>%</i>
Gender		
Female	56	72.0
Male	22	28.0
Race/Ethnicity		
Black	37	47.0
White	15	19.0
Asian	7	9.0
Did not report	7	9.0
Other	6	8.0
Mexican	3	4.0
Puerto Rican	2	3.0
Dominican	1	1.0
Class Standing		
Freshman	29	37.0
Sophomore	49	63.0
Institution Type		
4-Year Public	50	64.0
4-Year Private	10	13.0
HBCU	10	13.0
2-Year Public	8	10.0

The online training survey captured both quantitative and qualitative data to assess the first two levels of Kirkpatrick's model for training evaluation: Levels 1 and 2: Reactions (participation and satisfaction) and Learning (knowledge, skills, and abilities), respectively (Kirkpatrick & Kirkpatrick, 2016). We calculated frequencies for all responses based on the number of respondents (N) associated with each question and used a text-to-table application in Microsoft Word to code and sort qualitative responses.

## RESULTS

As Table 2 demonstrates, students uniformly "agreed" or "strongly agreed" that the objectives of this training activity were met, including objectives regarding teamwork and communica-

**Table 2: Overall Simulation Assessment**

	SA		Agree		Neutral		Disagree		SD		WA	
	N	%	N	%	N	%	N	%	N	%	N	%
The objectives for this event were met	68	96	3	4.2	0	0	0	0	0	0	71	5
The teamwork/communication objective was met	61	85	9	13	0	0	0	0	0	0	72	4.8
My teamwork/communication skills improved because of this experience	64	90	2	2.8	5	7	0	0	0	0	71	4.8
The learning experience was valuable	70	97	2	2.8	0	0	0	0	0	0	72	5
The debriefing and/or feedback was valuable	64	90	7	9.9	0	0	0	0	0	0	71	4.9
The experience will improve performance in actual clinic settings	65	90	6	8.3	1	1.4	0	0	1	0	72	4.9
I would recommend this event to others	64	90	5	7	2	2.8	0	0	0	0	71	4.9

Note: SA - Strongly Agree, SD - Strongly Disagree, WA - Weighted Agree

tion. Student consensus also held that instructor debriefing and feedback were valuable. Nearly 93 percent indicated that their teamwork and communication skills improved because of this experience, and 99 percent indicated that the experience would improve performance in actual clinical settings. The vast majority (97 percent) indicated that they would recommend this training activity to others. Further, 84 percent of respondents noted that the amount of time dedicated to this training activity was appropriate, and 97 percent regarded the amount of time available for debriefing and feedback as appropriate (Table 3).

**Table 3: Length of Course**

	Agree		Disagree– Too Short		Disagree– Too Long		n
	n	%	n	%	n	%	
The length of time for this event was appropriate	59	84.3	0	0.0	11	15.7	70
The length of time for the debriefing and/or feedback was appropriate	65	97.0	0	0.0	2	3.0	67

**Table 4: Two Things Students Liked or Learned from the Training Session**

Themes	Frequency (N)
How to properly don and doff PPE	31
How easy it is to become contaminated	19
How and why to follow safety protocols	16
Hands-on/Experiential aspect of activity	9
Importance of teamwork/communication	9

\*Note: Student comments may have reflected more than one theme.

Through two open-ended questions, students were asked to identify two things that they liked about, or learned from, the training session, two things that they wished the session had focused on, and/or things that could be improved. A review of responses to the first question yielded five themes from 69 participants: 31 students explicitly stated that they had learned how to properly don and doff PPE; 19 described how the simulation taught them how easy it was to become contaminated; and 16 identified the reasons for following established safety protocols and the importance of following them in hospital settings to avoid unnecessary exposure. Nine students indicated that they enjoyed the interactive, hands-on simulation, and 9 suggested that the simulation underscored the importance of teamwork and communication in accomplishing a detail-oriented task like donning and doffing PPE (see Table 4).

Results in response to the second question—two things students wished the session had focused on and/or things that could be improved (N=32)—were equivocal. Suggestions ranged from better-fitting PPE suits to strategies for balancing speed and accuracy in donning and doffing PPE to recommendations for breathing more easily while wearing layers of face protection. Several students expressed a desire to learn more about the types of equipment they would need to stay safe in different healthcare settings and amid various contagions.

## DISCUSSION

In summer 2018, approximately 80 SHPEP participants at UAB received online and in-class instruction about properly donning and doffing PPE in a simulated healthcare setting. Their responses to questions about healthcare safety, guidance for properly donning and doffing PPE, and strategies for minimizing exposure suggest that the training addressed the major goals of the course: to teach students how to follow health protocols, mitigate risk, communicate within teams, and protect health worker safety, skills that emerging health professionals can use throughout their careers.

Despite overall positive student ratings and reflections, the evaluation has certain limitations. Results are based on a small sample of students from one university at a single point in time. They may not reflect all student experiences and cannot be generalized beyond those who completed the donning-and-doffing simulation. Finally, they depict student experiences with only one training module within the larger SHPEP curriculum and do not represent student satisfaction with the overall program or program efficacy.

Nevertheless, we have sufficient evidence to suggest that students found the donning-and-doffing simulation instructive, meaningful, and engaging. For many, this training was their first opportunity to confront and prepare for the serious and often overlooked problem of healthcare worker safety (Krein et al., 2018). By using the actual equipment and protocols associated with biosafety and containment of biological hazards and rotating students through several simulations in different roles, this experiential activity influenced student learning in ways that classroom learning alone could not achieve.

To meet the demands of an increasingly diverse healthcare workforce, programs and opportunities for underrepresented students must educate and engage them in meaningful learning experiences. Healthcare simulations provide opportunities for novice and expert learners to develop, improve, and maintain competence in an environment that is safe, congruent with best practices in the field, and purposeful in mitigating the effects of time and chance. The simulation we described in this article provides a compelling example of how to connect underrepresented student trainees with their desired fields of practice and present real-life health scenarios without endangering students' health and well-being. While the specific activity focused on minimizing healthcare workers' exposure to biohazards, simulations can be used in hospitals and other healthcare settings to address virtually any training need. Furthermore, researchers have suggested that hands-on activities like simulations may influence self-efficacy and professional role confidence among underrepresented students across the sciences (Duffus et al., 2014; Lightfoote et al., 2016).



## CONCLUSION

The donning-and-doffing training session conducted by instructors with the Deep South Biosafety Worker Training Program introduced underrepresented students in SHPEP to valuable biosafety skills and familiarized them with the concepts of simulation and IPE. As demonstrated in the research literature, hands-on, inquiry-based learning can help students maintain motivation and interest in pursuing their career goals (Boekeloo, Jones, Bhagat, Siddiqui, & Wang, 2015). Recruiting and retaining underrepresented students in the health professions in the United States will require such intentionally designed curricula. We believe that healthcare simulations that scaffold student learning, encourage reflective practice, and model the increasingly interdependent nature of healthcare delivery begin to answer the call to diversify our nation's healthcare workforce.

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# Impact of Physical and Occupational Therapy Interventions on Health-Related Quality of Life in Patients Receiving Treatment in a Pro-Bono Clinic: A Pilot Study

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Nancy Smith, PhD, DPT<sup>1</sup>, Hamdy Radwan, PT, PhD<sup>1</sup>, Heidi Petro, DPT<sup>1</sup>, Paula Ibe, DPT<sup>1</sup>, Elizabeth Fain, EdD, OTR/L<sup>2</sup>,

**Author Affiliations:** <sup>1</sup>Department of Physical Therapy, Winston-Salem State University, Winston-Salem, North Carolina <sup>2</sup>Department of Occupational Therapy, Pfeiffer University, Misenheimer, North Carolina

**Corresponding Author:** Nancy Smith, Department of Physical Therapy, Winston-Salem State University, Winston-Salem, NC 27110 ([smithna@wssu.edu](mailto:smithna@wssu.edu))

## ABSTRACT

Research has shown that physical therapy (PT) improves health-related quality of life (HRQOL). However, studies on how pro-bono PT affects HRQOL for people of low socio-economic status are limited. This mixed-method, sequential, prospective pilot study aimed to discover how pro-bono PT provided in a student-run clinic affected clients' HRQOL. First, quantitative data were collected using Short Form Health Surveys (SF-36s) at baseline and follow-up visits to assess changes in HRQOL. Second, participants were purposefully sampled for qualitative interviews to detect reasons for improvement or lack thereof in SF-36 scores. Although no significant difference was found between baseline and follow-up SF-36 scores, qualitative data revealed factors explaining changed perceptions of HRQOL including the benefit of therapy services and the need to implement more consistent scheduling practices.

**Keywords:** ■ Health-Related Quality of Life ■ Physical Therapy ■ Pro Bono Clinic

## INTRODUCTION

Many adults face daily physical challenges due to participating in activities of daily living, such as work, childcare, and homemaking. These challenges can lead to musculoskeletal pain and symptoms (Sandberg et al., 2012; Strazdins & Bammer, 2004; Weigel, Armijos, & Beltran, 2014). One in two Americans over the age of 18, 126.6 million people, live with musculoskeletal conditions that cause pain, debilitation, and diminished quality of life, activity, and productivity (United States Bone and Joint Initiative (USBJI), 2015). Despite the pain, most people continue to perform their daily activities, but sometimes, musculoskeletal symptoms are so aggravating that someone may lose one day of work or more (Yelin & Callahan, 1995). Millions of adults report being unable to perform one common daily activity, such as walking or self-care, without assistance because of pain. Treatment, assistance, and lost wages account for billions of dollars annually, taking a costly toll on individuals and society (USBJI, 2015).

As a result, assessing how musculoskeletal pain and symptoms affect individuals' perceived health-related quality of life (HRQOL) is important. HRQOL demonstrates the perceived impact of daily conditions on health and emotional well-being (McPhee & Lipscomb, 2009; Weigel, Armijos, & Beltran, 2014). From a physical standpoint, perception of poor physical health often leads to long-term activity limitation, decreased physical activity, sleep disturbances, increased stress, and physical fatigue. From a psycho-emotional standpoint, perception of poor quality of life, disability, or inability to function often results in pain-related fear, anxiety, activity avoidance, and depression. Those living with pain often engage in fewer leisure activities and social outings with friends and family (Tüzün, 2007). Addressing HRQOL through healthcare interventions, such as physical therapy (PT), can ameliorate these impairments and reduce their impact on the individual and society.

Studies show that PT can improve HRQOL by decreasing pain (Di Fabio & Boissonnault, 1998; Holm, Risberg, & Steen, 2005). When not limited by pain, people can perform their daily activities with increased ease, satisfaction, and perceived overall health (Holm et al., 2005). Studies also demonstrate that even after PT is discontinued, its effects can improve HRQOL (Tsao, Leu, Chen, & Yang, 2005).

Unfortunately, many people with musculoskeletal disorders have no access to PT. People of low socioeconomic status may not have access to medical services overall and therefore go untreated (Carter & Rizzo, 2008). Individuals with musculoskeletal pain are especially affected by lack of care. Weigel et al. (2014) found that less than 25 percent of Mexican immigrant farm workers with musculoskeletal symptoms sought treatment from a medical provider. When treatment was sought, a physician, nurse, or physician assistant provided it; no patients received physical or occupational therapy for their symptoms (Weigel & Armijos, 2012). Possible reasons include lack of transportation, inability to pay, or inability to take time off work (Cooper et al., 2006).

In thinking about the disparity in treatment for musculoskeletal pain and dysfunction

among those of low socioeconomic status, we must consider how it affects their HRQOL and ability to function. Studies have shown that individuals with little household wealth have a high prevalence of chronic pain that is likely to be severe and negatively affect HRQOL. It interferes across such life domains as family, recreation, social activity, work, and essential activities of daily living (Ackerman, et al., 2005; Grol-Prokopczyk, 2017; Janevic, McLaughlin, Heapy, Thacker, & Piette, 2017).

One method to address the lack of access to healthcare for people of lower socioeconomic status is service learning, which integrates community service with the application of academic knowledge to address societal needs. Service learning has proven an effective educational approach for PT students seeking to develop clinical skills, enhance their cultural competence, and improve their professional preparedness (Black, Palombaro, & Dole, 2013; Hoppes, Bender, & DeGrace, 2005; Reynolds, 2005; Stickler et al., 2016; Wise & Yuen, 2013). Participating in service learning—specifically, a student-run, pro-bono clinic—has proved a meaningful experience for PT students, who develop ownership and leadership skills and improve their clinical and administrative skills (Black et al., 2013). Exposed to patients from different cultural backgrounds, they become more effective in interactions and develop professional behavior, cultural sensitivity, and respect for differences (Reynolds, 2005). Finally, they improve their mastery of the American Physical Therapy Association's core values—altruism, compassion, and integrity—after participating in a community-based service-learning experience (Wise & Yuen, 2013). The beneficial impact on student preparation is apparent. However, the impact of receiving PT services from a student-run, pro-bono clinic on patient outcomes and HRQOL is less evident.

Few studies report the outcomes of PT service learning programs to the underserved community, particularly in relation to HRQOL measures. Stickler et al. (2016) performed a retrospective study analyzing the effectiveness of a student-run PT clinic. Although significant improvements were found in patients' overall physical health status and pain, the study had a small sample, was limited to a specific community, and did not include Spanish-speaking patients. Cuesta-Vargas et al. (2013) performed a prospective-cohort study to determine the impact of multimodal community-based PT interventions on HRQOL in patients living with musculoskeletal pain. After completion of the PT program, patients' self-reported outcome measures of general health state and HRQOL improved significantly. However, the study was limited to a population from a specific region of Spain.

