



# Underrepresented Minority Faculty in Academic Medicine: A Systematic Review of URM Faculty Development

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**BACKGROUND AND OBJECTIVES:** Retention and recruitment of minority faculty members continues to be a concern of medical schools because there is higher attrition and talent loss among this group. While much has been written, there has not been a systematic review published on this topic. This is the first study to use evidence-based medicine (EBM) criteria and apply it to this issue.

**METHODS:** We searched MEDLINE, Web of Knowledge, ProQuest, and Google Scholar for papers relating to the recruitment and retention of minority faculty. We then graded the evidence using the EBM criteria as defined by the American Academy of Family Physicians. The same criteria were applied to extract evidence-based observations of problems in recruitment and retention for minority faculty.

**RESULTS:** Of the 548 studies identified and reviewed, 11 met inclusion criteria for this literature review. This article presents the data from the reviewed papers that described or evaluated minority faculty development programs. Faculty development programs in 15 different institutions showed mentoring and faculty development for minority faculty could increase retention, academic productivity, and promotion rates for this group.

**CONCLUSIONS:** For medical schools to be successful in retention and recruitment of minority medical school faculty, specific programs need to be in place. Overall evidence is strong that faculty development programs and mentoring programs increase retention, productivity, and promotion for this group of medical faculty. This paper is a call to action for more faculty development and mentorship programs to reduce the disparities that exist between minority faculty and all other faculty members.

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As the general population in the United States becomes more diverse, the need for increased diversity in medical education becomes apparent. Nonetheless, minority faculty, defined as

African-Americans, Mexican-Americans, Native Americans, and Mainland Puerto Ricans continue to be underrepresented in medical education. There are concerns that this underrepresentation directly affects

recruitment, mentoring, and retention of minority students.<sup>1</sup>

Some common challenges in the recruitment and retention of minority faculty include poor mentorship, unclear criteria for tenure and promotion, and lack of understanding of institutional culture.<sup>2,3</sup> An institution's diversity climate plays a significant role in minority faculty members' perception of the institution,<sup>4</sup> and there is evidence that gathering faculty input on how to improve institutional climate may be beneficial.<sup>1</sup> The perception that an institutional climate is not supportive of minority faculty advancement increases the likelihood that such faculty will leave academia prematurely.<sup>5</sup>

Understanding why minority faculty leave academia is critical to addressing this problem, and there is evidence to suggest that reasons for minority faculty attrition can be changed.<sup>5</sup> Documentation of minority faculty leaving academia in medical education highlights this concern and offers an opportunity for solutions at both the institutional and the state level. Reviewing the literature can help to identify and define the issues facing minority medical

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faculty and guide decision making to correct this problem. This is the first paper that uses proven methodology to grade and rank the recommendations and findings of individual studies on minority faculty in US medical schools over the last 20 years.

We hypothesize that a systematic review of the literature will identify and define the issues affecting minority medical faculty members and inform decision-making to promote retention and advancement of minority faculty in medical education. We sought to identify all articles in the indexed literature that dealt with minority faculty in medical education throughout the United States. We included cohort studies, survey-based studies, qualitative studies, and descriptive studies related to the prevalence of minority faculty in medical colleges throughout the United States and individual institutions. Qualitative studies were excluded and summarized in a different article.<sup>6</sup> All included studies had faculty members at US medical colleges who were members of a racial or ethnic minority group, either men or women, as their subjects.

## Methods

Using the key words “minority group” or “ethnic group,” and “faculty, medical and academic medical center” the authors searched available databases (Medline, Web of Knowledge, Google Scholar, and ProQuest) in August 2012 for original studies and literature reviews dealing with minority faculty members at academic medical centers. The terms were chosen to capture the largest number of studies. In an effort to include all available studies, the searches were repeated using combinations of the following MeSH terms: Minority Groups, Faculty, Medical, Personnel Selection, Medicine, Minority Retention, Faculty, Medical Faculty, Recruitment, and Cultural Diversity.

We applied the following criteria to our search:

### *Inclusion Criteria for This Study*

- Articles published in the last 20 years but before August 7, 2012, when the search was performed
- An original intervention or observation with outcomes or evaluation data on retention, recruitment, or prevalence of minority faculty
- Published in a MEDLINE indexed journal
- Articles that focused on underrepresented minority (URM) faculty development or mentoring
- Written in English

### *Exclusion Criteria for This Study*

- Papers that were narrative reviews, expert opinion, editorials, or letters to the editor
- Papers that were written more than 20 years prior to search date
- Papers that did not include any data with their description
- Books or book chapters

We sought to identify all published articles on minority medical school faculty in the United States. Once the search was completed, we selected proven methodology to assess the quality of the studies. We decided to use the Strength of Recommendation Taxonomy (SORT) as described by Ebell et al.<sup>7</sup> In this method of literature grading, the individual articles are graded according to study type. This method of grading was designed to evaluate clinical studies based on diagnoses, treatment/prevention/screening or prognosis/prevalence and to make patient centered recommendations. We made small adjustments to the model to adapt it to the “disease” of minority faculty attrition and underrepresentation.

