BACKGROUND AND SIGNIFICANCE

Over the past 75 years, responsible and respected leaders, academicians and scientists, such as Jordan Cohen, MD, president of the Association of American Medical Colleges (AAMC); Lee Bollinger, JD, president of Columbia University College of Physicians and Surgeons; and Franklin C. McLean, one of the country’s first MD/PhDs, have documented and described the need for increasing the number of underrepresented minorities (URMs) in the healthcare workforce.1-3 Bollinger and Cohen have also outlined the benefits of and strongly advocated for increasing the diversity of the faculty in schools of medicine and higher education.1,2

There is value to having a diverse faculty and student body. A diverse faculty in the health sciences center provides students and other members of the faculty with an opportunity to interact with professors and colleagues from different backgrounds and with varied perspectives on healthcare. In addition to serving as role models and mentors, URM faculty may influence curriculum design, provide education about issues of growing importance to society, introduce students and faculty to the needs of a culturally diverse patient population, promote a better understanding of the cultural and health beliefs of others and establish relationships with communities that are not often connected to universities.4-6 Increasing diversity at academic health centers may also inform the research agenda; introduce new kinds of scholarship to the institution; and increase and strengthen bench research, translational research, clinical studies and interventions that address health disparities.5,7-9

Although several studies have outlined the need for and benefits of diversity in academia, the number of URM faculty in academic health centers remains low. As of December 31, 2004, the AAMC faculty roster reported a total of 114,087 faculty members at U.S. medical institutions. Of these, 71.9% were white, 12.6% Asian and 7.2% URM (Hispanic/Latinos, African Americans, American Indians/Alaska Natives and Native Hawaiian/other Pacific Islanders).10 Not only are URM faculty few in number but Hispanics, African Americans, Asians, American Indians/Alaska Natives and Native Hawaiian/other Pacific Islanders are prima-
rily concentrated at the rank of assistant professor, whereas non-Hispanic whites are concentrated at the level of full professor. In addition, in the 2000 article, “Specialty Choices, Compensation and Career Satisfaction of Underrepresented Minority Faculty in Academic Medicine,” Palepu et al. found that URM faculty have significantly lower adjusted career satisfaction scores and more often report that they are considering leaving academic medicine within five years.11

In 1991, Levinson provided a summary of recommendations for increasing the retention of faculty in academic medicine: medical schools should: 1) disseminate their promotion and tenure procedures, 2) offer formal career counseling and faculty development programs, and 3) establish formal monitoring processes for their faculty as recommended by the American College of Physicians. In response to the more recent reports of low numbers of URM faculty, low career satisfaction and greater likelihood of leaving academic medicine, several authors have suggested strategies for increasing the retention of URM faculty. In 2004, Dr. JoAnn Moody identified 21 good practices to improve retention of faculty and stressed the need to involve both key campus leaders and academic departments in order to successfully adapt and implement these programs in colleges and universities.13

The University of California, San Diego (UCSD) National Center for Leadership in Academic Medicine (NCLAM), in collaboration with the Hispanic Center of Excellence, designed a faculty development program to increase the academic success rate of all junior faculty.14 This paper describes a faculty development program that is associated with an increase in the retention of URM faculty at the UCSD School of Medicine (SOM).

METHODS

The UCSD Hispanic Center of Excellence (HCOE) was established in 1993 with funding from the Health Resources Services Administration Bureau of Health Professions. This grant award supports programs of excellence in health professions education that increase the enrollment and graduation rate of students from disadvantaged backgrounds and increase the number of URM faculty in health professions schools. In order to determine the number of URM academic faculty employed and retained at the UCSD SOM, the HCOE used the SOM faculty roster and, due to the limited data on race and ethnicity available in the faculty roster, also used faculty members’ word-of-mouth referrals to identify and contact URM academic faculty employed at the SOM.

The HCOE identified and, when possible, contacted, URM faculty employed during the 1991–1996 period. While engaged in this activity, the HCOE noted a low retention rate of URM faculty at UCSD. From 1996–1998, to increase the retention of URM faculty, the HCOE conducted informal interviews with individual URM faculty members and, if needed, provided these faculty members with an introduction to institutional culture, guidance in academic file preparation and supported URM faculty participation in regional and national programs that developed skills in research, administration and advocacy.

