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An Urban Institute Community Outreach Program: The Changing Faces of Pharmacy - A Student Enrichment Program

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Introduction

An American Association of Colleges of Pharmacy (AACP) 2014-15 Profile of Pharmacy Students report (American Association of Colleges of Pharmacy, 2015) revealed that of the 76,525 applications submitted to 133 pharmacy programs across the United States (U.S.), only 17% were submitted by underrepresented minorities (URM: Black or African American, 11.5%; Hispanic or Latino, 5.1%; Native Hawaiian or other Pacific Islander, 0.2%; American Indian or Alaska Native, 0.2%). Approximately 11.8% of the Doctor of Pharmacy (Pharm.D.) degrees conferred in the U.S. in the 2014-2015 academic year were received by URM students (Black or African American, 6.9%; Hispanic or Latino, 4.1%; Native Hawaiian or Other Pacific Islander, 0.3%; American Indian or Alaska Native, 0.5%). According to the U.S. News and World Report (U.S. News and World Report, 2015), in the 2015-2016 academic year, St. John's University was among the most ethnically diverse national universities. However, similar to the national statistics and despite its location in an urban and metropolitan region, URM students comprise less than 5% of the total student body of the Pharm.D. program at St. John's University (SJU) (St. John's University College of Pharmacy and Health Sciences, 2016).

Pharmacists serve as important resources for health and medication-related questions to many communities across various demographics, races and ethnicities throughout the U.S. This is particularly true for a place as diverse as New York City (NYC). According to the 2014 NYC census, 24.5% of its population is Black or African American, 0.4% American Indian or Alaska Native, and 13.8% Asian (U.S. Census Bureau, 2015). Recruiting students for the College's Pharm.D. program to better reflect NYC's population would be beneficial to help improve not only access to the pharmacy profession for

URM, but also to the communities at large that pharmacists serve. Several barriers have been shown to impede URM students from pursuing higher education, including financial difficulty (Stewart, Russell, & Wright 1997), academic under-preparedness (Haycock, 2001) and low scores on traditional college admission tests (Nitri, 2001). Additionally, gaps in support and resources for URM students have also had a negative impact. These include a lack of information about college preparation and application processes, effective recruitment strategies, visibility of career opportunities and providing effective, appropriate infrastructure support, and role models or mentors that can provide information and guidance (DiBaise, Salisbury, Hertelendy, & Muma, 2015; American Speech-Language-Hearing Association, 2016).

Several initiatives have been implemented in other professions and academic programs focusing on URM with success and many included mentoring as an essential component that resulted in successful program outcomes. In one example, The Association of American Medical Colleges launched a 3000 by 2000 program which resulted in a 65% increase in the minority applicant pool between 1990 to 1995 (Council on Graduate Medical Education, 2005). A major component of this program was the partnerships between medical schools, high schools, and community-based organizations called the Health Professions Partnership Initiative. The program's success was anchored in the time spent mentoring and conducting workshops for high school students (Council on Graduate Medical Education). In terms of nursing, the Health Careers Bridge Program was developed to enhance the recruitment and college success of minority students. In this program there is a pre-collegiate program aimed at mentoring, instructional experiences, and exposure to health care professionals. After completing the program, students reported a heightened interest in health care (Underwood & Fay, 1996). Additionally, program mentors and faculty reported a high rate of retention

among students (Underwood & Fay). In a similar project, high school students were provided with a preprofessional education program to prepare them for admission into a nursing program where all program participants were successfully admitted into nursing programs and later graduated and passed licensing examinations (Murray, Pole, Ciarlo, & Holmes, 2016).

The 2013-2014 Argus Commission Report on Diversity and Inclusion in Pharmacy education recognizes a gap in the pipeline of URM students who pursue STEM-fields. (Yanick et al., 2014). They further encourage schools and colleges of pharmacy to partner with programs that provide STEM education and careers throughout the K-12 pipeline with the intent to actively pursue URM students who enroll and/or participate (Yanick et al.). Universities have a unique opportunity and responsibility to explore and identify solutions for the betterment of society. The development and dissemination of new knowledge through the practice of teaching, research and scholarship are fundamental to the university and to its relationship with society.