Further research is clearly needed to evaluate the effectiveness of community-based PT services in improving HRQOL. Therefore, this study was designed to determine the impact of physical and occupational therapy interventions on HRQOL in patients receiving treatment in a pro-bono, community-based clinic affiliated with a state-supported university in the southeastern United States.

## METHODS

The study was approved by the university's Institutional Review Board for the Protection of Human Subjects. It is mixed-methods, prospective pilot study implementing an explanatory sequential design with two phases. The first phase consists of quantitative data collection and analysis; the second phase consists of qualitative data collection and analysis. Language interpretation services were provided to participants who did not speak English as their primary language.

### Study Location

The study was conducted in a pro-bono clinic in an intercity Community Care Center near the university. The patient population primarily comprised families who were not eligible for federally financed health insurance and could not afford private insurance. Co-located within the pro-bono clinic is a student-run, pro-bono PT and occupational therapy (OT) clinic. It provides a service-learning opportunity for PT and OT students to practice their clinical skills and interact with patients from different cultural backgrounds, while providing needed services to the underserved community.

### Participant Description

The patients at the Community Care Center seek PT for a wide variety of conditions, primarily related to chronic musculoskeletal pain. Low back pain, neck pain with radicular symptoms, frozen shoulders, carpal tunnel syndrome, osteoarthritis, and knee pain are common conditions treated by students at the center. Participant demographics are described with the results.

### Study Procedures

After informed consent was obtained, each participant was involved in phase 1. Individuals were then purposefully selected from the total group to participate in phase 2 based upon changes in HRQOL.

**Phase 1:** Study participants were recruited from regularly scheduled PT and OT patients at the Community Care Center. Before phase 1, each interested patient was given a description of the study that outlined its purpose, methods, procedures, and expected duration. Those who elected to participate completed a written voluntary consent form.

At the beginning of the first appointment, each participant was asked to complete the Short Form Health Survey (SF-36), developed by the RAND Corporation, which includes

eight scaled scores concerning HRQOL. The sections address vitality, physical functioning, bodily pain, general health perceptions, physical role functioning, emotional role functioning, social role functioning, and mental health. Higher scores indicate less disability (RAND, n.d.). The SF-36 has been shown to be reliable and valid, with good sensitivity to change, in both English and Spanish, and in a variety of sample populations (Arocho, McMillan, & Sutton-Wallace, 1998; Ayuso-Mateos, Lasa, Vázquez-Barquero, Oviedo, & Diez-Manrique, 1999; Jenkinson, Wright, & Coulter, 1994; Lyons, Perry, & Littlepage, 1994; Mchorney, Ware, & Raczek, 1993; Peek, Ray, Patel, Stoebner-May, & Ottenbacher, 2004; Ware & Sherbourne, 1992).

After completing the SF-36, each participant received the standard of care, or care that is consistent with nationally recognized PT guidelines, provided by graduate students in the university's Doctor of Physical Therapy or Master of Science in Occupational Therapy programs. The patient was then scheduled for the first available follow-up appointment. The SF-36 was administered at the beginning of at least one and at most five follow-up appointments. A PT student was available as needed to answer questions about completing the SF-36. All communication and documentation were presented in either English or Spanish, depending on the participant's primary language.

Data were analyzed using IBM SPSS Statistics version 22. Since most participants completed an SF-36 on their first and second visits, we collected data based on those two visits only. Descriptive statistics were used to report demographic information. Paired *t*-tests and repeated measures ANOVA were used to compare baseline and follow-up SF-36 data. Significance was assessed using an alpha level of 0.05.

**Phase 2:** Purposeful sampling was based on changes reported in the HRQOL questionnaire. All participants were categorized as: those who experienced improvement from physical and/or occupational therapy and those who did not, and two in each category were selected for qualitative interviewing. Interviews took place via telephone at a location convenient to the participant and assessed HRQOL using a predetermined questionnaire. Questions during the semi-structured interview inquired about the patient's expectations, perceived benefits, and satisfaction with the therapy received at the Community Care Clinic (CCC), with follow-up questions to clarify the participant's response. Specific follow-up questions asked whether the participant would continue use of the PT or OT services and recommend them to others and why. Interviews could be conducted in Spanish. If a participant did not answer the phone or did not want to be interviewed, another participant in the same category was selected and interviewed. Each interview was audio-recorded, translated into English, if necessary, then transcribed. Once the interviews were transcribed, the data were analyzed using an inductive coding methodology that included coding, axial coding, and establishing the themes of the responses (Creswell, 2015).

To improve the trustworthiness of these qualitative findings, each interview was member checked to ensure that the transcribed interviews accurately represented what the participants



**Table 1: Participant Demographics**

<i>Characteristic</i>	<i>Frequency (n = 14)</i>	<i>Percent (%)</i>
Gender		
Female	9	64.3
Male	5	35.7
Language Spoken		
English	8	57.1
Spanish	6	42.9
Discipline		
PT	13	92.9
Both (PT and OT)	1	7.1

wished to convey. Further, each researcher interpreted the data and performed a peer debrief to increase the reliability of interpretation. After data analysis was completed, the data were member checked a second time to ensure the themes derived were congruent with what the participants wished to convey.

## RESULTS

This study recruited 31 participants; 16 were excluded because they completed the SF-36 only at baseline and not at follow-up. One participant withdrew due to the length of the SF-36. Thus, baseline and initial follow-up SF-36 data were analyzed for 14 participants. Tables 1 and 2 show their demographic data. Nine (64.3 percent) were women, and five (35.7 percent) were men; eight (57.1 percent) were English-speaking, and six (42.9 percent) were Spanish-speaking. Thirteen participants received PT services only, and one received both PT and OT. The average number of appointments per participant was 2.8. Their average age was  $49.5 \pm 7.8$  years, and ages ranged from 38 to 63 years.

No significant change was found between baseline and initial follow-up SF-36 total scores nor for any of the subsections (see Table 3). We found no significant differences based on gender ( $p = 0.428$ ) nor primary language spoken ( $p = 0.076$ ).

The four patients selected for qualitative interviews were the two whose SF-36 scores increased the most (+525 and +440) and decreased the most (-690 and -190) from baseline to initial follow-up. Their referring diagnoses all differed but could be grouped into two categories: acute and chronic pain. The two in the acute category experienced the increase in their SF-36 score, while those suffering chronic pain experienced the decrease.

**Table 2: Participant Descriptive Statistics**

<i>Characteristic (n=14)</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Minimum</i>	<i>Maximum</i>
Age	49.5	7.8127	38.0	63
SF-36				
Baseline	1919.64	529.395	830	2995
Follow-up	1946.07	443.826	1035	2460

Table 4 outlines the themes identified from interview analysis. Prior to initiating therapy, most participants were unsure what interventions they would receive. One reported that he expected a massage. All of the participants performed exercises and/or stretches during their sessions and were instructed to perform them as a home exercise program. The improvement group perceived that they improved greatly from therapy, while the group that did not improve perceived little to no benefits from therapy. The improvement group perceived the staff as kind and helpful. All of the participants reported that they would recommend the CCC's PT or OT services to others and that they wished appointments were more frequent and available.

## DISCUSSION

No significant change in SF-36 data was found between baseline and initial follow-up, which may be attributed to inconsistent scheduling practices at the CCC, the time interval between the sSF-36 data collections, or the small sample size. Due to high patient volume and limited appointment slots, study participants averaged 2.8 appointments during the four-month period of data collection. Therefore, only baseline and initial follow-up SF-36 data were analyzed, which limited the time for any change to occur. Consistently attending appointments and following prescribed advice and exercises are important for improving patient outcomes through physical therapy. Decreased medical adherence is linked to the consequences of prolonged medical care and the need for repeated bouts of treatment that would otherwise be unnecessary (Rizzo, 2015). In addition, qualitative data revealed that all of the interviewed participants expressed a desire for more consistent and frequent scheduling. They reported that they did not want to stop therapy and believed that with more sessions, they would have experienced significant changes in outcome (Table 4). Patient HRQOL, as measured by the SF-36, might have changed more if follow-up visits had been more frequent and if the analysis had been performed on data spanning several follow-up visits. Based on these results,

**Table 3: Paired Samples Test**

		Paired Differences				t	df	Sig. (2-tailed)
		Mean	Standard Deviation	95% Confidence Interval of the Difference				
						Lower	Upper	
Pair 1	Pre_Total - Post_Total SF 36 Scores	-26.429	320.099	-211.248	158.391	-.309	13	.762
Pair 2	Pre Physical Functioning: Post Physical Functioning	-1.0714	12.7368	-8.4254	6.2826	-.315	13	.758
Pair 3	Pre Physical Role Post Physical Role	-10.71429	35.72974	-31.34402	9.91545	-1.122	13	.282
Pair 4	Pre Emotional Role Func- tioning: Post Emotional Role Func- tioning	-14.8810	31.0394	-32.8026	3.0407	-1.794	13	.096
Pair 5	Pre Energy: Post Energy	1.87500	16.14053	-7.44427	11.19427	.435	13	.671
Pair 6	Pre Mental Health: Post Mental Health	3.2857	15.9056	-5.8979	12.4694	.773	13	.453
Pair 7	Pre Social Role Func- tioning: Post Social Role Functioning	3.0357	18.7129	-7.7688	13.8402	.607	13	.554
Pair 8	Pre Bodily Pain: Post Bodily Pain	1.2500	21.5895	-11.2154	13.7154	.217	13	.832
Pair 9	Pre General Functioning- Post General Functioning	6.4286	12.3146	-.6816	13.5388	1.953	13	.073

**Table 4: Patient Perceptions Before and After Receiving Therapy**

<i>Inductive Theme</i>	<i>Supporting Statements from Improvement Group</i>	<i>Supporting Statements from No-Improvement Group</i>
Improvement group had acute pain, while the no-improvement group had chronic pain/diagnoses	<p>“I had a dislocated elbow.”</p> <p>“I had problems with my knee.”</p>	<p>“I was diagnosed with fibromyalgia several years ago . . .”</p> <p>“I had back pain in the night . . . I crashed five years ago, I had a car crash.”</p>
Patients were unsure of the interventions that would be performed in therapy	<p>“I didn’t know until I went there.”</p> <p>“I didn’t have any idea what they were going to do.”</p>	<p>“I’d never done PT before.”</p>
Patients received stretches and exercises as their treatment	<p>“They did some stretching . . . They introduced exercises that I needed to do.”</p> <p>“They made me do some exercises. They gave me homework to do.”</p>	<p>“They showed me some stretches and exercises . . .”</p>
Patients experienced improvements in function from therapy, but the improvement group experienced more benefits than the no-improvement group.	<p>“I think it’s a great place to have. I would recommend it.”</p> <p>“A lot of things helped, like I can do more stuff.”</p> <p>“They do so well, they do good.”</p>	<p>“It has helped some . . . I can keep it [spasms] under control a little bit better after they showed me a few exercises.”</p> <p>“I’m still having some problems with my calves.”</p> <p>“No [the exercises] do not help me.”</p>
Patients in the improvement group perceived the staff as kind and helpful.	<p>“ . . . Being there gave me encouragement to try and do the therapy.”</p> <p>“I feel good talking to them.”</p>	N/A
Patients reported that they would recommend PT or OT at the CCC to others.	<p>“I would recommend it. The staff, like I said, was just outstanding.”</p> <p>“Yes. Definitely yes.”</p>	<p>“Yes. Well, because it’s free there. They help people.”</p>
Patients desired increased availability of appointments and increased frequency of sessions.	<p>“I needed a little bit longer therapy.”</p> <p>“I would have loved to come three days out of the week.”</p> <p>“They’re only there limited times.”</p>	<p>“I needed a little bit longer therapy.”</p> <p>“It wasn’t that I wanted to stop . . . They couldn’t fit me into the schedule again for six weeks.”</p>

an important implication for clinical practice is that pro-bono clinics should ensure that appointments are more frequently and consistently scheduled.

The study found no significant changes in baseline and follow-up responses to any of the subsections of the SF-36. However, some participant perceptions may not have been captured quantitatively. For example, even though they were not asked specifically about this topic, participants who reported improvements perceived the staff as kind, helpful, and encouraging, which may indicate that the physical therapist's compassion may have a lasting impact on participant outcomes. Positive outcomes may result from positive social interaction between the participant and student therapist (Ambady, Koo, Rosenthal, & Winograd, 2002; Stewart, 1995).

In addition, all the interviewed participants reported that they would recommend the therapy services offered at the CCC. The improvement group may have been responding to both the social interaction with the student therapist and the perceived benefits of therapy. The group that did not improve may have recommended the services because, although they perceived little-to-no benefit from therapy, the sessions provided someone to talk to about their pain. Good communication, empathy, and compassion have been linked to patient satisfaction and a positive patient experience (Lang, 2012).

Finally, the interviewed patients who did not report improvements from baseline to follow-up had chronic conditions, while those who improved reported acute conditions as the reason for seeking therapy services. Compared to acute conditions, chronic conditions are less likely to improve and present more complex treatment challenges and worse prognoses (Beattie, Silfies, & Jordon, 2016). Patients attending the CCC for therapy services present with a wide range of diagnoses and impairments and often have several comorbid conditions. This study did not track the referring diagnosis for participants who were not included in the qualitative interviewing. Further research should investigate the relationship between the referring diagnosis and SF-36 outcomes.