Ebell’s framework would only allow an “A” recommendation based on high-quality patient-centered evidence. We allowed “A” recommendations based on high-quality faculty-oriented evidence. We also felt that most studies identified by our search would be equivalent to “prognosis” studies, so we used the criteria in that column to assess the quality of the studies in our search. Using this method of article

classification has enabled us to make the articles comparable to each other as well as to give our readers a way to weigh the findings of our literature review. This was then used to inform recommendations for improvement in the retention and recruitment of minority faculty in US medical schools.

The authors then evaluated each paper from the search and graded them using the criteria described above. Any differences in Level of Evidence were discussed among the authors. Low-quality studies were downgraded to the next level of evidence. Only those papers assessed by both authors to be Level 3 or greater were included in the review. Articles rejected from this study were rejected based on the exclusion criterion noted above using a two-tiered system. Articles were first evaluated for subject matter, which means we assessed whether or not the article discussed recruitment and retention of underrepresented minority faculty, was over 20 years old, was not written in English, or a study conducted outside the United States. If the requirements of this tier were met, we went on to determine the quality of article represented, as noted above.

### *Assessment of Heterogeneity*

Our review included cross-sectional studies, prospective cohort studies, and other observational studies. There were very few studies that provided any statistical analysis, and it was not possible to combine any of the studies using common statistical techniques.

## Results

The combination of MEDLINE, Web of Knowledge, ProQuest, and Google Scholar searches yielded 548 publications. The MEDLINE portion of the search (keywords: “minority group” or “ethnic group” and “faculty, medical, and academic medical center”) yielded 140 papers, which we then subjected to the inclusion criteria. Of the 140 papers, 131 were excluded because they did not meet our criteria, as illustrated in Table 1.

Two additional papers were identified in the “related citations in PubMed” column when viewing individual selected studies, leaving a total of 11 papers.

We repeated the search in Web of Knowledge, ProQuest, and Google Scholar using the same search terms. Web of Knowledge and ProQuest did not produce any results not found in our PubMed search. Google Scholar, which does not reveal which databases are searched, gave us 408 citations over the last 20 years—including book chapters and presentations. Careful review of these articles did not identify any additional studies that could be included in our review. Summaries of all included studies are available in the online version of this manuscript.

Of the 11 studies identified, there were five prospective cohort studies that followed minority faculty at four different institutions (University of California-San Diego [UCSD],<sup>8</sup> Morehouse School of Medicine,<sup>9,10</sup> University of New Mexico [UNM],<sup>11</sup> and University of Pennsylvania [UPenn]<sup>12</sup>). They range in follow-up from 1 to 10 years. All programs shared mentoring, career counseling, and grant writing workshops. Two<sup>8,10</sup> of the prospective cohort studies followed study participants for 10 years, with the UCSD study demonstrating a 92% promotion rate for URM faculty who completed the faculty development program. The other 10-year prospective cohort at the Morehouse School of Medicine,<sup>10</sup> which followed a 3-year cohort<sup>9</sup> among the same population, demonstrated a self-perceived competency improvement from 2.8 to 4.2, which was statistically significant. This program had a 94% completion rate and showed an overall URM increase in the family medicine department from 33% to 81% during the study period. The 3-year cohort at Morehouse in which participants were 94% URM, demonstrated a 77% survey response rate and marked improvement in teaching, research, and administrative skills, as

**Table 1: Reasons for Exclusion of Identified Papers in MEDLINE Search**

Number of Excluded Studies	Reason for Exclusion
30	Medical student focus
25	Opinion papers
20	No mention of URM faculty development or mentoring
19	No mention of URM faculty
12	Written in a non-English language
10	Focused on clinical disease outcomes
8	Narrative reviews
6	Resident focus
1	Cultural competence

URM—underrepresented minority

well as cultural competency. Shorter cohort studies from our selected manuscripts also showed improvements. The faculty development program at UPenn<sup>12</sup> resulted in a 32% increase in URM faculty while at the same time demonstrating a 16% increase in non-URM faculty. The study at UNM,<sup>11</sup> which targeted URM faculty in psychiatry and family medicine, was a grant funded mentorship program that lasted 3 years and demonstrated successes in career building skills of junior faculty. Study participants produced 29 grant proposals and 27 published articles within 2 years of the program.