An Urban Institute Community Outreach Project

The Urban Institute

St. John's University is a Catholic and Vincentian University that in addition to being focused on academic excellence and the pursuit of wisdom, devotes its "...intellectual and physical resources to search out the causes of poverty and social injustice and to encourage solutions that are adaptable, effective, and concrete" (St. John's University, 2016). Furthermore:

...as a metropolitan university, we benefit from NYC's cultural diversity... With this richness comes responsibility. We encourage the metropolitan community to use our resources to serve its needs. As a global university, we are one of our nation's most diverse institutions of higher education, enriched by a mixture of cultures, which complements an internationalized curriculum. Through collaboration with other institutions around the world, study abroad opportunities, and online courses and degrees, our outreach spans the globe. In educating students we pledge to foster those qualities needed for our alumni to become effective leaders and responsible citizens in a vibrant city and dynamic world. (St. John's University, 2016)

In recognition of SJU's mission as a global, metropolitan, Catholic, and Vincentian University, the St. John's University College of Pharmacy and Health Sciences (CPHS) created The Urban Institute in 2004. The purpose of The Urban Institute is to serve as a hub for scientific inquiry, innovation and service that impacts the health of the medically indigent and poor of NYC. The Urban Institute accomplishes its goal by fully engaging and leveraging the expertise of the university community and by establishing partnerships, collaborations and strategic alliances with the external community. The Urban Institute has developed and executed a variety of successful programs, including academic lectures and community service events focused on caring for the underserved and an annual Flu Vaccine Community Outreach Initiative for the urban indigent. During the past three years the Institute has been proud to develop and offer a novel flagship program, the "Changing Faces of Pharmacy-Student Enrichment Program".

The Changing Faces of Pharmacy-Student Enrichment Program, was a mission-aligned initiative, developed to increase the number of URM representation in pharmacy practice by appealing to those individuals interested in pursuing pharmacy education. It is an outreach program for high school students that introduces and broadens their understanding of the pharmacy profession, includes mentoring, informational sessions, and networking as a means of helping to promote the pharmacy profession and other health professions among traditionally URM groups. This initiative utilizes the knowledge, expertise and skills of pharmacy practice faculty (and student pharmacists) from the CPHS as well as others from the university community. Underrepresented minority high school students with an interest in healthcare are the main focus of this program. The Changing Faces of Pharmacy-Student Enrichment Program's three aims are: 1) provide high school students with knowledge on planning tools to become college ready and enhance their candidacy for college and/or pharmacy school admission; 2) promote and enhance the awareness and knowledge of the pharmacy profession to underrepresented minority high school students; 3) provide longitudinal mentoring opportunity with a current Pharm.D. student. This program is supported by University faculty, administrator, staff and student volunteers and through funding by the Walgreens Diversity Donation Fund to the CPHS. At the

time of this publication, there have been three cohorts of high school participants over three years. The data presented in this paper reflects assessments from the latest 2014-2015 cohort.

Program Description

The Changing Faces of Pharmacy-Student Enrichment Program occurs over the course of an academic year (Fall and Spring college semesters). Once enrolled, high school students are assigned a student pharmacist mentor – a student currently enrolled in the Pharm.D. program. The Pharm.D. student mentors participate in a co-curricular intensive "Mentor Training" program throughout the year. High school students are asked to participate in several on-campus as well as virtual activities with their Pharm.D. student mentors.

The program begins with an on-campus orientation session in which high school students are introduced to their mentors and take part in an interactive, live educational session conducted by pharmacy practice faculty and other university representatives. The first educational session provides the high school students with: information on becoming "college-ready"; developing a college atmosphere at home; understanding ways of preparing for Science, Technology, Engineering, and Mathematics (STEM) programs in higher education; and learning about the CPHS pharmacy curriculum and the various career paths within the profession. Students participate in two additional on-campus educational and recreational sessions. In the interactive educational session, high school students meet with their Pharm.D. student mentors and attend the university's Open House, which provides the high school student with information on admission requirements and perspectives on student life on campus. Students and their mentors also engage by completing a hands-on medication compounding activity, supervised by the pharmacy practice faculty. In the recreational session, high school students and their mentors are invited to attend a competitive collegiate athletic program, such as a SJU basketball game to provide them with a sense of social aspects of the college experience. Throughout the year, program participants regularly communicate virtually with assigned Pharm.D. student mentors for continued enrichment and education on the pharmacy program. The program participants

conclude the program by attending a closing ceremony with their mentors and parent(s) or guardian in the Spring semester of that academic year.

Description of Mentor Training Component

Similarly to the previously cited examples, we found that the mentoring component is a key aspect of connecting with the high school student. The specific aims of the Mentor Training Program are to: 1) provide structured training sessions to ensure consistency in the Pharm.D. student mentors' understanding and knowledge of mentoring, 2) provide guidance and support for student pharmacist mentors, 3) enhance student pharmacist mentors' confidence/competence in their ability to serve as mentors, and 4) promote sensitivity and awareness to workforce diversity within the pharmacy profession among current Pharm.D. candidates. A primary benefit of having Pharm.D. students mentor would be the ability to provide the high school student with the opportunity of gaining insight of the College experience through the lens of a currently enrolled pharmacy student. As a result, Pharm.D. students are challenged to develop communication and leadership skills, improve empathy and cultural attitudes towards diverse communities, and increase self-awareness through their interactions and training.