Limitations of this study should be considered when interpreting the results. The sample size was small and represented a specific inner-city community in the southeastern United States. Inclusion criteria limited qualified subjects because the initial and follow-up visits had to occur during the study timeframe. Although 31 participants were recruited, only 14 returned for follow-up appointments during the study timeframe. Future research should investigate why participants did not return for follow-up. Lack of follow up might be explained by inconsistent scheduling practices at the CCC, patients' perception that therapy would not benefit them, or patients' perception that they had improved so much, they felt they no longer needed therapy services.

Another limitation of this study was that it used two different versions of the SF-36 to obtain quantitative data. The English-speaking participants completed version 1 of the SF-36, while the Spanish-speaking participants completed version 2. Both versions ask the same questions, but the English version has nine questions that include more answer choices than

the Spanish version does. Although language had no significant effect on improvement in SF-36 score, we do not know whether the different versions of the SF-36 had an effect.

## CONCLUSION

This study provides an assessment of patient outcomes at a student-run, pro-bono clinic providing physical and occupational therapy services. To improve patients' HRQOL, this study suggests that consistent scheduling practices, providing care with kindness and compassion, and determining whether the condition is chronic or acute are important factors to consider when choosing the most effective interventions to implement.

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# Time to Reconsider the Word Minority in Academic Medicine

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Sylk Sotto-Santiago, EdD, MBA, MPS<sup>1</sup>

**Author Affiliations:** <sup>1</sup>School of Medicine, Indiana University, Indiana

**Corresponding Author:** Sylk Sotto-Santiago, Department of Medicine, Indiana University School of Medicine, Indianapolis, IN 46202 ([ssotto@iu.edu](mailto:ssotto@iu.edu))

As a Latina who has been in higher education and academic medicine for 19 years, I have always felt uncomfortable with the word *minority*. It felt like a label, a judgment about my background, my education, and my accomplishments. I was troubled by the use of the word in combination with such significant milestones as earning a scholarship or professional development opportunities. While I applaud all such efforts, I worry about the impact of prefacing accomplishments with the word *minority*. I struggled with but accepted the words *underrepresented minority faculty* in my own dissertation because that is the term academic medicine uses. My doctoral program afforded me time to reflect on my own experiences and the sociopolitical construction of education. It gave me an opportunity, not only to reflect on this term, but to guide my own scholarship and career. The time has come for academic medicine to reach a consensus about adopting terminology that promotes inclusivity rather than inadvertently triggering marginalization of groups who have much to offer in terms of scholarship, varied perspectives, and ensuring that the U.S. population is adequately represented.

**The Meaning of Words:** The Merriam-Webster dictionary (2019) defines a minority as “group of people who are different from the larger group in a country, area, etc., in some way, such as race or religion.” Based on this definition, addressing marginalized and underrepresented groups in medicine as minorities makes sense. However, in a study about the experiences of Black and Latinx faculty in academic medicine, when I asked participants about their identity, not a single person self-identified first with the word *minority*. In fact, socialization into the academy seemed to force this added identity layer into an already complex intersectionality (Sotto-Santiago, 2017). In what follows, I will highlight four points: the concepts of “majority-minority,” minoritization, stereotype threat, and implicit bias in an ef-

fort to encourage the examination of the word *minority* in relation to medical education and professional development opportunities.

**“Majority-Minority:”** The concept of “majority-minority” has been used to describe places in the United States where racial and ethnic groups outnumber people of European ancestry, but it still implies that White Americans are the “majority.” According to the US Census, recent projections indicate that by 2050 the percentage of non-White Americans will surpass that of White Americans. Society has received this news with polarizing effects, represented by those who promote the positive change in population dynamics and others who feel the threat, either consciously or unconsciously, of losing status and privilege. Currently, the US population is an estimated 18.3 percent Hispanic and Latinx, 13.4 percent Black and African American, 1.5 percent American Indian/Native Hawaiian/Alaska Native, and 5.9 percent Asian (US Census Bureau, 2019). The word *minority* might not be relevant by 2050, at least in the same racial and ethnic context that we know today.

In numerous professional fields—education, law, dentistry, and medicine—the disparities between racial and ethnic groups’ representation is at odds with their percentage of the US population. For example, the percentages of medical school graduates by race and ethnicity have remained stubbornly stable. In 2015, medical school graduates were 5.7 percent Black or African American and 4.6 percent Hispanic or Latinx. Black or African Americans represented 6.1 percent of matriculants. Hispanic or Latinx graduates show a more significant gap between matriculation (8.5 percent) and graduation (4.6 percent). Furthermore, in 2015, only 4 percent of full-time faculty identified as Black or African American, Latinx or Hispanic, Native American or Alaska Native, or Native Hawaiian or Pacific Islander women (AAMC, 2016). In a “majority-minority” society, these numbers indicate marginalization and/or underrepresentation in higher education and academic medicine.

Given the projected shifts in the racial and ethnic composition of the United States and our current sociopolitical challenges, plagued by white supremacy and racist nativism, we must revisit what it means to be labeled as a “minority” in academic medicine (Pérez Huber, 2016).

**Minoritization:** Minoritization recognizes that systemic inequalities, oppression, and marginalization place individuals into “minority” status rather than their own characteristics. These systems sustain the overrepresentation and dominance of historically privileged social identities (Harper, 2009; Hoffman & Mitchell, 2016). The use of the term by scholars in higher education as “minoritized” students and “minoritized” faculty acknowledges the understanding that *minority* is socially constructed (Benitez, 2010; Stewart, 2013).

For example, faculty scholars have shared their experiences with racism, discrimination, and microaggression; cultural taxation and tokenism; bias in recruitment, promotion, and tenure; and challenges to their credibility and expertise (Chesler, Young, & Beale, 2013; Eagan & Garvey, 2015; Joseph & Hirshfield, 2013; Steele & Aronson, 1995; Sue et al., 2007; Turner, Gonzalez, & Wood, 2008). Specifically, in academic medicine, minoritized faculty are expected to maintain top-notch research or service programs while shouldering the burden of all diversity programming, forms of tokenism, and cultural taxation that majority

scientists do not have to face (Smith, 2015; Tierney & Bensimon, 1996). Few faculty development programs share and discuss the socio-organizational skills required to navigate academic medicine or the ability to resist and persist in an environment that feels foreign regardless of tenure. Programs are seeking individuals from diverse backgrounds but prefer that they behave exactly like the majority, minimizing aspects of their race, including language, clothes, style, and ways of interacting, in order to “fit in” (Dennery, 2006; Sotto-Santiago, 2017).

**Stereotype Threat:** We should also consider the concept of stereotype threat, which refers to the fear of confirming a negative stereotype about our own social group in our words or deeds (Steele & Aronson, 1995). Steele and Aronson demonstrated that Black college students performed more poorly on standardized tests than White students when their race was emphasized. When race was not emphasized, Black students performed better and at the same level as White students. These results show that academic performance can be harmed by the awareness of negative stereotypes about our social group. Educational research has consistently demonstrated the effects of stereotype threat and labels. Labels shape educator expectations, already plagued by implicit and/or unconscious bias. Labels send messages and perpetuate inequities in academia and society (Gonzales, Blanton, & Williams, 2002; Marx & Stapel, 2006; Spencer, Steele, & Quinn, 1999; Steele & Aronson, 1995).

Studies have demonstrated the impact of stereotype threat, including gender, in academic medicine (Burgess, Joseph, van Ryn, Carnes, 2012). Fassiotta et al. (2016) found that stereotype threat plays an important role in the underrepresentation of women in leadership positions in academic medicine. They propose measures to reduce the risk, such as (1) introducing the concept of stereotype threat to the academic medicine community; (2) engaging all stakeholders to promote “identity safety” and performance feedback that addresses gender bias; (3) increasing exposure to successful female leaders; (4) reducing gendered criteria for promotion, grants, and awards; and (5) building leadership efficacy among female physicians and scientists. These recommendations may also be applied to minimize stereotype threat among underrepresented medical students, trainees, and faculty members.

Other studies have looked at stereotype threat in medical education in the context of minoritized patients and the Asian and Asian American model-minority myth (Ibakari, Hall, Nagayama, & Sabin, 2014). In 2014, the Association of American Medical Colleges (AAMC) hosted a webinar, “Mitigating Stereotype Threat in Medical Education.” Dr. Nakae offered interventions, such as breaking identity threat links, fostering a sense of belonging, focusing on a growth mindset, using role models, and setting equal expectations (Nakae, 2014). Other scholars have included self-affirmation and emphasis on motivation and effort (Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009; Forbes & Schmader, 2010; Martens, Greenberg, & Schimel, 2006). However, more research and praxis are needed to investigate the impact of stereotype threat in medical education and faculty development. The very first step might be deconstructing the word *minority*.

**Implicit Bias:** Implicit social cognition describes processes that occur outside of con-

scious awareness or control in relation to social and psychological constructs, such as attitudes and stereotypes (Greenwald & Banaji, 1995). Today, implicit or unconscious bias refers to attitudes and behaviors centered on stereotypes that affect our actions. We may harbor feelings and attitudes about others based on their race, ethnicity, gender, and/or appearance and our own background, culture, and experiences. Numerous studies have looked at implicit bias in contexts ranging from healthcare professionals to orchestras. Examples in academic medicine suggest understanding the reasons for and addressing bias in all aspects of medical education, including definitions of medical student success, the selection process for  $\Lambda\Omega\Lambda$  membership, evaluation of letters of recommendation for residency, assessment of physician-patient relationships based on patient satisfaction, and evaluation of applications for faculty positions (Boatright, Ross, O'Connor, Moore, & Nunez-Smith, 2017; Filippou et al., 2019; FitzGerald & Hurst, 2017; Sotto-Santiago, Slaven, & Rohr-Kirchgraber, 2019; Tori, Sotto-Santiago, Sharp, & Mac, 2019).

Moreover, studies have shown that minoritized groups have had success by “whitening” their résumés. Applicants are deleting references to their race in hopes of boosting their employment prospects (Kang, DeCelles, Tilcsik, & Jun, 2016). Even when the qualifications listed were identical, “whitened” résumés fared much better than those that included ethnic information. Organizations that value diversity in their mission statements were not exempt; applicants get the false impression that revealing their race/ethnicity is safe, only to fare poorly. Participants in this type of study have reported deleting prestigious scholarships or involvement in nationally recognized professional societies because these achievements highlighted their racial identities (Dover, Major, & Kaiser, 2016; Kang, DeCelles, Tilcsik, & Jun, 2016). Some applicants may be hiding their “minority” scholarships and participation in “minority” organizations because of the perceived bias of reviewers. The perceived need to hide or mask accomplishments demeans the full value of our faculty, students, and trainees.

Today, explicit bias in academic medicine and health systems is especially pervasive. It can be characterized by overt racism, discrimination, and negative attitudes expressed in different forms. Further, while renewed acceptance of, and comfort in, engaging racist and discriminatory behaviors have weaponized the word *minority*, they have also elevated ally awareness and provided opportunities for minoritized academic and healthcare workers to speak openly about their experiences and articulate the need for more inclusive environments.

In a future “majority-minority” society, the word “minority” may not hold the same meaning as it does today. What term will be chosen? Scholars provide strong evidence that racialized cues affect academic performance. Medical education can benefit from practical solutions and research propositions that remedy racial and ethnic inequities. However, addressing structural factors is also important, and institutional practices can help to counter cues that trigger stereotype threat or use deficit-centered language to minoritize groups. That first trigger might spring during recruitment or participation in professional development. The institution can foist a *minority* identity on faculty or students, adding another layer to

the already complex intersections of identities. Words matter as much as representation matters. Until the academic medicine community develops a term that adequately conveys the contributions that diverse groups bring to the table, I propose that we consistently use the term “underrepresented groups in medicine” or “minoritized students” and “minoritized faculty” for now. We should eliminate the use of *minority* in recognition of its negative impact on scholarship and well-being and the power it has to marginalize those who offer needed value to medicine.

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# “Everybody Has a Purpose”: A Conversation with Rev. William Kearney

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JoAnn Banks, PhD, RN<sup>1</sup>

**Author Affiliations:** <sup>1</sup>Division of Nursing, Winston-Salem State University, Winston-Salem, NC

**Corresponding Author:** JoAnne Banks, Division of Nursing, 601 S. Martin Luther King Jr. Drive, Winston-Salem State University, Winston-Salem, NC 27110 ([wallacejb@wssu.edu](mailto:wallacejb@wssu.edu))

On November 5, 2018, Reverend William Kearney presented a lecture on the campus of Winston-Salem State University (WSSU), “Warren County: Telling Our Story, Building Our Future,” as part of the Creating Sustainable Communities Seminar and Speakers Series. He emphasized the need to reconceptualize environmental justice and include it as a central component of healthy communities. The desire to have a fuller discussion about environmental justice and its implications for developing a diverse healthcare workforce were the impetus for this interview, conducted and transcribed by Dr. JoAnne Banks in the library of the Warren County Courthouse. Rev. Kearney was born and raised in Warren County, a rural area in eastern North Carolina on the Virginia border with 19,000 to 20,000 residents. A summary of key points follows the interview. It combines the main points that Rev. Kearney wanted readers to get from the interview and major ideas that stood out for Dr. Banks in reviewing the transcript.

**Dr. Banks:** For the record, for all the people, I am so excited. All the way over here I was like, “Yes! I get to interview Rev. Kearney!” I have a series of questions that the team came up with collectively, but before we do that, could you just start with who you are? Is this your home? I saw Kearney on the way here. Are you related to the city of that name?

