

# Addressing Medical School Diversity Through an Undergraduate Partnership at Texas A&M Health Science Center: A Blueprint for Success

Alan R. Parrish, PhD, Dennis E. Daniels, DrPH, R. Kelly Hester, PhD, and Christopher C. Colenda, MPH, MD

## Abstract

Imperative to increasing diversity in the physician workforce is increasing the pool of qualified underrepresented minority applicants to medical schools. With this goal in mind, the Texas A&M Health Science Center College of Medicine (A&M College of Medicine) has partnered with Prairie View A&M University (PVAMU), a historically black college and university that is a component of the Texas A&M university system, to develop the undergraduate medical academy (UMA). The UMA was established by legislative mandate in 2003 and is a state-funded program. The authors describe the

development of partnership between the A&M College of Medicine and PVAMU, focusing on the key attributes that have been identified for success. The administrative structure of the UMA ensures that the presidents of the two institutions collaborate to address issues of program oversight and facilitates a direct relationship between the dean and associate dean for academic affairs of A&M College of Medicine and the director of the UMA to define the program objectives and structure. The authors delineate the admission process to the UMA, as well as the academic

requirements of the program. Students attend lecture series during the academic year and participate in summer programs on the A&M College of Medicine campus in addition to receiving intensive academic counseling and opportunities for tutoring in several subjects. The authors also describe the initial success in medical school admissions for UMA students. This partnership provides a model blueprint that can be adopted and adapted by other medical schools focused on increasing diversity in medicine.

Acad Med. 2008; 83:512–515.

It is widely recognized that the graduating classes from our nation's medical schools do not adequately reflect the increasing racial and ethnic diversity in the United States.<sup>1,2</sup> To address this disparity, a number of programs aimed at increasing the number of qualified minority applicants to medical school have been established, ranging from health science pipeline programs for high school students,<sup>3</sup> postbaccalaureate training,<sup>4</sup> and combined BS/MD programs.<sup>5</sup> In the fall of 2006, the Association of American Medical Colleges (AAMC) launched the

AspiringDocs campaign, a nationwide program focused on increasing diversity in medical school classes that targets minority students at the undergraduate level, primarily through their Web site and on-campus outreach efforts.<sup>6</sup> With the goal of increasing the pool of qualified minority medical school applicants in Texas, the Texas A&M Health Science Center College of Medicine (A&M College of Medicine) has partnered with Prairie View A&M University (PVAMU), a historically black college and university (HBCU) that is a component of the Texas A&M university system, to develop the undergraduate medical academy (UMA). The UMA was designed in 2004 to cultivate a campus-to-campus relationship between A&M College of Medicine faculty and students and PVAMU UMA students that is focused on academic enhancement, including MCAT preparation, and professional development. The program also provides students an introduction to clinical experiences.

prepare students for medical school” by providing

- 1) academic and career counseling for academy students;
- 2) faculty mentorship for each academy student;
- 3) enriched undergraduate courses with the specific intent to strengthen academic preparation for future medical school applicants;
- 4) long distance educational technology to allow interactive participation with medical schools, as appropriate;
- 5) visitation to medical school educational sites;
- 6) visitation of medical school faculty to the academy for academic enrichment purposes.<sup>7</sup>

Once the partnership had been established, the first step toward making it operational was to hire a UMA director. A joint search committee of A&M College of Medicine and PVAMU faculty was involved in filling the position in the spring of 2004. Once a director had been appointed, stakeholders in the partnership worked to establish an organizational structure defining the interactions between the A&M College of Medicine and the UMA. This structure ensures that the presidents of the two institutions collaborate to address issues of program oversight and facilitates a direct relationship between the dean and associate dean for academic affairs of A&M College of Medicine and the

**Dr. Parrish** is associate professor, College of Medicine, Texas A&M Health Science Center, College Station, Texas.

**Dr. Daniels** is director, Undergraduate Medical Academy, Prairie View A&M University, Prairie View, Texas, and professor, College of Medicine, Texas A&M Health Science Center, College Station, Texas.

