

The Diverse Surgeons Initiative: An Effective Method for Increasing the Number of Under-represented Minorities in Academic Surgery

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There is increasing concern that US medical institutions are devoid of a sufficient number of under-represented minority (URM) faculty members. There is so much concern that in the last decade there have been numerous special topic articles published in the surgery, internal medicine, gastroenterology, pediatrics, family medicine, and public health literature assiduously describing the paltry number of URM within the ranks of their respective faculty.¹⁻⁸ The cause of the shortage of URM faculty in academic medicine is assuredly multifactorial. The literature suggests that possible factors include an insufficient number of URM medical school graduates, URM residents who are uninformed of or ill prepared for opportunities in academic medicine, a paucity of role models and mentors, and other environmental factors including educational indebtedness and institutionalized racism.⁹⁻¹¹ Recent reports state profoundly that the continued under-representation of minorities in the medical profession is having a deleterious effect on the health of our nation.^{1,12-14}

It has been documented that URM physicians have a history of more readily serving underserved communities than their majority colleagues¹⁵⁻¹⁹ and URM patients have been said to feel more comfortable when being cared for by URM physicians.^{15,20-22} Additionally, the literature reveals that URM patients have a heightened willingness to participate in clinical research if a member of the research team

is also a URM.^{23,24} These findings suggest that increasing diversity in the physician workforce is essential in progressing toward alleviating racial inequities in health care.

Young surgeons have a plethora of career paths from which to choose on completion of their residency training. It is well described that leadership positions (such as faculty appointment) held by URM physicians are critical to stimulating the diversity of the field.¹ Academic surgeons are responsible for treating patients, carrying out research, teaching students, and serving as mentors and role models for future surgeons. So it is reasonable to deduce that the lack of sufficient representation of URM in the US academic surgical system is an important component of the health care disparity dilemma. Understanding and addressing the factors that lead residents to careers in academia is of utmost importance if the goal is to increase the number of URM seeking academic careers.

THE DIVERSE SURGEONS INITIATIVE (DSI)

Aware of the paucity of URM receiving advanced minimally invasive surgery (MIS) training, several prominent laparoscopic surgeons who were consultants with Ethicon Endosurgery Incorporated's Committee on Diversity deemed it necessary to establish a grant to fund a program tailored to provide advanced MIS skills to young URM surgeons in practice. The first 3 years of the program, 1998 to 2001, were quite successful, but the program began to run out of viable participants. URM surgeons who participated in the program raved about the training, but it quickly became apparent to the DSI organizers that there was a dearth of URM surgeons to whom the training could be provided.

In the mid to late 1990s, MIS surgery was just becoming fully integrated in academic centers around the country and DSI faculty believed that MIS was clearly the future of surgical interventions. Unfortunately, URM were poorly represented in various MIS professional organizations such as the Minimally Invasive Surgery Fellowship Council, the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), and the American Society for Metabolic

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Abbreviations and Acronyms

DIS	= Diverse Surgeons Initiative
MIS	= minimally invasive surgery
URM	= under-represented minority

and Bariatric Surgery (ASMBS). This once again reflected the paucity of URM residents receiving state-of-the-art MIS training. As a result, a decision was made by the DSI organizers in 2002 to redirect their focus and target highly motivated URM surgical residents in their academic training post-graduate years (PGY) 2 through 5.

At the onset of this revamped DSI program, the organizers had 2 main goals in mind. The first was to provide qualified URM residents with the fundamental MIS skills that would enable them to excel in their surgical residencies and have a firm foundation of MIS skills when beginning an MIS fellowship. The second aim was to provide URM residents with exposure to DSI adjunct faculty members who were MIS fellowship directors. The URM residents had an opportunity to interact and work with these MIS fellowship directors and vice versa. So, when fellowship application and interview season arrived, the DSI graduates were predicted to be in better positions to match with competitive MIS fellowship training programs.

The inaugural year of the DSI program for residents was 2002. There were 8 URM residents in that class and there has been a new class of 8 to 14 URM residents every year since then. General surgery residency program directors nominate candidates from their program to participate in the DSI and historically, most nominees have been accepted. The DSI program includes 3 2-day sessions over the course of a 9-month period. The sessions include MIS fundamentals (laparoscopic knot tying, suturing, etc), a porcine surgical laboratory for simulating procedures (laparoscopic cholecystectomy, laparoscopic Nissen fundoplication, etc), surgical anatomy review, disease pathophysiology lectures, and case-based question-and-answer sessions reflecting the American Board of Surgery In-Training Service Examination (ABSITE) format.