In 1998, using information obtained from the informal HCOE faculty interviews, the SOM—with funding from the Department of Health and Human Services’ Office of Women’s Health—established the National Center for Leadership in Academic Medicine (NCLAM). The UCSD NCLAM is a structured mentorship program that addresses the professional development needs of junior faculty by providing the knowledge, attitude, skills and resources necessary to make the transition to successful careers in academic medicine.14,15

The cornerstone of the UCSD NCLAM program is a formalized, proactive, instrumental mentoring process that complements the administrative style of a leading research institution embedded in a competitive managed care environment.16 Instrumental mentoring relies on senior colleagues to collaborate with junior faculty on research or teaching projects, critique their scholarly work, nominate them for career-enhancing awards, include them in valuable networks and circles, and arrange for them to chair conference sessions or submit invited manuscripts.13 The goal of NCLAM is to increase the productivity and enhance the careers of junior faculty by improving the connection of each individual junior faculty member to the senior faculty, the campus and the resources within the institution.16 NCLAM designed and implemented a formal curriculum for faculty development that included the HCOE focus on URM faculty and institutionalized this faculty development program within the Office of Academic Affairs of the Vice Chancellor for Health Sciences at UCSD.

NCLAM limited participation to junior faculty in the UCSD Health Sciences Center, who were defined as salaried full-time faculty at the assistant-professor level for 1–5 years, not including visiting professors or other teaching positions such as instructors. NCLAM announced the program to all eligible faculty through campus mail and e-mail and provided a program description to the Chairs of all departments. The Directors of the NCLAM and HCOE programs contacted all eligible URM junior faculty, described the benefits of the program and encouraged each faculty member to enroll in the program. Non-URM participants either applied or were nominated to participate in the program by the chair of their department.

NCLAM focuses on the need for junior faculty to understand the institution’s educational mission, as well as the needs of the clinical practice environment in Southern California, by conducting a series of interventions designed to improve the performance of junior faculty in the Health Sciences Center.14 Each NCLAM participant must commit to attending and completing the following required activities:
1. Twelve half-day faculty development workshops on goal-setting and preparing the academic portfolio, principles of teaching and learning, leadership styles, negotiation skills, stress management, UCSD academic resources, UCSD grant resources, grant-writing, conflict resolution, curriculum development, performance evaluation, and effective presentation skills;

2. A structured seven-month, one-on-one instrumental mentoring program (averaging 12 hours per month);

3. A two-hour academic performance counseling session;

4. A professional development project.

One-hundred-fourteen junior faculty enrolled in the program. One URM and one non-URM junior faculty member did not complete the program. Of the 112 junior faculty who completed the program, 15 (13.4%) were URM and 97 (86.6%) non-URM faculty. Table 1 provides a more detailed description of NCLAM junior faculty participants.

All junior faculty who completed NCLAM between 1999–2005 were surveyed either on paper or by telephone to determine their current position at UCSD or other institution and to establish whether they were still in academic medicine as of July 2005. The current faculty positions at UCSD of all NCLAM participants and faculty who did not participate in NCLAM during the 1999–2004 period were verified using the faculty roster.

Data represent a cross-sectional look at URM junior faculty retention rates during two distinct time periods: 1991–1992 to 1995–1996, which represents the four years prior to the implementation of any programs designed by the HCOE or NCLAM; and 1999–2000 to 2003–2004, which represents the period after the implementation of HCOE and NCLAM programs. Data are also provided on the retention rates of URM and non-URM junior faculty who participated in the NCLAM faculty development program. Although the HCOE conducted interviews and individual advising of URM faculty during the 1996–1997, 1997–1998 and 1998–1999 academic years, no retention data are presented for those academic years to prevent counting the same junior faculty member in the retention rate at more than one time period.

Retention rates are calculated based on the following formulas:

a) Retention rate of URM junior faculty at UCSD SOM in 1991–1992 =

\[
\frac{\text{Number of URM junior faculty in 1991–1992 who were still at UCSD SOM (or in academic medicine) in 1995–1996}}{\text{Total number of URM junior faculty at UCSD SOM in 1991–1992}}
\]

b) Retention rate of URM junior faculty at UCSD SOM in 1999–2000 =

\[
\frac{\text{Number of URM junior faculty in 1999–2000 who were still at UCSD SOM (or in academic medicine) in 2003–2004}}{\text{Total number of URM junior faculty at UCSD SOM in 1999–2000}}
\]