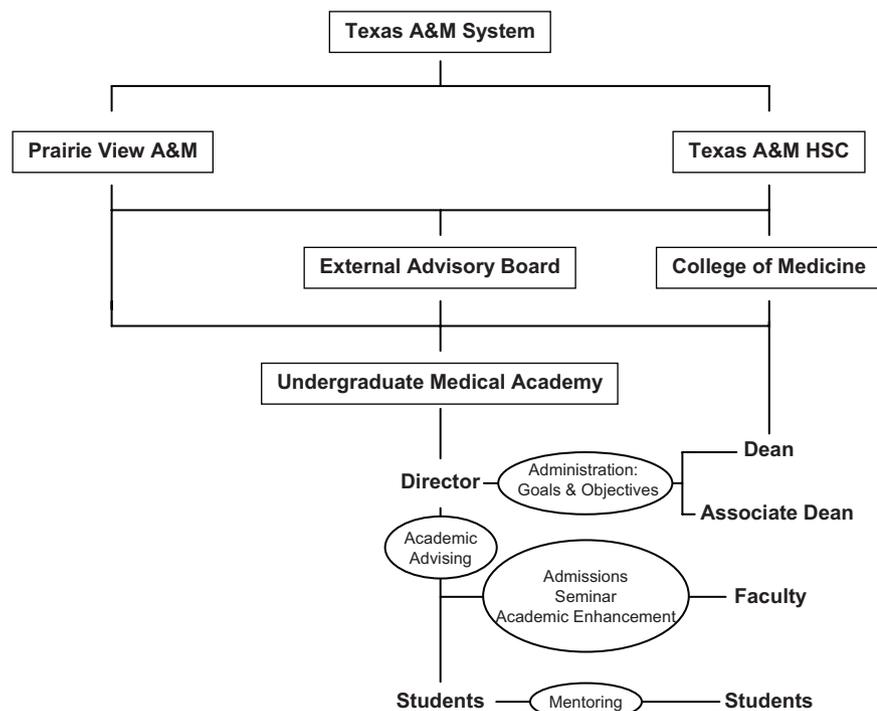
**Dr. Hester** is associate dean for academic affairs, College of Medicine, Texas A&M Health Science Center, College Station, Texas.

**Dr. Colenda** is dean, College of Medicine, Texas A&M Health Science Center, College Station, Texas.

Correspondence should be addressed to Dr. Colenda, Office of the Dean, College of Medicine, Texas A&M Health Science Center, College Station, TX 77843-1114; telephone: (979) 845-3431; fax: (979) 847-8663; e-mail: (colenda@medicine.tamhsc.edu).

## Developing the Partnership

The Texas Legislature established the UMA in 2003 by House Bill 85.<sup>7</sup> The bill states that “purpose of the academy is to



**Figure 1** A visual representation of the organizational structure of the Undergraduate Medical Academy, a partnership established in 2003, between Texas A&M College of Medicine and Prairie View A&M University.

director of the UMA to define the program objectives and structure (Figure 1). With the organizational structure in place, program leaders developed specific goals for the UMA:

1. Identify and attract qualified students to the UMA.
2. Prepare students for entrance into medical school.
3. Develop a nurturing mentor network.
4. Identify and develop opportunities to participate in research activities.
5. Develop a nationally recognized model for this program.

To track the success of the program, program leaders identified the following measurable outcomes: (1) retention and graduation rates, (2) cumulative and science GPA, and (3) acceptance rate to medical school.

The funding for the UMA remains identified as special-item funding from the state of Texas. The funds are now identified by the state as Academic Development Initiative funds. For summer programs, special seminars, faculty development activities, and college of medicine faculty time and effort, the dean of the college of medicine continues to fund these activities through

collegiate revenue sources. The value of the partnership and the program more than justifies the expenditures. Ongoing efforts to find external support from foundations and other funding agencies continue as opportunities arise.