**Rev. Kearney:** Oh, Kearney—that’s between Warrenton and Louisburg in Franklin County. I think it might be named after a White family, but they might be connected to the Kearney family plantation. There were plantations here in Warrenton and adjacent Halifax County. Many of our ancestors were enslaved by William Kitchen Kearney and his relatives. That’s where a lot of us got our surname. Welcome to Warren County.

**Dr. Banks:** Thank you.

**Rev. Kearney:** Yes, I was born and raised in Warren County, not too far from here, about six miles south of the town of Warrenton, in the Shocco Springs community. My mother's parents lived on one side of us, and my father's relatives lived on the other side of us, so I call it a gated community because we were surrounded by family, extended family, and neighbors who were really supportive. It was a Black community, and we were really skilled at taking care of ourselves—farming, gardening, taking care of ourselves as far as protecting ourselves from outside influences. I didn't realize the world was so cold until I left and went to Washington, DC. We were really blessed by the manner in which we were raised.

**Dr. Banks:** So you went all the way through high school here?

**Rev. Kearney:** Right. I went to Coley Springs Elementary School, which was probably two miles away from where we lived in the Schocco Springs community. In 1965, Coley Springs Elementary School closed, and we went to South Warren Elementary School, a new school about a mile away from my home. I went to the seventh grade there, and then I transferred to John R. Hawkins High, one of Warren County's two African-American High Schools, located in Warrenton. John R. Hawkins closed in 1969, the year I graduated, so I was there to close both the elementary school and the high school. In '69, I moved to Washington, DC, where I became a police cadet on the Washington, DC, Metropolitan Police Department. I served there as a sworn police officer from 1970 until 1982, when I resigned after receiving my call to ministry.

**Dr. Banks:** Why DC?

**Rev. Kearney:** During the time I was in high school and graduated, the Vietnam crisis was happening. Both of my brothers went into the Air Force. One of my brothers told me to join the DC force to get a deferment until I figured out what I wanted to do with my life, so I joined the police force as a quasi-military opportunity to get a deferment. so I would not have to go to Vietnam.

**Dr. Banks:** Then you said you got your call to ministry. You went there in '69?

**Rev. Kearney:** '69. I was a police cadet for a couple of years, after which I graduated from the DC Metropolitan Police Academy and was sworn in as police officer and served there until 1982. In 1981, I realized I had a calling on my life. I knew that I had to give up police work and follow the calling. 1982 is when I moved back to North Carolina. I came back to Warrenton. I did a variety of things, from working with the Franklin-Vance-Warren Head Start

Program, [and] for two years, I volunteered at the Lighthouse Christian Fellowship Outreach Ministry, which was located in Vance County, adjacent to Warren County. As a volunteer at the outreach ministry I did whatever needed to be done. While there, I began to have visions about working with people around the whole person—spirit, soul, and body—because so many people I knew in the faith community were very spiritual, but they weren't taking care of their health. Fellowship to many meant eating. Fellowship was chocolate cake, pies, fried chicken, potato salad. I wanted to help people see that we needed to take care of our health.

**Dr. Banks:** Ok, so that's kind of an unusual path for a minister to take. How did that come about? I mean, was that part of your vision as well when you said you had a calling, or did that develop in the process of ministering to people?

**Rev. Kearney:** When I received my calling, my initial vision was to come back to NC. I prayed; I said, "Lord, I need to know more." And He said, "No, you need to do it by faith." So I submitted my resignation to the police department, and I came back to NC, where I met a minister who was doing outreach ministry (Lighthouse Christian Fellowship) in Vance County.

When I surrendered my life to the Lord, I was struggling with giving up smoking cigarettes. I was delivered from my addiction to cigarettes when a preacher prayed for me. Guess what? I was delivered from cigarettes, and then I had this real addiction to food because food began to taste so good again. Fellowship meant eating. I was into church—

**Dr. Banks:** Especially if you're a minister, they want to feed you—

**Rev. Kearney:** —and I was eating, and I began to blow up, get bigger and bigger. Having walked away from my career, I didn't have a lot of money, so I said to myself either I have to lose weight or buy some new suits.

While I was working at the outreach ministry, I began to walk and to cycle. There was a local gym in Henderson that I eventually went to join, and the manager/owner knew I was into exercising, so he hired me as a trainer. Later, a friend of mine, Ben and his wife Marie, called me one day. Ben asked, "Bill, do you think God might be calling you to a ministry to help people be healthy?" I was trying to go in one direction, and they were actually seeing my real gifts and creativity. He said, "Maybe what God is calling you to do is what you're already doing." And I said, "Okay, God, that's what it is."

I lived in Henderson from '82 till 'bout '86, then I moved to Durham, NC. I was working in a men's clothing store and went to one of the fitness facilities there in Durham called Metro Sport Athletic Club, a 24/7 fitness club near Duke University Hospital and the Veteran's Hospital. I went to join Metro Sport and got hired as a fitness trainer. I worked as a trainer from 1986 till 1995. I did one-on-one fitness training. I did pool classes. I did

group aerobics classes at Metro Sport for about a year or two before I was introduced to the Duke University Diet and Fitness Center. I was introduced to their wellness program there. I worked with the Duke University Diet and Fitness Center as a fitness consultant, group-exercise leader, motivational type of facilitator/coach. I got fitness certifications through the Kenneth Cooper Institute in Dallas, TX.

Duke University, in 1987, contracted me to help to implement a wellness program called *Live for Life* for staff/employees of Duke University and Duke University Hospital. We served about 24,000 employees total. Duke wanted to provide an intervention wellness program managed by Johnson and Johnson out of New Jersey to help improve the health of staff/employees as a way of managing costs of illness and injury-related absenteeism. So, again, somebody dropped my name. Once I said, "Lord, here I am," things like this begin to happen. I joined the team and helped facilitate the *Live for Life* Wellness Program, which has gotten lots of recognition from the state and others. I was at Duke University for about 10 years as a freelance fitness trainer/consultant.

When I surrendered to the Lord, the scripture I received was, "A man's gift makes space for him and brings them before great men." By faith, I gave up my work as a police officer. God had a course set for me. One thing led to the next thing. For 10 years, I was with Duke University as a freelance trainer. Doing quite well, too. Then things began to dry up. There were interns at the center. They put interns in those places. Some of the clients who wanted to work with me were diverted to interns. I found that my client base was quickly diminishing, and I got so angry. The Lord spoke to me, "You were only here for a season." 'Cause I wanted to lick my wounds, I wanted to feel sorry for myself, the Lord reminded me that He was pouring me from situation to situation. Every place that I served, I was acquiring skills, anointing, wisdom, but eventually, He had a place especially for me.

And so, after 10 years with Duke University, things began to dry up, so I licked my wounds, and I came back to Warren County and helped develop afterschool structured programs (Warren County Youth Services Bureau) for at-risk children. I also did some work with fitness centers in Vance County and Granville County. In 2005, I decided to go back to school and get a degree in business administration/management. I enrolled in the Shaw University CAPE program and got my degree.

In the meanwhile, while I was obtaining my degree at Shaw, I worked with our church's senior members' fellowship to help develop a fitness program focused on regular exercise and healthy eating. The seniors asked me to work with them to help them get into exercise and healthy eating. Working with the church health ministry, we began to do activities focused on healthy eating and physical activity—incorporated wellness health fairs in our annual family and friends' day, a health walk from our church to the entrance of the PCB toxic landfill that had been placed about two miles from our church.

Warren County is known as the birthplace of the environmental justice movement, so I began to engage the church and community members in eating healthy, being physically active, and being good stewards of our environment. At the same time, our statewide Baptist

association, the General Baptist State Convention (GBSC), was developing a partnership with the United Shiloh Missionary Baptist Association, Duke University, the Kate B. Reynolds Charitable Trust, and the CDC [Centers for Disease Control and Prevention] to come up with a project or program that would work with African-American churches to address obesity, diabetes, and other chronic diseases in the African-American community. My pastor (Carson. F. Jones) was attending to a GBSC conference in Charlotte and shared the health initiatives going on at Coley Springs Baptist—the work we were doing around physical activity and nutrition at our church. He was asked to share, and he asked me to put together an outline of what we were doing, and sure enough, he shared it at the conference. Our model program was the inspiration for the Faith and Health Initiative, a 5-year pilot research partnership funded by the Kate B. Reynolds Charitable Trust between the General Baptist State Convention, its nonprofit affiliate the Center for Health and Healing, Duke University, the CDC, and the United Shiloh Missionary Baptist Association. A total of four Baptist Church associations with a total of ten churches per association participated in the research project. The project was a success, and the data were documented. I became the health/wellness facilitator for the United Shiloh Association. I worked with ten churches in our association to help them build health ministries and promote prevention and intervention programs through the churches.

**Dr. Banks:** So you were doing this while you were doing the environmental justice stuff at the same time?

**Rev. Kearney:** Well, the environmental justice work came to me, really, when I really dove into it a little later. During the annual wellness and health fairs I mentioned earlier, we talked about environmental justice. We talked about the importance of being good stewards of the environment. I stressed that we are all environmentalists. We are all either doing something positive or negative for the environment by our choices. We had this pilot project called the Faith and Health Initiative, where we helped 40 churches and four associations build health ministries and focus on interventions and preventions for chronic diseases—healthcare, self-care, eating healthy, physical activity. At the conclusion of the Faith and Health Initiative is when the University of North Carolina and Shaw University—

**Dr. Banks:** Let me ask you a question before you talk about going there because—what years were you doing the 40 churches?

**Rev. Kearney:** It was 2001 to 2006.

**Dr. Banks:** Ok, because my question is, what is it that you think made that successful? Because I look at a lot of Black churches, and putting together a 40-church strategy for health and wellness—that just seems like— What do you think made that work?

**Rev. Kearney:** I think it worked because all the partners had buy-in and resources—the CDC, Duke University, Kate B. Reynolds Charitable Trust, General Baptist State Convention, the church associations and churches—all had resources and looked at a different way of investing those resources and really engaged the churches in the aims and goals of the project. From the church’s perspective, it was exciting to be given resources to help build health ministries and their capacity to make positive differences in the health of their congregations and communities. There were stipends available for the health facilitators who helped lead the effort. There were resources available to support the projects, to educate the facilitators and participants. There were workshops, trainings, and networking opportunities made available to the partners. From my perspective, many times in our churches and communities, we talk about doing great things, but we don’t always have the skills and the resources. To be successful, it is important that funders and university researchers’ research goals and objectives align with the community’s interests and desires. I think the community engagement and capacity-building aspect of this project was a major factor in its success. The Faith and Health Initiative helped traditional African-American church associations and churches build on their assets and resources as they built their capacity to be an important part of improving the health of their congregation and community.

**Dr. Banks:** Were they all ministers?

**Rev. Kearney:** No. These were mostly lay church members. Some served in church health and/or nurse ministries. The Faith and Health Initiative was exciting because there was access to resources. There were workshops. There were materials. There were incentives. The project helped members of our churches and community to see that research and partnerships don’t diminish our faith. It also helped us to see the importance of writing out our vision, writing out our goals. It helped those who say they walk by faith and think that because they visualize it, that God’s going to make it happen. To them, I say that, to me, faith and research can go hand-in-hand. A researcher has a hypothesis and says, “If I write out these steps and do this, maybe I’ll get this outcome.” But some of the people I knew in the faith community would have a dream or a vision, and they would believe that God was going to do it, and they never wrote out a plan. I would say, even if you can’t capture the whole thing (vision), at least begin to write it down. If you’re going to write it down, then you’ve got to make some changes in your behavior to proceed. I believe this partnership gave our church associations, churches, and participants some very important foundational stuff.

**Dr. Banks:** And this is all before you went back to school to get your business degree?

**Rev. Kearney:** I’m gonna have to look at my résumé. It’s amazing how many things God has put me in. Yeah, I went back to school in 2005.

**Dr. Banks:** Wow! I just love that because it's like obviously you just had a skill set, and you definitely had the risk-taking that a lot of people think doesn't happen until you get those degrees. So I think that you just really stepped on out there for real.

**Rev. Kearney:** Right. And I followed the gift. I followed. And when I went to school, I had all the practical [experience]. My portfolio was like 300 and some pages of all the certifications. Because the Lord gave me, I'm a dreamer, and I appreciate where I am now because I can have a dream and step out into it. When I was working within the faith community or organizations, you had to wait and get the committee to approve it.

**Dr. Banks:** So what made you decide to go back to school? What was it about 2005 that you said, "I think I'll add a business degree?"

**Rev. Kearney:** When I was working at Duke University, I was doing a lot of pioneering things. I helped pioneer the personal trainer and one-on-one fitness consultant, while working with the Duke Diet and Fitness Center. While working with the Duke Live for Life Wellness Program, I was on a team, and oftentimes I took on assignments in places that some of the other team members didn't care to go. I remember once my director said to me, "Bill, if you only had a degree, you could really excel." I thought, "Now, Lord, I'm following You, and I'm creating all these things. What do I do?" Because I'm following by faith, and I couldn't have learned this stuff by going to school. "This is where You've taken me."