Focusing on the concepts of preparedness and mentorship, the program immediately showed signs of success. After hearing of the DSI's success in improving the residents' skills in MIS techniques, an increasing number of surgical residency program directors around the country began contacting the DSI organizers to nominate their program's residents for participation. Subsequently, the DSI participants were choosing to pursue MIS fellowships and MIS fellowship program directors began commenting on how advanced the DSI graduates were at the onset of their fellowship training.

Another interesting phenomenon became apparent as the program continued into successive years. An increasing number of URM residents were interested in the DSI to better prepare them for their general surgery training but did not necessarily want to seek an MIS fellowship. They were seeking fellowships in other fields. Aware of the paucity of URM residents in all of the surgical subspecialties, the DSI faculty quickly embraced this originally unintended effect. Furthermore, anecdotally it appeared to the DSI organizers that graduates from the DSI were acquiring positions in academic surgery at an increasing rate. The increasing rate of DSI graduates acquiring positions in academic surgery after completion of their residency training and fellowship was yet another unintended but well received result.

METHODS

In order to determine the effect of the DSI training program on URM residents in academic medicine, we collected post-general surgery residency training and eventual employment information on the DSI graduates from 2002 to 2009. The DSI participants from 1998 to 2001 were not included because those participants were already in practice (almost all in the private sector), having completed their residency training sometimes many years before participating in the DSI. Additionally, the 1998 to 2001 participants' program was different than the one established for the residents because the modified DSI that began in 2002 consisted of a curriculum specifically tailored to the needs of surgical residents (anatomy lectures, in-training service examination questioning, career building lectures, etc). The aim of this manuscript is to discuss the effectiveness of a URM resident-targeted program, focused on preparedness and mentorship, on participants' fellowship attainment, and eventual faculty appointment.

RESULTS

As of the winter of 2009, the DSI had 76 graduates from the program. Of those 76 DSI graduates, 64 were fellowship eligible, having completed their general surgery training. The remaining 12 DSI graduates were still in the process of completing their general surgery training. Of the 64 fellowship-eligible DSI graduates, 86% (55 of 64) went on to pursue a postgeneral surgery fellowship. MIS was the most frequently chosen fellowship (21 of 64); however, DSI graduates also pursued fellowships in various other subspecialties including cardiothoracic (9 of 64), transplantation (2 of 64), surgical oncology (8 of 64), plastic and reconstructive (2 of 64), trauma/critical care (5 of 64), breast oncology (3 of 64), endocrine (1 of 64), colorectal (2 of 64), and pediatric (2 of 64) (Fig. 1).

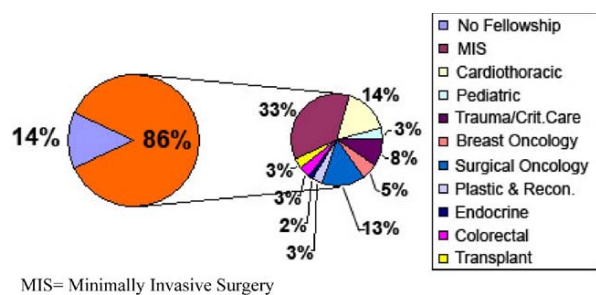


Figure 1. The Diverse Surgeons Initiative (DSI) graduates' post-general surgery residency fellowship training.

Of the 76 DSI graduates, 42 have completed all of their surgical residency and possible fellowship training and are currently in practice. The remaining 34 DSI graduates are still completing some portion of their training. Of the 42 DSI graduates now in practice, 57% (24 of 42) currently hold positions as full time faculty members as assistant, associate, or full professors in departments of surgery, successfully pursuing careers in academic medicine. Part time clinical instructors were not included (Fig. 2).

DISCUSSION

Preparedness

Cregler and colleagues⁹ pointedly stated that URM medical students, residents, and fellows must be armed first and foremost with the necessary knowledge base and skills if the intention is to generate more minority physicians in academic medicine. The DSI program is rooted in that very notion, providing hands-on MIS training in techniques essential to the necessary skills held by surgeons in practice. These skills are directly translatable to the operations that surgery residents perform during their general surgery training. These skills are even more pertinent to those residents desiring subspecialty training, in which being adept at these techniques earlier will enhance their success as fellows, and then later in practice.