An external advisory board (EAB) was also formed to provide feedback on program development. The EAB consists of 13 physicians and university administrators interested in the overall goal of increasing diversity in the physician workforce. EAB members are upper-level administrators of academic, governmental, or private health care units. The EAB meets twice a year, and the members offer recommendations on a number of topics including student recruitment, program development, and funding opportunities, and also provide insight into other programs across the country that are committed to similar goals. The UMA director and the A&M College of Medicine dean and associate dean for academic affairs evaluate EAB recommendations before they are implemented. Members of the EAB also interact with UMA students during one of their visits to PVAMU each year. UMA students give EAB members a tour of the campus and meet with them over meals. This informal interaction reinforces the students' desires to pursue medical

school and provides additional role models of success for them. Although this informal role modeling is a seemingly insignificant contribution, we have identified positive reinforcement as a key component for success. In fact, during the fall 2007 EAB meeting, members suggested that they would value increased time to meet with the students. Therefore, we are currently examining the feasibility of extending the semiannual EAB meetings to increase the contact time between UMA students and EAB members.

## Admissions

Shortly after the UMA director was hired, the first class of the UMA was selected in the fall of 2004 by a combination of A&M College of Medicine and UMA faculty and staff. There is equal representation from the UMA staff and A&M College of Medicine on the UMA admissions committee. The pool of eligible candidates (100–150) consists of students coded as premed by the office of the registrar on admission to PVAMU. These individuals are screened by UMA staff for eligibility based on GPA and are then contacted by mail and e-mail with an introduction to the UMA. At this point, approximately 40 to 45 students are invited to apply to the UMA, and 30 students are interviewed. Admission to the UMA is based on the applicant's academic performance at PVAMU (a minimum GPA of 3.25 is required for admission and must be maintained to remain in good standing), a personal statement detailing the applicant's motivation for a career in medicine, letters of recommendation, and an interview. In the first three years of the UMA, the class sizes have been 18, 15, and 23 students.

A&M College of Medicine's involvement in the admissions process is a key feature of the program. This strategy allows for an immediate interaction between the A&M College of Medicine and PVAMU UMA faculty and students. The involvement of A&M College of Medicine faculty from the beginning ensures their deep investment in the students' progress and success. The joint admissions strategy also provides the students with important insight into the interview process that will be involved in their applications to medical school. In fact, several members of the A&M College of Medicine medical admissions committee participate in the UMA admissions process. In previous

years, interviews/admissions have been conducted in the spring semester of the applicants' freshman year. Entering the program early in their undergraduate careers allows the students additional time in the program to enhance their academic preparation, specifically for the MCAT.

### Academics

In the first three years of the program, 56 students have been admitted to the UMA. At this point, UMA students pursue their declared undergraduate major; there is no standardized UMA curriculum that is required. However, as the number of UMA faculty increases, we expect to offer honors sections in several chemistry and biology courses to UMA students. After students are admitted at the end of their freshman year, the program involves intensive academic counseling for the students, as well as a number of opportunities for tutoring in several subjects. The initial class of students began learning skills seminars and MCAT preparatory classes immediately to address the UMA goal of improving academic preparation for medical school admissions. Initially, we provided one semester of MCAT preparation for each student through a commercial vendor. However, on the basis of student feedback and MCAT scores from the initial class, MCAT preparation has now been extended to a year-round activity.

### Seminar series

After the first class of students was admitted in the fall of 2004, a biweekly UMA seminar series began on the PVAMU campus. These seminars feature A&M College of Medicine faculty and students and are designed to introduce the UMA students to key concepts in basic and clinical science and to expose them to various clinical specialties. Additionally, the seminars provide the students unique insights into the challenges and rewards of a career in medicine. Because they may conflict with students' class schedules, these sessions are not mandatory; however, they are well attended (more than 50% of students attend each session).