In 2005, I had come into Warrenton because there was a tire shop just north of here, and I wanted to go and pay something. And as I was going home, this voice says to me, "Go to Raleigh." So I get in my car and go to Raleigh. I go to a shopping mall in Raleigh, and the voice says to me, "Go to downtown Raleigh." So I go to downtown Raleigh, and I found myself on the Shaw University campus. So I saw this guy walking across the campus, and I asked him, "Where is admissions?" And he says, "Is this for you or for somebody else?" I said, "It's for me." He said, "I'm Dr. Onuorah. I'm over the CAPE (adult degree program) Program." So Dr. Onuorah was the exact person I needed to see. I enrolled in the CAPE program. So I knew that God had allowed me to walk out my vision, and then He brought me to a place where I could get my degree. In the CAPE program, I received credits for my life experience (portfolio). I graduated Summa Cum Laude.

I remember having a recurring dream when I was about 10 or 11. I dreamed I had a message to give to the world, but I couldn't express it. People weren't ready to hear it. I believe that everything God allowed to happen in my life—my teens and my 20s—was to get me to where I am now. So again, I feel like Joseph. I had a dream, pursued that dream, went through all types of situations, but now I'm in a place where God is fulfilling the vision.

**Dr. Banks:** Were you still doing the work with the community while you were going to school, or did you take a hiatus?

**Rev. Kearney:** I was still doing projects. Shaw University and the University of North Carolina did a joint project called Closing the Health Disparities Gap in the African-American Community, which transitioned to the Export project. So while attending Shaw, I was working with several projects. And then the NC Division of Public Health developed a project called African-American Churches Eating Smart and Moving More. Dr. Roberson and Dr. Goldman from Shaw University worked with the state to develop a training toolkit, which was a notebook and a slide presentation on engaging the faith community. I helped facilitate the program across the state, so I got to travel across the state and got to work with stakeholders like health department staff, health providers, community leaders—facilitating the faith component of the one-day trainings. So during that time, I was doing little bits and pieces with the Closing the Health Disparities Gap in the African-American Community/Export project and the African-American Church Eating Smart and Moving More project.

The Closing the Health Disparities Gap in the African-American Community project had two phases. The first phase of the project was developing relationships with churches, helping churches establish internet access, providing computers and other resources to churches so that churches could receive information from academia and could return information to academia. And so our church and several others participated in phase 1. Each church received a computer, printer, internet access and other resources. Phase 1 entailed facilitating health-related congregational surveys. The data from the surveys was very helpful when introducing pastors and congregations to the importance of research and prevention and intervention wellness programs. The most touching and engaging survey question was one asked of the pastors, “Over the past year, how many funerals have you had, and what did they die of?” This question really helped pastors put a face on the chronic health issues in their churches and communities—made it real.

After the surveys, some of the pastors who were sort of standoffish said, “Oh, we need to be engaged.” My thought is, after pastors have prayed for people, what advice, resources, referrals do they have to give them? Some churches are closed doors when it comes to partnering with people outside their church building. From my perspective, everywhere I go, God is. Everywhere I go, I find people operate by faith. Some have faith in medicine. Some have faith in God. Faith is a principle that we all walk by. So this survey was really powerful—really getting pastors and those who were actually in leadership—sometimes pastors are not in leadership—to see the importance of being engaged in research and partnerships.

So phase 1 was equipping us to be part of the process and gathering data through surveys, and phase 2 of the Closing the Health Disparities Gap was actually implementing interventions, and so our church participated in phase 2. We applied and got a minigrant from the Robert Wood Johnson Foundation. The grant was initially \$5,000 but was reduced to \$4,700



because the foundation wanted to support an additional project. We didn't complain. As a result of our various projects promoting regular physical activity and good nutrition, many of our church community members wanted to eat healthy, be more physically active, but in Warren County there weren't too many options for that, so what I did was get a minigrant from Robert Wood Johnson Foundation to, first of all, show our church and community members that we could receive funds, and we could manage our funds. With the funds, I bought a laptop and exercise equipment—treadmills, bikes, ellipticals, weights, and resistance exercise machines. I developed a workout gym in the church basement, and we got materials around eating healthy. We got blood pressure cuffs and all of that. And for about two or three years, I did a wellness program for children, youth, and adults—we got basketballs and goals for the kids. And so I did interventions at a very grassroots level.

And from this intervention, I was able to show that our church was willing to partner with others and be an asset to our community. From phase 1, we moved into phase 2 intervention/prevention by way of a church wellness/fitness program.

And Coley Springs Missionary Baptist Church owns 55 acres of land. We had talked for years about using part of our land to grow a community garden. The garden would help provide fresh vegetables to church and community members and would also be used to teach others, young and old, how to grow their own food. So I saw an opportunity to apply for a grant through NC TraCS—North Carolina Translational and Clinical Sciences Institute. So we wrote a proposal for a \$5,000 grant to support our community garden, and when we applied, we were rejected because our vision was bigger than the purpose of the funding. We were rejected, but someone at UNC suggested we apply for the \$50,000 grant—

**Dr. Banks:** They said, “You need more money—”

**Rev. Kearney:** And so we applied for the \$50,000 grant. We got it. Not only did we get the grant, but we got a navigator at the university to help us with all the stuff we didn't understand.

**Dr. Banks:** Now was this Duke or—

**Rev. Kearney:** It was UNC-CH. And so we got a navigator and a researcher, Dr. Molly De Marko, UNC-CH Center for Health Promotion and Disease Prevention. We had several meetings. Our navigator brought in some other partners and resources for us. With the \$50K grant, we did a one-year research project called Harvest of Hope Community Garden. We used about an acre of our property to do a community garden. We were able to purchase wire fencing to secure the garden, waterline, a storage shed, garden tools, utensils, plants, seeds, and utensils for preparing our vegetables. We engaged 25 youth, 25 adults, in a one-year research project to measure the impact on physical activity, eating healthy, self-efficacy (“I-can” attitude) of engaging youth and adults in growing a garden. And within six months of that

project, we saw it was very successful, and we saw the growth in the relationship between the adult and youth—even the language changed. So Dr. Alice Ammerman, Molly De Marko, and I applied for a grant from NIH, so we could bring in three more African-American churches here in Warren County to do a larger project, and we got the grant. It was a two-year project around engaging young folk, mentoring young folk in growing their own food. We had 64 kids in this project. We divided them into four research teams.

**Dr. Banks:** Now was this high school, or where were they?

**Rev. Kearney:** It was middle and high school. I think the youngest one may have been 13, but most were high school. For two years, we had this garden project called Faith, Farming and the Future. The kids were divided into four groups, and each group was a research team. They had to do some type of survey of food issues in the county and from what they determined was an issue, develop a process to address it.

**Dr. Banks:** So did any of those young people go on to do that with their life—things related to health or wellness?

**Rev. Kearney:** I know there is one who has gone into nursing. Many of them used this experience in their portfolios.

**Dr. Banks:** I am thinking it's such a powerful experience.

**Rev. Kearney:** That's the only thing I wish was stronger. I wish we were able to follow or build on the momentum we created and be able to control that momentum or track it. All the research projects I've done thus far have been beneficial to the bigger picture, but I'd like to see it—be able to use it here more locally to leverage people. So that's my hope—that all this stuff that I've done that's really been beneficial to the big picture—how can I bring this home?

**Dr. Banks:** That's what I was thinking. It's amazing to hear you talk about the number of projects that your church and this community have been related in. The area's very tight, and so I agree with you—the tracking—because I kept thinking, “What happens at the end of these projects, or three years out from the projects?”

**Rev. Kearney:** Right!

**Dr. Banks:** So do you all still have the wellness center in your church?

**Rev. Kearney:** My greatest frustration was how to transition or bring in people to maintain what's been initiated. I've seen when it's happened historically. Those who are already in position and have resources and assets and can network, they benefit so much. When I talk to our community leaders, they talk about doing and being involved but are not willing to do what's needed to change. I don't know if it's trauma or what it is, but many of our leaders who have assets and time don't see the need to be part of the solution. Oftentimes they want you to talk about the problem. I believe that we, community leaders/organizers, need to develop five-year, ten-year, twenty-year plans. We need to understand what's happening, what's coming to our community, so we can help prepare our people for it. We need to be on the walls for our people because many of them have no idea of what's happening politically, economically. And it's been intentional over the years, to keep us disengaged. And so I feel that's been my biggest struggle—engaging others in developing and walking out a vision for our community.

Now I serve as president of the United Shiloh Missionary Baptist Association Church Union, with represents 40 African-American churches located in Warren, Vance, Granville, and Franklin Counties. I'm all over the page, I wear a lot of hats, but that's the way my life has been. When I first came back to Warrenton County, some of the preachers didn't know how to take me because I don't talk like a Baptist preacher. I don't act like one. I'm just me. So it took some years to build up credibility. Now I am respected—the community looks to me when it comes to health and partnerships and resources.

The role of the Church Union is to help build unity among the churches and to help build capacity in our churches to do greater ministry. For about two years, I served as vice-president, but now I've been president for the past two years. The Church Union theme for 2019 is spiritual transformation: new wine in new wineskins. Basically, we—the union and churches—can't continue to do the same stuff we've been doing. We talk about doing great things, but we can't keep following the same framework. I have learned to be patient—change doesn't happen overnight. I feel God called me to do this work, so when I get a little frustrated or antsy, I go on my own sabbatical.

**Dr. Banks:** It sounds like you really are clear that God called you to stay in *this* community. This is the place to do your work.

**Rev. Kearney:** Right.

**Dr. Banks:** What does your family think about this because I am assuming you still have a lot of family here?

**Rev. Kearney:** Yes, I have lots of family here. My family is really supportive. They respect me and my work. I maintain a Facebook page to help keep my family and others informed about

the projects I am working with. My Facebook page helps me bring all my work together in one place. And I had a webpage that helped me to bring these pieces together. I don't know if you've seen my Facebook page ([facebook.com/WarrenCountyEnvironmentalActionTeam](https://facebook.com/WarrenCountyEnvironmentalActionTeam))? It goes all the way back to 2011. I post pictures and projects.

In 2009, after receiving the Robert Wood Johnson Foundation grant, I was asked to come to Washington, DC, to present the wellness project we were implementing at Coley Springs Church. And they were having a workshop session on developing the framework for Healthy 2020. I was to leave Thursday but was asked to hang around and attend the workshop on Thursday afternoon and Friday. After participating in the workshop session, I was asked to present our suggested framework for Health 2020 on Friday. I was inspired to say, "The 2020 focus should be changing environments." 'Cause I saw that at our church, people wanted to eat healthy, people wanted to walk and exercise, but the environment didn't support that. So in order to have sustainable change, you have to stop focusing just on the individual but give resources to change environments.

**Dr. Banks:** Let me ask you a question related to that, and I swear I'm going to look at these [predetermined] questions at some point. [Rev. Kearney laughs.] So when you talk about being an environmentalist, it sounds like you have conceptualized that in relation to both the physical—stop polluting—environment and the structural environment and how we set that up. Is that accurate?

**Rev. Kearney:** Yeah. I think a fine example is—I reflect back to my childhood—how much I loved to be an explorer. Especially in the springtime. Going to creeks and streams and fishing out stuff. Looking at trees in the fall. So I would say that from my perspective, sometimes when people are traumatized or depressed, they don't see what's right there in front of them. So when I think about environment, I think about stewardship. I think about structure. For instance, here in Warrenton, when I went to school, the high schools were downtown. You saw students walking back and forth to school. Students walking back and forth to school each day was physical activity in their daily environment. And then somebody's idea was to take the high schools from downtown and put them out on the bypass. Now the only way the kids get there is by bus or their parents' car. I served on our local parks and recreation commission. Some years ago, we got funding to put in a comprehensive park system. The new park complex is located on the bypass about 3 miles from the high schools, so there's no walkability. Over the past few years, there has been talk about the need to put in bike paths and walking paths from downtown to the park complex. Somebody's idea to put the schools and park complex out there on the bypass was really counterproductive to quality of life. Structural—I see now with a lot of the gentrification, people are coming back to the inner-city and making it walkable, but a lot of people who left can't afford to come back, and some who are there can't afford to stay, and many are stuck in environments that aren't conducive to physical

activity. From my perspective, when you are talking about environmentalism, some people think about saving whales and seals. I believe we are all environmentalists and are responsible for our environment. We can either have positive or negative impacts on the environment by the choices we make. I remember as a child, my parents and grandparents used solar energy when they dried apples on a tin roof, dried clothes on an outdoor clothesline. My father and grandfathers were environmentalists when they left a small footprint by storing potatoes in the ground, covering them with leaves, straw, and dirt. We have a long history of living close to, and taking care of, the land.

**Dr. Banks:** I agree with you. What do you think happened that Black people in particular have become so disconnected from those types of ideas?

**Rev. Kearney:** The more I realize or experience dismantling racism, I see that we Americans live in a system that says to Black people, you don't fit, or you're abnormal, or says to be poor and not having a lot of money is a bad thing. My perspective is, when I grew up, my mom made biscuits—

**Dr. Banks** (whispers): My momma, too.

**Rev. Kearney:** We would sometimes take biscuits for lunch at school and ham or something, and I remember some kids would tease us and say, "Whoa, we got white bread and peanut butter." This country we live in is a capitalistic society, and it stresses that you need this and you need that. So what happened was my community was labeled poor, yet we were able to grow our own food. We canned. We preserved. We took care of the land. We took care of one another. I remember my mother and grandmother would make blankets and quilts and clothes for the girls. We recycled stuff. And then they said, "You're poor. You need to be like *those* people." And anything that made us feel poor or feel Black or feel a slave, we tried to move away from. So I believe to survive, we had to develop skills and resiliency and networks. I call them *through paths*. Through paths in that being Black, you couldn't travel the main roads, or you couldn't access resources, so you had to create your own access to resources, assets—your own through path. Hopefully, with the Stories to Save Lives oral history project I'm now working on with the UNC Center for the Study of the American South, we will be able to identify and document those networks, resiliency, or as I call them, through paths, that we once had and walked away from.