### Table 1. Junior faculty participants in the NCLAM program at UCSD SOM between 1999–2005

<table>
<thead>
<tr>
<th></th>
<th>Underrepresented Minorities</th>
<th>Non-Underrepresented Minorities</th>
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</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>47% (7)</td>
<td>59% (57)</td>
</tr>
<tr>
<td>Male</td>
<td>53% (8)</td>
<td>41% (40)</td>
</tr>
<tr>
<td>Degree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD, MD/PHD or MD/MPH</td>
<td>67% (10)</td>
<td>78% (76)</td>
</tr>
<tr>
<td>PhD</td>
<td>33% (5)</td>
<td>20% (19)</td>
</tr>
<tr>
<td>PharmD</td>
<td>–</td>
<td>2% (2)</td>
</tr>
<tr>
<td>Medical Specialty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pediatrics</td>
<td>20% (3)</td>
<td>9% (9)</td>
</tr>
<tr>
<td>Family &amp; preventive medicine</td>
<td>13% (2)</td>
<td>11% (11)</td>
</tr>
<tr>
<td>Internal medicine</td>
<td>27% (4)</td>
<td>26% (25)</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>33% (5)</td>
<td>4% (4)</td>
</tr>
<tr>
<td>Surgery &amp; surgical subspecialties</td>
<td>7% (1)</td>
<td>13% (12)</td>
</tr>
<tr>
<td>Other medical subspecialties</td>
<td>–</td>
<td>37% (36)</td>
</tr>
<tr>
<td>Total Number</td>
<td>(15)</td>
<td>(97)</td>
</tr>
</tbody>
</table>

NCLAM: National Center for Leadership in Academic Medicine; UCSD: University of California, San Diego; SOM: school of medicine
c) Retention rate of UCSD SOM URM junior faculty who participated in NCLAM anytime between 1999 and 2005 =

\[
\frac{\text{Number of URM junior faculty who participated in NCLAM during the 1999–2005 period (regardless of start date) who were still at UCSD SOM (or in academic medicine) in 2005}}{\text{Total number of URM junior faculty who participated in NCLAM during 1999–2005 (regardless of start date)}}
\]

The retention rates for URM junior faculty at UCSD SOM during the time period before the implementation of NCLAM and HCOE programs were compared to retention rates for URM junior faculty at UCSD SOM after implementation and to retention rates of URM junior faculty participants in the NCLAM program. Statistical significance of differences in the retention rates was tested utilizing the z statistic with p values based on two-tailed probability.

RESULTS

As outlined in Table 2, the four-year retention rate of URM junior faculty at UCSD increased from 58% (7/12) prior to the start of the HCOE and NCLAM programs to 80% (8/10) after implementing the HCOE and NCLAM programs. Four of the 10 URM faculty in the latter time period participated in NCLAM, 3/10 participated in the HCOE and 3/10 did not participate in either the NCLAM or the HCOE programs. When considering all junior faculty who have completed the NCLAM faculty development program since its inception, URM participants had a retention rate of 87% at UCSD SOM. Similarly, the retention rate of URM junior faculty in academic medicine increased from 75% prior to starting the HCOE and NCLAM programs to 90% after implementing the HCOE and NCLAM program. Considering all URM junior faculty who completed the NCLAM program, 93% remained in academic medicine. Non-URM junior faculty who participated in NCLAM had a retention rate at UCSD of 82% and a retention rate in academic medicine of 95%. It appears that after participation in NCLAM, URM junior faculty had a similar retention rate at UCSD and in academic medicine as non-URM junior faculty.

When computed, the z statistic does not indicate a statistically significant difference in the faculty retention rate between the two time periods. The failure to reach statistical significance may be due in part to the small sample size.

The SOM’s focus on increasing the retention of URM faculty, coupled with the recruitment efforts of individual departments, increased the representation of URM on the academic faculty (defined as salaried, full-time faculty excluding visiting professors and instructors) from 2.6% (14/530) in 1992 to 5.8% (44/764) in 2004.

DISCUSSION

The representation of URM faculty in U.S. medical schools as reported in the AAMC publication, *Minorities in Medical Education: Facts and Figures 2005*, is “alarmingly low,” and “minority faculty members are concentrated at the level of assistant professor.”10 In 1998, Palepu et al. found that “minority faculty were less likely than white faculty to hold senior academic rank.”17 The study on faculty promotion conducted by Fang et al. in 2000 found that “after adjusting for cohort, sex, tenure status, department, medical school type and receipt of NIH awards, URM faculty remained less likely to be promoted compared with white faculty.” This study suggested that improvement in the representation of URM faculty in SOMs is due primarily to efforts to

<table>
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<tr>
<th>Table 2. Four-year retention rate of URM junior faculty at UCSD SOM in 1991–1992 and 1999–2000, and for all NCLAM participants 1999–2005</th>
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<tr>
<td><strong>SOM</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
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<tr>
<td><strong>URM Junior Faculty</strong></td>
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<tr>
<td>Retained at UCSD SOM</td>
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<tr>
<td>Retained in academic medicine</td>
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<tr>
<td><strong>Non-URM Junior Faculty</strong></td>
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<tr>
<td>Retained at UCSD SOM</td>
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<tr>
<td>Retained in academic medicine</td>
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<tr>
<td><strong>URM comparisons</strong>&lt;sup&gt;d&lt;/sup&gt;</td>
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<tr>
<td>Retained at UCSD SOM</td>
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<tr>
<td>Retained in academic medicine</td>
</tr>
</tbody>
</table>