In the first three years, more than 20 A&M College of Medicine faculty members have traveled to PVAMU to present to the students. The majority of the seminars from the basic scientists

focus on research issues, though others are modified first- and second-year medical school lectures. Clinician lecturers give a background of their specialty, but they usually focus on their personal stories of how they got to their current positions.

The most important component of the seminar series, however, may be the visits by A&M College of Medicine medical students. These sessions, which are scheduled once per semester, have proven to be highly successful. The UMA students are highly interactive, and the opportunity to learn from their peers about a number of topics—learning skills, MCAT preparation strategies, medical school admission process—is irreplaceable. Again, the positive reinforcement for the students of seeing success stories is one of the most important components of the program. These sessions have also proven to be a positive experience for the A&M College of Medicine students; they have taken to this mentorship role in a vigorous manner. In fact, the A&M College of Medicine chapter of the Student National Medical Association (SNMA) has established extensive bonds with the UMA students. They have hosted students at the regional SNMA conference and traveled together to the national conference, and they visit the campus multiple times during the academic year. In addition to these interactions, the A&M College of Medicine hosts the students once a year. This allows the students to tour the facilities and to meet additional faculty and students.

### Summer program

A summer program for UMA students began at the A&M College of Medicine in the summer of 2005 with members of the initial class of UMA students. This summer program is not mandatory, because some UMA students participate in summer programs at other medical schools or take classes during summer school. During the six-week program, students are exposed to biomedical research by working in one of several research laboratories for 30 hours per week. We attempt to place each student in a laboratory devoted to his or her identified area of interest (e.g., neuroscience, cardiovascular disease, molecular biology). At the end of the program, students present their work in a poster session attended by A&M College of Medicine faculty and students.

During this summer experience, students also participate in a preceptorship program one afternoon per week to increase their exposure to clinical medicine. During this part of the program, students shadow clinicians (one-to-one ratio) in a variety of specialties. Students shadow a different physician each week in an attempt to expose each student to clinical medicine as broadly as possible. This component of the program was highly regarded by the initial students, and in subsequent summers the preceptorship program has been expanded from one to two afternoons per week. In 2006, the program was extended from six to eight weeks on the basis of feedback from faculty that the extra time would increase the students' research exposure. However, this decision had unintended consequences—a six-week program allows the students to finish their UMA summer experience and still take classes during the second summer session, whereas an eight-week program does not allow students this opportunity. Realizing that this may hinder certain students, the current and future summer programs will be a six-week experience. The summer experience for the UMA runs simultaneously with several other state and A&M College of Medicine undergraduate programs on campus. This is an important strength of the summer experience, as UMA students and students from many other universities in Texas live and work together for the summer. These students, who come from diverse backgrounds but share the same ambitions, have the opportunity to come together in their pursuit of a common goal, learning from each other along the way.

Beginning in the summer of 2007, a major modification was made to the summer program. In the first four years of the program, it became clear that the MCAT remains the major obstacle for most, if not all, of the UMA students. Therefore, the emphasis in the summer program has been shifted from a biomedical research/preceptorship to an academic enhancement/preceptorship approach. The students spend mornings focusing on organic chemistry and an integrated histology/physiology course and afternoons in an MCAT preparation module (three days per week) or on their clinical rotations (two days per week). Although we considered exposure to biomedical research a valuable experience, our focus must remain on ensuring that the students have the necessary academic

background to ensure that they are competitive medical school applicants and that they successfully complete the basic sciences curriculum in medical school.