As a result, I believe we are now worse off than we were before. Even though we now have access to more money, we don't have those networks or systems anymore. I like the idea of integration, but I think we didn't really think about or understand the negative byproducts of integration—the loss of our connections to our communities, the loss of our networks and culture. In Warren County, our major Black institutions were the churches and the segre-

gated schools. So when integration happened, Black schools were vacated, and some of our best teachers were transferred or terminated. So the Black schools located throughout the county, many near a church or Sunday school (a small building where community members met on Sunday to study the Bible), were no longer there to educate our children and pass on our culture and values. Our connections to our community, schools, and churches (our support network) helped us build resiliency to be better able to navigate a Jim Crow system that wasn't fair to Blacks. I believe we didn't have a clear head about what the total cost of integration would be.

**Dr. Banks:** I think it's really—as you talk about being that mind, body, and soul—finding a way to help the babies to understand that because that's such a missing piece, and they're running up against whatever is life and have no clue of how to—

**Rev. Kearney:** No clue—

**Dr. Banks:** —survive it.

**Rev. Kearney:** I think that's why it is important that we document our own history. We shouldn't wait for someone else to tell or validate our history, but we must tell our story/stories. We should use whatever mode we have to document and tell our story/stories. We can tell it with art, with stick figures, or tell it with poetry, music, drama, and dance. When I have an opportunity to have a voice (speak for my community), I make sure it's a voice that's conducive to elevate my people and this community. We can't afford to be individuals. We have to be in community

**Dr. Banks:** Ok, let me try to get to these questions 'cause I just love the conversation! [Begins to read interview questions developed by the JBP Executive Committee:] What is or was your strategy for addressing the environmental issues related to living near a landfill or having environmental concerns? How did you mobilize the community?

**Rev. Kearney:** Ok, let me make things a little clear. During the time of the dumping, I was living in Maryland and then moved to Henderson, located in Vance County adjacent to Warren County, so I wasn't here during the time of the protests. Some of my relatives—cousins, my mother, church members, community members, just everyday people—were here and involved. They knew the toxic dump was wrong. They didn't want our community to be dumped on. They didn't want anybody else to be dumped on. The community came together across racial lines, economic lines, and with others from across the country to protest the siting of the toxic PCB landfill and birthed a movement.

The environmental justice movement birthed here in Warren County has grown and

traveled around the globe, empowering communities around the world to stand up for environmental justice, social justice. When you're googling, search Warren County Environmental Justice Movement—you will see the impact Warren County's toxic landfill protest has had around the world.

When I moved back to Warren County in 1995 (after living in Durham from 1986 to 1995), there wasn't much talk about the toxic landfill and the PCB protest. If you ask kids what was happening in Warren County, the common response is, "Oh nothing ever happens in Warren County." Most of the everyday people who took part in the protest—the movement—have no idea of the impact of what they did. Those who came in to help—many of them have written about it, made careers about it, got doctorates about it—but there has been no direct benefit to the community. There was \$18 million and more, I assume, that was spent remediating the landfill. Most of the people who benefited were outsiders. So my heart went out because I'm thinking Warren County used to be one of the wealthiest counties in the state. Now it's one of the poorest counties because of Jim Crow and racism and holding folk back. Here, if \$18 million was available to support our school system, job opportunities, healthcare, housing—

I feel like our community hasn't been made whole. It was like a hole was dug and money was put in the hole and gone. Now folks don't want to talk about it. But many of my relatives, my grandfather, and great grandfather owned property right around where the site is. All the way back to 1864 and 1910. So as a child, right where the site is, we used to go over and visit a great aunt. So I say, "Wow, our family wraps around this history. This is impacting my family."

When it comes to talking about environmental justice and birthing environmental justice, only certain people are being recognized. But I say, in every big story, there are many little stories. If people don't realize the impact and don't engage them in the bigger story, you're sidelining folk, and somebody else gets to write the history. So I took it personal because many of the pictures you see in the books and publications are folk I know, in the family, the church, went to school. Many of them are now concerned—how was my health impacted by this landfill? Local health department, state didn't track it. How much was put into the water, the air? My mother, who worked at the elementary school about two miles from this site—in the '80s, she began to have really severe stomach issues. Over 20 or 30 years, her stomach would secrete so much acid that it just burned her stomach out. There are other cases of people having these weird cancer things, but our state government and others who are supposed to be helping us dumped on us because it was proven that most of these dumps were going to lower income, Black communities. So it became personal in that I felt bad because the community that birthed a movement weren't rightly owning it.

Also, when we began to do our community garden at the church, people asked, "Well, is the produce safe? Is the soil safe?" So I came in to help or maybe take the mantle or take the torch and go beyond the remediation to begin a conversation about "was it safe?" We applied for a minigrant from EPA [Environmental Protection Agency], Dr. Molly De Marko and my-

self, back in maybe 2011 or something like that—\$30 thousand minigrant because we wanted to start a conversation about what people felt about their health, the environment. And from that conversation, if there was a real concern about health, to be able to get another grant to actually engage the community in environmental assessments and engage the community in how to interpret that information and engage the community in how to disseminate it because there wasn't any trust in the government to do that. The EPA had said the site was safe, even though it was leaking within a matter of weeks.

So I really took it personal, and we applied for the grant to do this research around engaging conversation. We didn't get the grant, but the momentum had been created, and 2012 was the 30<sup>th</sup> anniversary of the birth of the movement, so we said, "Well, let's take this energy and focus on coordinating a celebration for this 30<sup>th</sup> anniversary." I've got pictures and all of that on my Facebook page. So what we did was in 2011, we created Warren County Environmental Action Team. We brought together stakeholders to coordinate our celebration. And as we brought people together, there were some people who didn't want to participate because they said that White people wouldn't come to Coley Springs Church because they'd be bored. And I said, "Well, they weren't bored when you came to protest." And so we found out there was still some [problem] going on in the water. We said, definitely we want to continue seeking resources to do assessment and learn more about our health. In the meanwhile, let's just celebrate the fact that a poor rural community, mostly Black, came together and birthed a movement. I call it telling our story, building our future. What man meant for harm, God can turn for good. If there's a core message that I want for my community, it is that they gave us the worse parts of the pig. We ate them and celebrated. So in everything, if we find God, there's a positive.

**Dr. Banks:** I was just thinking about what you said because I don't know if you heard, maybe a month ago, on NPR [National Public Radio], they were talking about the Zika virus, and that's what it reminded me of. How the physician said that when the hurricane hit—Maria, I guess—the federal government told them they were no longer tracking Zika. So now it's like it's not a problem in Puerto Rico. And, no—what changed was you didn't track it anymore. So that's what that kind of reminds me of that you're saying.

Now, do you serve, like full-time, as the pastor of a church while you're doing this?

**Rev. Kearney:** No, I'm not a pastor. I'm a social entrepreneur. Matter of fact, my work I see as disrupting systems. And it had to be God because all the pieces come together.

**Dr. Banks:** As you reflect over all this work you've done related to improving health and quality of life for Black people in particular, people more broadly, what do you think has been your most significant challenge?



**Rev. Kearney:** Me! To become a very objective conduit. My toughest struggle was, “God, you called me. I’m still in the wilderness. I’ve been doing this work like 20 years—”

**Dr. Banks:** You sound like Jeremiah, you know.

**Rev. Kearney:** “There are ministers who started after me and who retired, and I’m still doing this work, God!” I went through these emotional rollercoasters where I was angry—I was angry at the church, angry at the university, at funders. I was angry at everybody. I applied for residency or sabbatical through Windcall Foundation out of Oakland, CA. It’s an organization that supports community organizers, people who give a lot of themselves and can’t disconnect themselves from their work. I applied and got a 21-day residency. With that, I got a life coach. I’m in North Carolina. The residency was like in Mebane at the Stone House. I’m supposed to call my life coach before I go, but I’m saying, “What he got? What can he tell me?”

Anyway, I was so glad to go. I went to the Stone House. The first day I got there—it was a two-story building, and at the second story was this big window—this bird was fighting its image in the window. Fight, fight, fight. It would get tired and fly off and sit down. Come back and fight, fight, fight. And the Lord said, “That’s you. You’re working against yourself. I’m trying to promote you, and you’re taking your eyes off me.” I was looking at people and just burned out.

So I swallowed my pride and called my life coach. His name was John. He says, “Bill, what’s wrong?”

I said, “I hurt.”

“No, what is the real problem?” And he finally got me to say that I was angry. He said, “Why?”

I said, “Because I’m working for Duke University. I build programs, and I end up with no clients. I’ve been in ministry for years, and I’m still struggling. I work for the university, and they brought in grad students and gonna pay them more per hour, and I trained them. My church doesn’t respect me.” And I just went on.

He says, “Who are you angry at?”

And I say, “I’m angry at God.” When I said that, I just cried.

He says, “What is it that you need? What is it you want?”

I said, “I gave up my career. I don’t have benefits. I don’t have no steady—everything I do was part-time or pioneering stuff. Oftentimes I have to carry the load and create the programs for everything, and people just come and spectate.” And a voice says to me, “You’ve taken your eyes off of me, and you need to go back.”

After I poured out my heart and cried, he said, “What are you going to do?”

I said, “Well, I’m going to resign from the church because they weren’t really paying me. They was just giving me a stipend to build the programs, the CDC part of the church, so we

could begin to get grants that would support my work. I found that I was doing my piece, but I felt like other folks weren't doing their piece. I would have to come back and try to help them organize.

"What is it you want?"

So I said what I wanted. There was some other folks there in residency with me. I asked them to help me do a ceremony, jump the broom. All this stuff over here—once I jump over here, it's just going to be me and God. And that was scary. I felt if I resigned from the church, it would cut off my relationship with the church. I didn't know what was going to be there. I did the ritual—jumped the broom—and something said, "Watch and see what God does."

The Lord also spoke to me and said, "Don't leave the church. Hang around and let them see how I bless you."

After I jumped the broom was when my partners at university said, "Bill we want to bring you in full time at university." My portfolio, my degree, my job was written around my work. So I'm able to continue this pioneer, visionary type work on salary as a community outreach manager. I coordinate field trips for the researchers and staff to historical African-American communities to talk about our biases and how we can bring those to our research. Talk about how there's resiliency, there's skill, there's professionalism in our communities that need to be valued. From my "wilderness" experience, as I called it, I took my eyes off of God. I began to look at people. It was the toughest challenge for me.

**Dr. Banks:** So how do you ensure that going forth?

**Rev. Kearney:** I'm going to Tennessee, to the mountains. . . . Windcall Foundation also helps you enhance your self-care skills. Daily I'm doing things to keep stuff from bottling up in me. Of course, prayer and fasting. I exercise. I like photography.

**Dr. Banks:** Where are you going in the mountains?

**Rev. Kearney:** I'm going to go to Gatlinburg. I like to go there, to the mountains, especially in the winter time because you can see great distances. Traveling, I just see the world totally different now. It's just breathtaking. Things that one time were just right in my face that I didn't see, I can see now. And that's what I would like to bring to my community. From my perspective, many people are depressed and don't know it. The color leaves. It's just become routine. But every minute they should just be charged with excitement.

**Dr. Banks:** So do you have some mentees under you?

**Rev. Kearney:** I do this—I say, "Lord, I'm going to do my part, and you have to do the rest." A lot of times, people think I'm working with a big team, and it's mostly me. I'm hoping

as I move forward, God is bringing the right people. That's why it was exciting to be down at Winston-Salem State. I've been called from students at Cornell. I've worked with a lot of universities. My picture is now in that college science textbook standing next to the historical marker. That was my mission. Since 2012, I wanted to help elevate our story and elevate my community. My hope—this is my vision, my hope, and my dream—that Warren County, which was historically a place of resort and retreat—We were a wealthy county. People came from across the country, around the world, here for health reasons—my hope is that we will be on the front, cutting-edge of environmentally friendly practices, social justice. That we will be a destination where people can come and learn about our rich history. Learn about a little slice of our history—that we got dumped on, but most importantly, learn that we rose up, and we birthed a movement, and now we're on the cutting-edge of environmentally friendly practices.

**Dr. Banks:** We have to get those babies to get on the path, don't we? So, you've provided much leadership towards addressing social determinants of health. What resources will be required to continue the work you began, and how does increasing diversity within the health professions play a role?

**Rev. Kearney:** It's really important. I talked about our oral history project, partnership with the Study of the American South at the University of North Carolina. We're working on a project called Stories to Save Lives. Here in Warren County, our intent is to interview 20 people. From these interviews, we expect to get a lot of different themes, but the aim of the project was to talk about people's resiliency and access to healthcare historically, what it is now, and what they think needs to happen in the future. We also get stories about racism, family values, self-efficacy, and personal challenges. So from these 20 interviews, we hope to be able to look at the themes and use these stories to work with the medical school at UNC, the future doctors and health providers, [to help them] understand the importance of people's stories, their history. Otherwise, if you don't understand the people or what they're dealing with from day to day or historically what they dealt with, and you just prescribe on what you see in the office, it's not effective. Some of the research that I'm doing is because oftentimes we don't have data from Black communities. I understand the importance of engaging our community in research. I also understand the importance of having researchers like us who understand the culture, understand the language, and maybe not already have those biases.