Pharm.D. student mentors participate in an intensive Online Mentor Training program, which is conducted prior to being assigned to their mentees. The Online Mentor Training program consists of three modules, which provide mentors with information on the objectives and expectations of the program, instructional interactive learning activities and case-based discussions. Modules are delivered through live session or web-based recordings of pertinent activities and discussions. Mentors provide continual feedback on their interactions with their mentees through verbal or written reflections. As part of their required activities, mentors conducted routine live and virtual online meetings with their assigned mentees 6-8 times during the course of the program.

Project Development and Logistics

The Urban Institute's Changing Faces of Pharmacy planning committee routinely meets prior to the beginning

of the academic year to set the agenda and plan activities for high school students and Pharm.D. student mentors. The committee also meets to discuss and revise the mentor-training program for the Pharm.D. student mentors.

The recruitment of high school students takes place by sending email announcements to both public and private high schools with high concentrations of our target demographics of Black and Hispanic students, although all demographics are welcome to apply. Students in their 9th-12th year of high school are invited to apply to the program through a competitive application process. In order to participate, students complete an application with an essay component and have a parent or guardian sign a consent form for surveys, and a photograph release form. At the same time, an email is sent to the Pharm.D. student body to call for qualified and eligible Pharm.D. students in the 4th-6th year of the Pharm.D. program, in good academic standing, to serve as mentors. In order to participate, Pharm.D. students fill out an application with an essay component, a signed consent form for surveys, and a photograph release form. The Urban Institute's Changing Faces of Pharmacy planning committee subsequently reviews the high school student and mentor submitted applications.

Project Assessment

Since 2012, The Urban Institute's Changing Faces of Pharmacy-Student Enrichment Program has run annually for local high schools. The St. John's University Institutional Review Board (IRB) has approved the evaluation of the initiative as exempt. Data presented here represents the results of the program for the 2014-2015 cohort.

The Changing Faces of Pharmacy-Student Enrichment Program has provided mentoring services and education for 38 high school students and 16 mentors, with growing numbers every year. The response rate for the survey was 81.5%. More than 75% of high school participants were female, and a majority were in their junior and senior years of high school. Thirty-three percent of students were of Asian descent, 30% were Hispanic or Latino, and 10% were Black or African American (Table 1). Over the course of the program, high school students felt that their

knowledge of the pharmacy profession increased (93.75%) and their understanding of the educational requirements to be a pharmacist improved (93.75%).

High school students also felt that the mentoring experience and the time spent with their mentor helped to enrich their learning about the pharmacy profession and program (96.88%). Approximately 47% of participants decided to apply to a pharmacy program and all students decided to continue their education. Over 95% percent of high school student participants stated that they would recommend this program to their peers (Table 2). Tuition, financial support, and the curricular structure of the program were among the top 3 considerations when participants were asked to rank consideration factors for applying to a Pharm.D. program (Figure 1). Although we have run this program successfully, it has not directly translated to increased applicants to the pharmacy program at St. John's University.

Summary

Programs with a strong mentoring component have been implemented to increase the presence of URMs in a variety of professional and academic sectors with success (Council on Graduate Medical Education, 2005; Underwood & Fay, 1996; Murray, Pole, Ciarlo, & Holmes, 2016). Our college is similarly faced with the challenge of recruiting URM (Black and Hispanic students) due to several barriers such as the financial affordability of private education, academic under-preparedness, and lack of knowledge of program offerings and available support and resources. The Urban Institute chose to develop a program that focused on increasing student-knowledge of the pharmacy profession and increasing their knowledge of support services available to admitted students.

The Changing Faces of Pharmacy-Student Enrichment Program has provided mentoring services and education to a growing cohort of high school students through the active participation of our Pharm.D. students. The overall positive impact of the program was demonstrated through anonymous survey feedback, where 94% of high school students identified that their knowledge of the pharmacy profession increased and that their understanding of the educational requirements to be a pharmacist improved. Perhaps the most profound impact

was seen when approximately 47% of high school students decided to apply to a pharmacy program. Furthermore, all students decided to pursue a college education and 90% of students decided on a Science, Technology, Engineering, and Mathematics (STEM) program. We will look to create strategic alliances that will provide broader services and support to this group of students, including financial and academic aspects. We will also look to develop partnerships to find STEM-

focused feeder programs for Elementary and Middle School children to offer the Changing Faces of Pharmacy-Student Enrichment Program for their high school years. Assessments will be expanded to include long-term follow-up studies with these students and to look at the rates of admission to schools, rates of degrees conferred, and rates of degrees conferred in pharmacy schools specifically.