N/A: not available; a: Prior to COE and NCLAM faculty development programs; b: After initiation of COE and NCLAM faculty development programs; c: All participants in NCLAM program (variable follow-up); d: z statistic and p value (based on two-tailed probability); URM: underrepresented minority; UCSD: University of California, San Diego; SOM: school of medicine; NCLAM: National Center for Leadership in Academic Medicine.
recruit junior faculty; however, medical schools have not been successful at helping URM junior faculty achieve senior rank. The investigators ask the question, “Can faculty development programs be devised to help minority faculty overcome barriers to promotion?”

Early in its efforts to increase URM representation on the faculty, UCSD SOM identified a retention rate of 58% for URM faculty and recognized that this rate would minimize the effectiveness of any strategies designed to increase the number of URM faculty in the institution. The present study demonstrates that the NCLAM model of faculty development, which stresses professional skill development, focuses on academic career advising and provides instrumental mentoring, is associated with an increase in the retention rate of URM faculty in an SOM. The results of this study are most interesting in that after participation in NCLAM, the retention rate of URM junior faculty at UCSD and in academic medicine (87% and 93%, respectively) is nearly equal to the retention rate of non-URM faculty at UCSD and in academic medicine (82% and 95%, respectively). As previously reported, junior faculty who completed the NCLAM faculty development program rated themselves significantly higher in self-confidence in all areas of professional academic skills compared to faculty who did not participate in the NCLAM program.

In his 1998 editorial, “Time to Shatter the Glass Ceiling for Minority Faculty,” Cohen presented three factors that may contribute to the lack of academic advancement of URM faculty in schools of medicine: 1) Minority faculty are disadvantaged “by comparative isolation within the academic community;” 2) “Minority faculty often feel disproportionately obliged to serve on time-consuming committees, to mentor students with complicated nonacademic problems and to engage in community service activities that are not typically career advancing;” 3) Minority faculty are less likely to attain senior faculty rank in part because “many subtle, largely unconscious social conventions, falling far short of overt discrimination, have evolved over time.” This creates “a complex tangle of obstacles, not one of which is particularly noticeable but that in the aggregate constitutes a monumental hurdle for those who threaten the status quo.”

The NCLAM faculty development program addresses the factors that may account for lack of academic advancement, difficulty in attaining senior rank and lower career satisfaction scores of URM faculty. UCSD NCLAM utilizes several strategies to address URM faculty isolation: URM junior faculty are integrated into the institution through a social network that consists primarily of other junior faculty and alumni of the program. Instrumental mentoring at UCSD explicitly focuses not only on enhancing creative, teaching and scholarly activities, but also on the development of professional networks. Establishing these networks requires that senior mentors facilitate participation and that junior faculty actively identify and engage in professional activities that provide regional and national visibility. Mentors in NCLAM are encouraged to provide opportunities for junior faculty to obtain recognition for their work locally, regionally and nationally through conferences, presentations and by nominating them for career-enhancing awards.

To address the disproportionate obligation to serve on committees, mentor difficult students and engage in community service, UCSD NCLAM provides junior faculty with specific information about the institutional culture of the university and the SOM. By describing in detail the informal and formal mechanisms for promotion and tenure, junior faculty can make informed decisions about university service and learn how to clearly describe their contributions in the areas of teaching, research and community service.

The UCSD NCLAM curriculum is designed to demystify the “complex tangle of obstacles” for all junior faculty. Junior/senior faculty interactions reinforce the information contained in the NCLAM curriculum and ensure that junior faculty understand that their activities must demonstrate excellence in scholarship and innovation and must fulfill the academic mission. If this is accomplished, the institution must conduct an equitable review for promotion.

The present study is limited by small sample size due to the limited number of URM faculty at the SOM. While this precludes demonstration of statistically significant results, retention rates of URM faculty at UCSD and in academic medicine were consistently improved, whether comparing all URM faculty from the time period before and after initiation of faculty development programs or when comparing to URM faculty who specifically participated in the NCLAM program. The study design and sample size also preclude any definitive conclusions about whether the faculty development programs caused the improved faculty retention rates. The associations seen may be due to other changes occurring between these two time periods.

**CONCLUSION**

The implementation of a focused faculty development program that emphasizes instrumental mentoring is associated with an increase in the retention rate of URM junior faculty. In addition, there is no difference in the retention rate of URM and non-URM junior faculty who have completed the faculty development program. Longitudinal follow-up of participants in the NCLAM faculty development program is in progress to determine promotion rates to senior rank of URM and non-URM junior faculty at the UCSD SOM.

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