**Dr. Banks:** Were the people that you're working with from our culture?

**Rev. Kearney:** Most of them are not, but they are of good will. What's happening now at the Center for Health Promotion and Disease Prevention is giving opportunities for African-American grads and postdocs to come in and have access to things that they haven't had because of cost, the culture. Our center is striving to do that.

**Dr. Banks:** This is at UNC?

**Rev. Kearney:** At UNC. Some of the students who are working with me on this oral history project. We got one African-American male who's working on his Master's degree. We've got an African-American female—she grew up in Alaska, and she is working also with interviews. We have an African-American male who has a doctorate in geography. What I'd love to see is young folk from my community pursuing careers.

**Dr. Banks:** How do you negotiate scholarships for people out of this community so that can happen? The other thing I was thinking as I was listening to you talk—are you connected with the North Carolina Black Storytellers?

**Rev. Kearney:** Nope. Someone suggested that I connect.

**Dr. Banks:** I'm suggesting that you connect because I think it would really be a place where you find kinship and really help you think about the storytelling in the historical context of what storytelling has been. I'm a life member of the National Association of Black Storytellers—

**Rev. Kearney:** Could you send me that information?

**Dr. Banks:** I will send you the link because we just had the conference in Cary, NC, and it really got me fired up again. The next conference—it's always the end of October or beginning of November—is going to be in Montgomery, Alabama. You need to be there. The NC chapter meets in Raleigh.

**Rev. Kearney:** I'd love that. That's what I need. I've been solo so many years following this. Now I need somebody to help me. Show me what I've got. My going away next week is sorta like, "Lord, I'm going to give you this. Now show me the next place, and how I can be able to bring in mentors. Help develop a system." There's somebody—Paul Kron, he was there at Winston-Salem State, this White guy—and he knows Russell [Smith, Professor of Geography, WSSU]. Matter of fact, he introduced me to Russell because he asked me to come down to A & T and present to his class. He is all about environmental structures. We're talking with the students, also those at Winston-Salem State, about how they can help. I was talking about the importance of helping, just brainstorming. We have camps. We have summer camps. But we could engage or incorporate some type of environmental or social justice sciences when we introduce kids to what's right in their face. Also, I found that when I give college tours for universities, when we partner them with high school students, they develop such good relationships.

**Dr. Banks:** I think that would be fabulous because I know that my students and my family laugh at me because I'm a tree hugger. We don't live without *this out here*. We simply don't live.

**Rev. Kearney:** I get in my car and drive the back roads, and sometimes I take pictures. I go on a bridge and see the water running down, and I want other people to see that. I want them to understand that. I had to leave home and go to the Poconos to realize—I had that at home. Like the prodigal son.

**Dr. Banks:** Historically, African Americans and other people of color have been underrepresented in the health professions. Why do you think that is?

**Rev. Kearney:** I would say systemic. I would say education is 24/7. Personally, I wasn't exposed to those opportunities until I left home. Not that I didn't have a loving and caring home, but priorities were keeping a roof over my head, nurturing us, keeping us fed. Keep the Black males alive, so many of us in that hierarchy were on the bottom, so just survival.

**Dr. Banks:** Maslow—stay alive.

**Rev. Kearney:** Yes, Maslow. So if we can begin to rally resources where kids can see possibilities, and we can help them at a very young age. I believe we had basic networks in place because we, the Black communities, we pretty much stuck together. Now we have much more access, but we really don't have any trellises to grow our young folk up.

**Dr. Banks:** So how are the Black kids doing? Are there others? I've only been here [in Warren-ton] a short time, but I've only seen Black and White, so I don't know if the Latinx population is here.

**Rev. Kearney:** Latinos are here, but it's a small percentage. We have Native Americans as well, a small percentage.

**Dr. Banks:** How are they doing?

**Rev. Kearney:** Our school system struggles. We've got three schools. We've got Early College, New Tech, and Warren County High School. Three high schools, middle school, and elementary school. But it's been struggling. There are varying reasons, and I can't put my finger on it. I believe the issue for Warren County is a lot of times, we have good teachers, but they aren't from our community. They come in, and they go. Also, Warren County is for some people a stepping stone to other places. I believe to really bring about a change, we need people who are invested in the community. My perspective is education 24/7. Here our

economy stagnated. When people want to experience recreation and other things, they usually go outside the county, so our money goes. When our young folk graduate, most of them go outside the county because economically, it's been stagnant.

**Dr. Banks:** What is the primary economy now?

**Rev. Kearney:** The primary economy is local government, school system, and the prisons. One time, we were agriculture. Our community was built around farming. People weren't making a lot of money, but they were planted in the community. There were ways people would support one another. Now many of our people work outside the county. The bigger employers are local government and prison system.

**Dr. Banks:** I hate that so many poor communities are dependent on the prisons. You need prisoners for that. And that can't be good.

**Rev. Kearney:** What was the question again?

**Dr. Banks:** I was asking about people of color being underrepresented in healthcare and trying to figure out why that is important, and how do we move from this underrepresented status.

**Rev. Kearney:** I think that's why it's really important to highlight our history, stories, and put us in the picture. I'm really excited when we have African-American grad students come here who have their doctorates and their research projects. They have the opportunity to interact with some of our young people in our garden projects and on our environmental justice tours, and our young people get to see, "Hey, we can!"

**Dr. Banks:** Is the garden still happening?

**Rev. Kearney:** On a small scale at our church, but we—our UNC research team—have other garden projects where we support community gardens accessible to low-income families at a senior center, a mobile home park, a church, and even at Soul City.

**Dr. Banks:** So there are still people at Soul City?

**Rev. Kearney:** There's housing there—individual homes and a senior housing complex. And one of our prisons is there, too. It's economic. It's systemic.

**Dr. Banks:** Listening to you makes me think of another type of gathering we need to do. Earlier you said that a lot of times, the research gets jazzed about finding the answer, not

sustainability necessarily. That's kind of left up to the community. Listening to you, I'm thinking, I know I've never been part of a workshop, conference, or gathering that was really just about that—these are all the things we've done as research, now how do we really make them sustainable? So why do you think there's not any emphasis on that really?

**Rev. Kearney:** I would think that the funders haven't really made that a priority. Researchers are so driven by timeframes and the dominating themes at a given time. I said to someone the other day, "The research theme changes from year to year. But on the community side, it takes a long-term investment." I remember my grandfather used to plow his fields. He had this real laidback horse and this crazy mule, but they made a good team. The horse sort of kept the mule in check, and the mule sort of kept the horse on pace. So how do you harness this energy—the different interests, structures—in a way that it benefits all? Even with the adaptations that we're seeing in this community-engaged research, it's still not enough to have that slow-pace, long-term investment to actually bring along communities in an equitable way. I feel people like me who don't know all the systems but understand to a degree—if we're able to not be the total gatekeeper but provid[e] access to voices in the true community, and those true voices [are] able to dictate timeframes, languages, and systems—

**Dr. Banks:** Sometimes I think, "What would happen if the research grants, the multimillion dollar, 10-year grants were given to the community, and they paid the university a consulting fee, instead of the way it is?"

**Rev. Kearney:** I don't know how this relates, but in Warren County, we have a lot of people who like to hunt deer. They show up, and they've got these big four-wheel drive trucks, big dog cages on the back, four or five antennas, radio collars on the dogs, radios, all-terrain vehicles, rifles with scopes, camouflage outfits. They've got major investment in killing this one little poor unarmed deer, hiding someplace out there. Historically, universities and funders have histories of structures, access, and knowledge bases like the deer hunters. They've come to communities with all their resources—communities like the unarmed, unprepared deer that are not as structured, not as aware—and the universities and funders want to bring about sustainable change in a year or within their prescribed timeframes without investing in doing some capacity-building, true capacity-building, helping people identify their strengths and build on those strengths. So it's unfair. I see oftentimes, funders, universities are able to bring in the supports they need like *this* [snaps fingers], but the community is like the solo deer. So this is what we are dealing with. I'm not saying communities don't have organizational structure, but they don't have the access, connections, or networks that need to be in place to make it sustainable.

**Dr. Banks:** That's why I think, boy, if we had the resources like that—

**Rev. Kearney:** If I can do my piece. Sometimes I feel my role is like a stem cell—whatever needs to be done. I'm like this lynchpin that holds the trailer to the truck. The tractor can represent academia or the university, and the trailer might be the community it wants to bring along. I'm this liaison that connects the two. If we're going to have partnerships, we've got to be able to hold hands, but we've got to be sensitive to where we each are. If we want really equitable or fair partnerships, then the university has got to give us some power, give us some resources. Allow communities to function at their level of capacity, and by the end of the process/project, ensure that level has elevated. Then I find that community leaders are ever-shifting, so the institution is more stable oftentimes, but the community, it shifts. So how do you manage that? Some of us aren't going to hang in here for 30 years to do this work. Some are going to [stay] until they find their satisfaction. That's another thing I strive to do—help create a community vision that's driven by the community, regardless of who's in leadership or elected—that this vision is being pushed.

**Dr. Banks:** I love that. You've got to get to writing.

**Rev. Kearney:** That should be my next course. I need to. How do I formalize what I've learned?

**Dr. Banks:** We've got to get Melicia [Dr. Melicia Whitt-Glover, Director, Center for Excellence in the Elimination of Health Disparities, WSSU, and President and CEO, Gramercy Research, LLC] to work with you on that. Looking back at all you've done, if you had an opportunity to do anything differently, is there anything you would do differently?

**Rev. Kearney:** I think I would understand the various systems that I work with and be better able to develop a language that informs and engages those systems.

**Dr. Banks:** To engage who? All of the systems?

**Rev. Kearney:** I believe that the solution to our problem incorporates different sectors working together, and not everybody uses the same language. Wisdom allows you to say things that bring people together as opposed to polarizing. I think sometimes in the infancy of my work, I had the same tools for everybody. If I would have had more wisdom about how to use language or understand systems—how to use those languages, verbal or visual—to bring people together. I think even with the faith community, sometimes my vision was so broad, people got defensive. Being able to have a toolkit with a variety of tools to engage people—

**Dr. Banks:** You may be getting ready to go back to school.



**Rev. Kearney:** Yeah, because I see this big vision. I was talking about this big vision, and people were getting defensive, but if I could break that big vision down to smaller steps to connect with people where they are—I think that’s wisdom. I desire to be this shoelace that pulls people together.

**Dr. Banks:** You talked a little bit about this, but I’m going to ask again. What challenges have you encountered in terms of promoting your own health and well-being while trying to do your work, and what advice would you give to young scholars trying to do the work that you’re doing?

**Rev. Kearney:** When I resigned from my police career I walked away from my retirement and health benefits. I could have retired in seven years, but I knew this was God’s calling. So I’ve had to sometimes sacrifice when it came to dental and healthcare. Some of my diet wasn’t healthy. I had to eat what I could eat. Now I have these benefits, now that I have retirement and insurance. So along the way, on our journeys, we have to make a decision to count the cost. Try to make the right decisions. One thing I can say for sure is that I was most creative during my dry periods.

**Dr. Banks:** Oh, how so?

**Rev. Kearney:** There was always a way I could create a job. I create things—opportunities—for myself and others. There were a couple of times I got frustrated. I wanted to get somebody else to help me or do something I felt I couldn’t. A voice said to me, “Apply yourself.” And as I began to apply myself, guess what? There were things—skills and abilities—in me that I didn’t even know were there. I always try to be positive. In every situation, look for the good.

**Dr. Banks:** I want to ask you a final question strictly based on listening to you talk. Do you think that everybody has a calling, and what would you say to people in terms of helping them to recognize their calling?

**Rev. Kearney:** I believe everybody has a purpose. I believe that we are all born with a purpose—gift, talents, abilities—but society causes us sometimes to suppress our gifts, talents: “Stop asking questions! Fit within this form!” I remember when I was a young guy—my father died when I was five years-old, and my brothers were like six-to-nine years-old, and I always looked up to them like gods. I always tried to walk and be like them. And my definition of a man—you got to like sports, you got to do this. I had this box about being a man. I was suppressing all this emotion, all this sensitivity, all these things that God had given me. I had to go through this period of disliking myself because I was trying to fit within expectations. So I think the more we’re able to allow people to be themselves.

And if I don't know the answer, go and help find an answer, but never cause kids to stop asking. I look at racism and what it does. I think oftentimes, our parents of Black kids are so busy trying to keep you safe that they suppress these questions. You have to walk this strict line. My thing is—how do we protect our kids, while we allow them to grow into who they need to be? That requires community. That requires us to strip this old form of putting people in boxes and suppressing them and causing them to be robots. It looks at the educational system that historically has just trained us to punch buttons and hit levers. It requires a whole new dynamics of helping people identify. Looking at young people and seeing where they're leaning, and how do we support that? If we don't, it's either suppressed or turns into a negative.

For me, I always felt like there was something that I was supposed to be doing. As a police officer, I felt like I was doing it but that there was something more that I was supposed to be doing. I didn't know what it was. It began to come to me line-by-line, precept-by-precept. And guess what? I would get inspired—about two o'clock in the morning, something would come to mind, and I would write it down. And before you know it, you had like sort of an inkling. I believe God speaks to us in dreams and visions. I remember as a child I used to dream repeatedly that I had a pony, but once I got up, I didn't do anything towards getting it. So you can dream you have a pony for years, but until you got up and said, "Mom, I want a pony. How can we get one?" Okay, maybe if you start saving a few dollars. So I think God is constantly speaking to us, and I think young folks come already with some gifts and leanings. If we're not careful we suppress it, and they spend their whole lives just punching buttons. I do believe everybody has a purpose.