Surgical anatomy, pathophysiology, and clinical scenario question-and-answer sessions, as previously mentioned, are also part of the DSI program. Valuable discussion pertinent to cases that many of the faculty have often seen during their careers are discussed and analyzed. To ensure that the participants have acquired the knowledge intended by the faculty, each participant completes a practical and a written assessment that is evaluated by the faculty and reviewed in a group setting. The intent is to help further prepare the participants to excel in the American Board of Surgery In-Training Service Examination, the General Surgery Board Certification Examination, and most importantly, the care of their current and future patients.

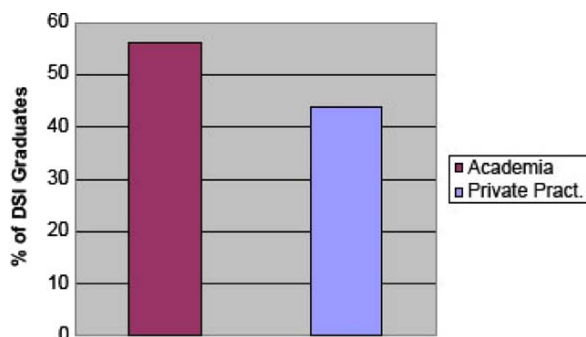


Figure 2. The Diverse Surgeons Initiative (DSI) graduates' postsurgical training employment, academic position vs. private practice.

One of the evolving goals of the DSI is to encourage more URM residents to pursue fellowships, whether in MIS or another subspecialty. Fellowship training is extremely beneficial to those pursuing careers in the private sector, but is virtually imperative for those seeking a position in academic medicine. As Stern²⁵ describes, fellowship is essential to a successful career in academia because it cultivates clinical, research, and leadership skills typically not provided during general surgical training. Additionally, it enables a physician to obtain a sense of preparedness and the title of an expert in the field, which are characteristics highly sought by departmental leadership looking for new hires.

A 2001 study revealed that fellowship-trained medical faculty had a greater number of publications, got more grant funding, and had increased rates of academic promotion compared with faculty who were not fellowship trained.^{25,26} This is not surprising to those entrenched in academic medicine, but it does provide evidence-based data supporting the notion that in order to increase the number of successful URM faculty, we must first increase the number of URM residents obtaining fellowship training. In its 8 years of existence, the DSI has been exceedingly successful in that regard.

Mentorship/role models

Numerous publications describe the tremendous impact that mentorship has on the success of academicians.^{27,28} Duda²⁹ described 6 principles to a successful career in academic medicine, one of which was seeking and receiving counsel. Having mentors who have been or currently are successful academicians is beneficial for guiding the mentee in the appropriate direction to achieve success. Jackson and colleagues^{1,30} described, via a series of interviews with junior faculty, that respondents overwhelmingly believed that attainment of a successful academic career directly correlated to having strong mentoring relationships with senior faculty. A more recent study by Ramanan and associates^{1,31}

determined that residents aligned with a mentor were twice as likely to show excellent career preparedness compared with those who denied having a faculty mentor.

The need for mentorship appears even more evident when it comes to cultivation of URM medical students, residents, and fellows. Concerns and perceptions of discrimination, institutionalized racism, and ethnic elitism within academic medicine deter many young URM students away from academic careers.^{1,10} This is why organizations such as the WK Kellogg Foundation¹² and the Robert Wood Johnson Foundation³² have developed mentorship programs specifically aimed at increasing the research efforts, academic productivity, and pipeline of URM academicians. Successful mentorship programs around the country have held the unifying belief that it is important to expose URM students early to both opportunities for a career in academics and more importantly, to real-life examples of URM students who are currently active and successful in the field.

Recently it has been promoted in the literature that minority faculty members are essential because they provide a unique perspective on patient care, teaching, research, and most significantly, provide support to URM students through academic and career guidance, role modeling, and mentorship.^{1,33,34} The DSI has included several non-URM faculty who support URM residents through mentorship and support of the DSI. Their impact has undoubtedly been critical to the vitality of the initiative and to the education of the participants. Understanding the importance of supporting diverse initiatives to increase URM fellows and faculty is not limited to URM faculty, but should be supported by all faculty until the disparity no longer exists.