### Lessons Learned and Future Challenges

The UMA's overall retention rate has been 91.7%, with students leaving the program for numerous reasons, including changes in career goals and failure to meet the GPA requirements. The first class of UMA students graduated in May 2007, with a successful medical school acceptance rate of 64% (7 of 11 students) compared with acceptance rates of 24% (personal communication, Mr. Filomeno G. Maldonado, Assistant Dean for Admissions A&M College of Medicine, May 2007) and 38%<sup>8</sup> for African American students in Texas and nationwide, respectively, in the same year. In addition, this percentage is higher than the overall medical school applicant acceptance rate of 45%.<sup>9</sup>

This program is clearly in its infancy and remains a work in progress. However, there are several strategies we have identified that can be applied to partnerships between other medical schools and minority undergraduate institutions. We find that the most critical feature is a geographical proximity between the two campuses that allows for personal interactions between faculty and students. Although the AAMC AspiringDocs campaign identifies distance education as a key component, in our experience the importance of a physical presence of the medical school faculty, students, and staff on the

undergraduate campus cannot be overstated. Our joint admissions process, which involves faculty and staff from the UMA and the A&M College of Medicine, places both partners in an "ownership" position; this establishes an immediate commitment for student success by both the medical school and the undergraduate institution. Our experience is consistent with previous reports suggesting that positive factors influencing the medical school acceptance rate for students at HBCUs include a strong affiliation between the school and a medical school.<sup>10</sup> At this point, a class size of 20 to 25 has been an optimal number to provide personalized academic support and effective faculty-to-student ratios. This number is based on available space (rooms to facilitate small-group tutoring), the staff-to-student ratio for academic counseling, and funding to support student scholarships. Finally, providing an opportunity for medical students to interact with the undergraduate students has been a key component in our success; the role of student mentorship is of utmost importance.

We have made a promising start toward achieving our goal of better preparing minority students for the challenges of medical school, but we continue to face challenges along the way, including identifying and securing additional funding for the summer program and optimizing strategies that will improve student performance on the MCAT. Although work remains, the goal of increasing diversity in our medical schools and, ultimately, in the physician workforce, demands our attention and the continued development of innovative programs to meet the challenge.

### Acknowledgments

The authors wish to acknowledge grant support from the Texas Higher Education Coordinating Board.

### References

- 1 Cohen JJ, Gabriel BA, Terrell C. The case for diversity in the health care workforce. *Health Aff (Millwood)*. 2002;21:90–102.
- 2 Cohen JJ. Increasing diversity in the medical workforce is one solid way to prevent disparities in health care. *MedGen Med*. 2005;7:26.
- 3 Fincher RM, Sykes-Brown W, Allen-Noble R. Health science learning academy: A successful "pipeline" educational program for high school students. *Acad Med*. 2002;77:737–738.
- 4 Grumbach K, Chen E. Effectiveness of University of California postbaccalaureate premedical programs in increasing medical school matriculation for minority and disadvantaged students. *JAMA*. 2006;296:1079–1085.
- 5 Roman SA. Addressing the urban pipeline challenge for the physician workforce: The Sophie Davis model. *Acad Med*. 2004;79:1175–1183.
- 6 Association of American Medical Colleges. *Aspiring Docs*. Available at: (<http://www.aamc.org/diversity/aspiringdocs/aspiringdocs.pdf>). Accessed January 28, 2007.
- 7 Texas Legislature Online. *Legislation history*. Available at: (<http://www.legis.state.tx.us/BillLookup/History.aspx?LegSess=78R&Bill=HB85>). Accessed January 28, 2007.
- 8 Association of American Medical Colleges. *FACTS*. Table 12: Applicants, First-Time Applicants, Acceptees, and Matriculants to U.S. Medical Schools by Hispanic or Latino Ethnicity, Non-Hispanic or Latino Race, and Sex, 2005–2007. Available at: (<http://www.aamc.org/data/facts/2007/0507sumyrs.htm>). Accessed January 28, 2007.
- 9 Association of American Medical Colleges. *FACTS*. Table 7: Applicants, First-Time Applicants, Acceptees, and Matriculants to U.S. Medical Schools by Sex, 1996–2007. Available at: (<http://www.aamc.org/data/facts/2007/2007summary2.htm>). Accessed January 28, 2007.
- 10 Atkinson DD, Spratley E, Simpson CE. Increasing the pool of qualified minority medical school applicants: Premedical training at historically black colleges and universities. *Public Health Rep*. 1994;109:77–85.