**Dr. Banks:** Are there any last words of wisdom that you want to share with the people who are going to be the readers of this magnificent piece?

**Rev. Kearney:** I believe we need people now who can think on their feet. People who don't put themselves in a box. I like to think of myself as a stem cell. Someone who is available for God to use me however He wants. And when a door opens, even if you have to close your eyes and go through it, go through it. There have been some things on my journey that have been scary, but I said, "Lord, I'm going 'cause I know what's here, but I don't know what's beyond that door." But walk by faith. Write out your vision. Write it out to a point that it makes you feel uncomfortable. Then allow that vision to take shape and guide you.

There's an experience I had when the Lord called me. I remember as a child, I was always shy, and everybody—family members—reminded me, saying, "He's shy." But I had a lot to say. Because people said I was shy, and I took on the label, I felt like I was choking on words. But once I was called to ministry, God began to show me how He wanted to use me, and I was fearful. One day, He says to me, "Write out your fears." My hands started shaking with some of the stuff I wrote. There were almost 20 things that almost petrified me. One was singing

in front of people. Talking in front of people. Flying a plane. Being in a movie. Dancing. I made this list and over the course of years, everything on the list God took me through. I was telling my nephew earlier today, “I even had a part in the Morgan Freeman movie *Kiss the Girls*, filmed in Durham.” I was the lead dancer at Duke University, a modern dance production. I sang in several cantatas. One of my personal training clients was a doctor at Duke Medical Center and flew planes. He said, “Bill you want to fly out to the coast and see the whales migrate?” And we started flying. Once in the air, he said to me, “You want to fly this plane?” So I would say confront your fears. Be prayerful. Meditate. Spend time with yourself. Allow time that you can really get to know who you are because sometimes you’re taking on the persona or the names that someone else has put on you. So get to know yourself. Write out your vision. Write it out to the point it makes you uncomfortable. But when things get tough, don’t reduce it. Be determined, be consistent. And watch what happens.

I’ll conclude with this: I believe it’s important that we reflect on our past, be present in our present, and look to our future. Your vision, your life story, does that. But don’t get so caught up in your past and your future that you don’t appreciate your present. The other day somebody told me about this guy who had a car that was self-driving. The guy was in his self-driving car passed out—drunk as he could be. People saw the car traveling unmanned along the highway. The car’s driving itself. Don’t be like that drunk guy, not aware of his surroundings as he is traveling down the highway. Be present. Appreciate the present—be aware of the surroundings. Have a plan, a vision, for the future—know where you are going. And celebrate and build on your history.

**Dr. Banks:** Ashe (Ashe is a Yoruba word that I first learned through the National Association of Black Storytellers, Inc. Ashe is similar to “amen.” It means “so be it, let it come to pass.” It is a prayer and acknowledgement asking the Creator to manifest the thing into being and for people to be part of making the reality real), thank you.

## SUMMARY OF KEY POINTS

The conversation with Rev. Kearney illuminated the need to reconceptualize environmental justice in ways that more clearly articulate intersections between social determinants of health; historical traditions emphasizing the relatedness of humans and the natural world; and the need for individual, community, and institutional-level interventions. He challenges us to look beyond standard criteria in making decisions about what constitutes a health profession and who should take the lead in health-promotion activities. Rev. Kearney’s responses crystalized the significance of community-engaged work, personal development, and storytelling as integral strategies for developing and sustaining diversity in the health professions. Pearls of wisdom in each of these areas are listed below.

### Community-engaged Work

1. Disparities have grown across communities or populations as a result of the focus on research and demonstration projects, rather than sustained efforts and long-term partnerships among communities, funding agencies, and academic institutions.
2. Projects should invest in developing the people who are rooted in a particular community, rather than depending on outside experts.
3. African-American communities have assets—human capital, resilience, history, structure, vision, experts—that must be appreciated and engaged.
4. Working with children and youth on community-based projects can build their interest in research and develop skills integral to developing the next generation of healthcare providers and scientists from groups underrepresented in these areas.
5. Academia and funders must rethink how they work in communities—work *with* communities—to help them build capacity, so they can be equitable partners or facilitators of long-term sustainable change. Institutions and researchers must invest a long-term commitment that takes into account the community’s vision, history (stories), challenges and opportunities.
6. Providing resources for communities to direct their own studies is an important component of community engagement and capacity-building.
7. Community gatekeepers can be assets or liabilities. Hearing the true voice of the community is important.
8. Transparency, trust, and honesty are important for successful partnerships.
9. More conversations and trainings about racial equity are needed; we must become aware of our implicit biases so as not to perpetuate racial and social injustices.
10. “Bridge builders”—people who understand the cultures and languages of different organizations and institutions and are comfortable working in a variety of settings—are critically needed.
11. We must work with the whole person, rather than focusing narrowly on either physical, social, or environmental well-being.

### Personal Development

1. Living *authentically* is critical to successfully accomplishing our own calling and allows others to be true to themselves.
2. Prioritizing self-care while carrying out ministry or calling is imperative.
3. Interrupting negative narratives is essential to health promotion, especially for marginalized people.
4. Written plans are an important strategy for achieving goals.
5. Be open to changing course and going in a new direction.
6. Understand that the fruition of our vision may take a while.

### **Storytelling as a Tool for Health Promotion and Capacity-building**

1. Storytelling promotes health through community building, fostering a “can-do” attitude, and illuminating “through paths” and networks.
2. Storytelling is an essential teaching tool for developing health professionals focused on equity.
3. Storytelling can convey the nature of “the work” and potential pitfalls to future generations of scholars and clinicians.

## ABSTRACT

# The BioCORE Scholars Program: Improving Persistence and Academic Performance of Underrepresented Students in Biology

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Elena Brezynski, PhD<sup>1</sup>; Eric Long, PhD<sup>1</sup>; Mary J. Allen, MS-Ed<sup>2</sup>;  
Derek Wood, PhD<sup>1</sup>

**Author Affiliations:** <sup>1</sup>Department of Biology, <sup>2</sup>Center for Learning, Seattle Pacific University, Seattle, Washington

**Corresponding Author:** Elena Brezynski, Department of Biology, Seattle Pacific University, 3307 Third Avenue West, Suite 205, Seattle, WA 98119 ([brezynskie@spu.edu](mailto:brezynskie@spu.edu))

## ABSTRACT

**INTRODUCTION:** The BioCORE Scholars program at Seattle Pacific University (SPU) supports underrepresented and first-generation students who intend to major in Biology. A biology placement score (BPL) is calculated blind for all students at entry to SPU. BPL is determined by a validated algorithm based on 10 years of historic data, including high school GPA and SAT entry scores. BPL2 students are not predicted to succeed in first-year biology courses, while BPL3 students are likely to succeed. However, minority students disproportionately populate the BPL2 category. **METHODS:** Our three-year-old program targets BPL2 students using a cohort model, implementing such interventions as weekly study groups, peer mentoring, a summer research week, speaker meetings, and various community-building activities that promote a sense of belonging at university. These scholars also have opportunities to work as peer leaders for future groups of scholars. **RESULTS:** Data from years 2 and 3 of our program indicate higher persistence rates at university for our scholars in contrast to both minority and majority nonscholars with similar BPL2 coding. BioCORE scholars were half as likely to drop out of college than nonscholars (12.5 vs 25 percent), but their numbers are too few for differences to have statistical significance. Scholars' biology GPAs also improved

more than those of comparable minority and majority nonscholar groups. Data were analyzed using repeated measures ANOVA to test whether BioCORE scholar participation, ethnicity, or cohort year affected changes in predicted vs actual biology GPAs. Overall, their biology GPAs were higher than predicted ( $F_{1,189} = 27.4, p < 0.001$ ), but none of the factors contributed significantly to GPA change (BioCORE scholar:  $F_{1,189} = 0.045, p = 0.832$ ; Ethnicity:  $F_{1,189} = 0.13, p = 0.719$ ; Cohort year:  $F_{1,189} = 0.26, p = 0.772$ ). CONCLUSION: Program interventions improved the academic performance and persistence of BPL2 students predicted to be at risk of failing the core first-year Biology curriculum. We believe the key to success is building community on campus through peer mentors' support and early establishment of mentor relationships with research faculty.

**Keywords:** ■ Grit and Agency ■ Leadership ■ Minority ■ Retention ■ Undergraduate STEM Education

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The Division of Nursing seeks highly qualified faculty to teach in its BSN, MSN, and DNP degree programs. Our faculty focus on research, teaching, and practice and are encouraged to expand their expertise in these areas. Traditional undergraduate, accelerated, and RN-to-BSN options prepare registered-nurse leaders. The MSN program provides Master's and certificate options for Advanced Nurse Educators and Family Nurse Practitioners. The DNP is both a post-Master's and BSN-to-DNP program focusing on the translation of research to improve clinical practice and patient outcomes. Methods vary across traditional classroom, hybrid, and online course delivery.

Applicants must hold a Master's degree in nursing, and a doctorate in nursing or a related discipline with an active program of research or scholarship and practice is preferred. Minority candidates are especially encouraged to apply. Faculty positions include 9- and 12-month appointments, and benefit packages are exceptional.



## The Division of Nursing

The Division of Nursing at Winston-Salem State University is a premier nursing school based on excellence in education, research, and public service and the diversity of its student population and program offerings. The curriculum provides experiences that allow students to develop effective communication and critical thinking skills, while implementing therapeutic interventions, promoting health, and preventing disease using evidence-based practice strategies. These experiences include the theory, clinical practicums, and public service essential for delivery of professional nursing in a variety of settings to diverse populations.

Prior learning, life, and health experiences are considered in the admissions criteria for a student population diverse in age, gender, ethnicity, and academic level. DON fosters an environment conducive to personal and professional growth and lifelong learning for students and faculty, who engage in mutually beneficial relationships with the community and other healthcare providers in ways that complement the educational mission. Values, such as kindness, compassion, justice, loyalty, cultural competence, and sensitivity, take root here. A consistent focus on excellence reflects a commitment to continuous growth, improvement, and understanding.



# WSSU

## Winston-Salem State University

Preparing over 6,000 diverse undergraduate and graduate students for success in the 21<sup>st</sup> century, Winston-Salem State University offers quality educational programs in an environment of faculty-shared governance. The university is dedicated to student development through excellence in teaching, scholarship, and service. As a comprehensive, historically Black, accredited constituent institution of the University of North Carolina, Winston-Salem State University contributes to the social, cultural, intellectual, and economic growth of the region, the state and beyond.

## Winston-Salem, North Carolina

Winston-Salem, the City of Arts and Innovation, is located between the Blue Ridge Mountains and the Outer Banks of the Atlantic Ocean. Only a short drive from metropolitan Charlotte and Raleigh, it forms the Piedmont Triad Region with the cities of Greensboro and High Point. Winston-Salem demonstrates a strong and unwavering commitment to the arts, excellence in healthcare research and technology, and is home to four renowned institutions of higher education.

Winston-Salem's economy is information and technology-based in the areas of healthcare, research, and finance. Its mild climate allows residents to enjoy all four seasons. Local attractions include School of the Arts and symphony performances, restaurants, shopping, historic landmarks, gardens, contemporary art galleries, vineyards, national sporting events, and outdoor recreation.

## Faculty Position Openings

WSSU Division of Nursing position openings are electronically posted to the WSSU Human Resources website. To review them, go to [www.wssu.edu](http://www.wssu.edu), click on "Administration", "Human Resources," and "Employment Opportunities." Applications require a cover letter, curriculum vitae, and letters of reference, which may all be submitted electronically.

**For questions related to faculty positions, please contact  
Tammy Cunningham, University Program Specialist to the  
Associate Dean of Nursing, at [cunninghamt@wssu.edu](mailto:cunninghamt@wssu.edu) or 336-750-2659.**

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This program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).



See our website: [www.wssu.edu](http://www.wssu.edu), or call 336-750-8708 for more information.



Founded in 2007, *The Journal of Best Practices in Health Professions Diversity* (ISSN 2475-2843) is published by the University of North Carolina Press for the School of Health Sciences at Winston-Salem State University. Directed toward educators, policymakers, and the health community, it is a source of peer-reviewed information on maximizing recruitment and retention of culturally diverse students for careers in the health professions.

### **Submissions**

All manuscripts should conform to the *Publication Manual of the American Psychological Association* (6<sup>th</sup> ed.) with respect to format, style, grammar, punctuation, mechanics, and citation. They should be prepared for blind review. Authors are asked to submit an electronic version of manuscripts in Microsoft Word or ASCII text. Manuscripts may be submitted to:

Elijah Onsomu, PhD, MPH, MS, MCHES Acting Managing Editor  
Journal of Best Practices in Health Professions Diversity  
School of Health Sciences  
241 F.L. Atkins Building  
Winston-Salem State University  
601 S. Martin Luther King Jr. Drive  
Winston-Salem, NC 27110

Articles will be selected upon review and recommendation by the editorial board. The board may request additional information and editing. Articles will be evaluated for writing style and readability, logical development, methodology, and appropriateness to the stated subject matter of the journal. All manuscripts will be returned. Authors should expect to be informed of publication status approximately one month prior to publication.

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### ABSTRACT

The BioCORE Scholars Program:  
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Elena Brezynski, PhD = Eric Long, PhD = Mary J. Allen, MS-Ed = Derek Wood, PhD