Limitations of this study

The DSI was originally organized as a developmental program in an attempt to provide URM residents with additional MIS skills and also to encourage them to pursue fellowships in MIS. It blossomed into a decade-long program that has helped propel the vast majority of its participants into various subspecialty fellowships and faculty positions. In the beginning, DSI organizers were painstakingly aware of the paucity of URM students that comprised general surgery residencies, subspecialty fellowships, and faculties, which has been formally documented.⁵ Therefore, simultaneously tracking the careers of a control group of URM and non-URM residents who did not complete the DSI, although scientifically beneficial, was not performed. Due to this, we recognize that the findings of this study do not hold up to the strict scientific scrutiny prudent for scientific articles, because the data are admittedly descriptive in nature. However, in an era in which little success has been achieved in improving the number of URM students in academic surgery, the merits and success of this

program's track record of influence on URM residents to obtain fellowships and faculty positions cannot be overlooked. The DSI program's results deserve attention to further promote creation of initiatives aimed at alleviating the deficit of URM academicians.

We also recognize that this study's findings are subject to selection bias because these URM residents were chosen to participate in the DSI because of their high level of motivation and laudable credentials. Admittedly, some of these residents likely would have gone on to pursue fellowship experiences and possibly faculty positions without taking part in the DSI. However, historically speaking, it is unlikely that such a high proportion within the group would have gone on to obtain both fellowships and faculty positions. Each DSI graduate's decision to pursue and ability to obtain a fellowship and/or faculty position is undoubtedly multifactorial, and we are not implying that the DSI deserves all the credit for the success of these physicians. However, the DSI has provided many of the necessary skills and most importantly, the vital mentoring that is essential for a career in academia. For DSI participants, that mentoring began at their first weekend session and continued for many years afterward.

If the DSI continues for another 10 years, it would be invaluable to determine if there is an appreciable rise in the percentage of URM students who comprise surgical faculty. At that point, the DSI would have been in existence almost 20 years, which is the approximate time that it takes for a faculty department to turn over. We predict that if the DSI is continued and slightly expanded there may be an appreciable difference seen. This hypothesis is indeed speculative, but could be a worthwhile future study.

CONCLUSION

In its 8 years of existence, the DSI has been successful in providing URM residents with the clinical knowledge and surgical skills necessary to excel in surgical residency and a successful surgical career. With the original intention of equipping URM residents with MIS skills and assisting them in attaining MIS fellowships, the DSI evolved into a program that extends well beyond its original goals. In doing so, the DSI has prepared and mentored participants in a fashion that has led an overwhelming majority to obtain fellowship training in a broad spectrum of subspecialties, with MIS not surprisingly being the field most often chosen. The 86% of graduates acquiring fellowship training is quite compelling when considering that the number of PGY-5 residents securing fellowship positions nationally in 2005 was 77%.³⁵

Additionally, as preparedness was instilled and ongoing mentorship was provided, 57% of DSI graduates who have

completed all of their surgical training have gone on to careers in academic surgery. This once again is exceedingly higher than the national percentage of residents acquiring positions in academia rather than pursuing practices in the private arena.^{36,37} DSI graduates hold distinguished faculty positions throughout the country and it is not unreasonable to predict that this number will continue to grow.

We recognize that expanding a program like the DSI to all URM surgical residents is not likely feasible, but due to its success, continuation and limited expansion of this program should be promoted and supported. Although it may lack strict scientific rigor, bringing attention to, and awareness of, the success of the DSI in hopes of garnering support for the continuation and extension of such programs is the ultimate goal of this manuscript. Additionally, we hope that these findings motivate other specialties to consider similar national programs to increase the number of URM medical faculty throughout all of medicine because surgery is not alone in its deficit of URM academicians.⁵

Author Contributions

Study conception and design: Butler, Britt, Green, Longaker, Geis, Morris, Ruhalter, Fullum

Acquisition of data: Butler, Britt, Green, Longaker, Geis, Morris, Ruhalter, Fullum

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Drafting of manuscript: Butler, Britt, Green, Longaker, Fullum

Critical revision: Butler, Britt, Green, Longaker, Geis, Morris, Ruhalter, Fullum

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