Table 1

Mean Age	16.2 (years)
Female	77.42%
Academic year	Freshman: 3.23% Sophomore: 22.58% Junior: 38.71% Senior: 35.48%
Race/Ethnicity	Asian : 33.33% White (non-Hispanic): 6.67% Hispanic: 30% Black (non-Hispanic) or African American: 10% American Indian or Alaska Native: 0% Native Hawaiian or other Pacific Islander: 3.33% Two or more races: 6.67% Other: 20%

Table 1: Baseline Characteristics for the Changing Faces of Pharmacy –Student Enrichment Program (n=38)

Figure 1

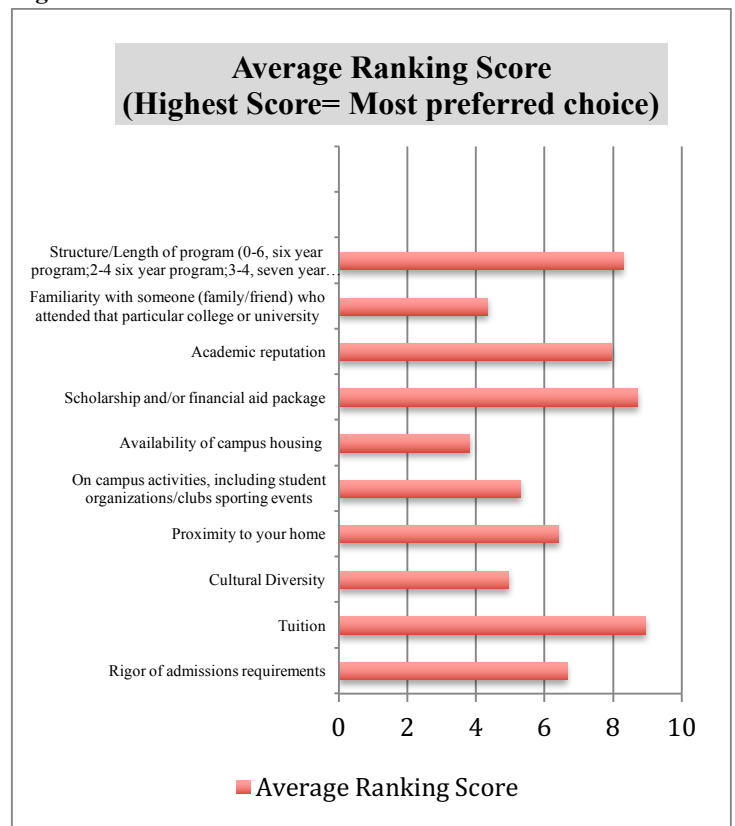


Table 2 Survey Questions Results

Survey Questions	Responses					
Assessment of Program						
How did your knowledge of the pharmacy profession change?	Increase 93.75%	Decrease 0.00%			Stayed the same 6.25%	
I feel the Changing Faces of Pharmacy Program helped improve my understanding of the educational requirements to be a pharmacist.	Strongly Agree 62.50%	Agree 31.25%	Neutral 6.25%	Disagree 0.00%	Strongly Disagree 0.00%	
I feel the Changing Faces of Pharmacy Program helped improve my understanding of the different structure/lengths of the various PharmD programs.	Strongly Agree 50.00%	Agree 40.63%	Neutral 6.25%	Disagree 3.13%	Strongly Disagree 0.00%	
My pharmacy student mentor was friendly and approachable during my time spent with them.	Strongly Agree 78.13%	Agree 12.50%	Neutral 9.38%	Disagree 0.00%	Strongly Disagree 0.00%	
My pharmacy student mentor was able to answer questions I had relating to the pharmacy program or profession.	Strongly Agree 50.00%	Agree 40.63%	Neutral 6.25%	Disagree 3.13%	Strongly Disagree 0.00%	
The time I spent with my pharmacy student mentor during the first session of the Changing Faces of Pharmacy.	Too much 0.00%	Just enough 90.32%		Too little 9.68%		
Have you decided to apply to a pharmacy program?	Yes 46.88%	No 40.63%	Not sure but will be attending college 46.88%			
If you have decided NOT to apply for admission to a pharmacy program, what other majors are you considering ?	Other, health profession (i.e. dentistry, medicine, nursing) 52.94%		Other STEM program (i.e. biology, engineering, accounting) 35.30%	Liberal arts 11.76%		

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