Five studies addressed the authors’ experiences with mentoring programs at their institutions. One of the studies<sup>13</sup> was a baseline evaluation of mentoring needs prior to the implementation of a comprehensive program. The authors determined that the clinical teaching faculty was more likely to have negative or absent mentoring experiences when compared to research faculty. Only 7% of respondents were minority faculty. Participants with less than 20% research time were the least likely to have mentors, but those who spent less than 20% in clinical care were more likely to have mentors than those with higher percentages of clinical care. Two other studies<sup>14,15</sup> looked at the impact of mentoring programs on retention of women and underrepresented

minority faculty, and both found that the presence of positive mentoring programs not only facilitated retention and advancement of this cohort but also aided in the recruitment of female faculty to their institution. Creighton University School of Medicine experienced an increase from 20% to 58% in retention of minority and female faculty, as well as an increase in their presence in administration (6.9% to 7.5%).<sup>14</sup> At UCSD, the percentage of minority faculty increased from 2.6% to 5.8%, and the retention rate of minority faculty rose from 58% to 80%.<sup>15</sup> These papers also noted differences in mentoring offered based on degree of research or clinical assignment. One paper<sup>16</sup> noted a significant lack of mentoring among both minority and non-minority junior faculty and led to the establishment of a comprehensive program for this cohort and active career development and monitoring at the University of Pennsylvania. Almost half of the minority faculty members on the clinician educator tract (47%) did not have mentors, and 50% of those that had mentors expressed a desire for more active assistance. An additional paper<sup>17</sup> describes a highly individualized mentoring model using peer, on-site, and distance mentors specific to the URM faculty needs. This multi-level approach is designed to minimize mentors’ time commitments while maximizing the benefit to the

mentee, as well as to provide URM faculty with URM mentors, which were not always available at the University of Arkansas where the study was performed.

The remaining study was an ecological study analyzing published

Association of American Medical College (AAMC) data on Women's Centers of Excellence located at six different institutions. Aggregate data demonstrated modest growth of URM women from 4% to 6% despite overall female faculty growth

from 15.2% to 26.6%. There was also disproportionate growth in historically black medical schools. Program components were aimed primarily at students instead of faculty. Literature review findings are summarized and graded in Table 2.

**Table 2: Graded Observations and Recommendations**

Observation	Recommendations	Strength of Recommendation
URM faculty reported contributors to success. 1. Identified access and support of senior faculty mentors. 2. Peer networking. 3. Professional skill development. 4. Knowledge of institutional culture. <sup>8</sup>	Develop URM faculty development programs that include networking, skill development, support of senior faculty, and institutional culture training.	A
Mentoring program—offering seed funding—provision of these influenced participants' career development—national presentations given, articles published. <sup>11</sup>	Include seed funding with mentoring in URM faculty development programs.	B
URM faculty lacking mentors—did not receive career development advice, help with developing research skills—no plan for monitoring for retention purposes. <sup>16</sup>	Provide career development, research skills training, and monitoring systems to improve URM faculty retention.	B
Minority faculty are engaged more often in teaching and administrative activities that do not lead to promotion. <sup>15</sup>	Ensure equitable distribution of teaching, clinical, and administrative activities to allow more time for URM faculty to engage in promotion activities.	B
Faculty development programs can dramatically increase the retention of URM faculty in teaching activities. <sup>10</sup>	Offer faculty development to all URM faculty at academic institutions.	B
A junior faculty development program that integrates professional development and focused academic career advising with instrumental mentoring is associated with an increase in the retention of URM faculty in a school of medicine. <sup>15</sup>	Include career advising, professional development, and instrumental mentoring to improve URM retention.	B
Creighton University—URM faculty mentoring program 100% retention at 2 years, one tenured and three promoted at 1 year—provision of (mentor, funded research/scholarly time, credit for community service). Wake Forest—mentoring program for junior faculty women—worked for helping with career goals and providing feedback—research, promotion, and teaching. <sup>14</sup>	Giving credit toward promotion for community service, as well as orientation for career goals can improve URM retention.	B
Minority faculty identified need for networking skills (21; 95%), clinical skills (19; 86%), curriculum vitae (CV) development (18; 82%), establishing career goals (17; 77%), and confidence building (16; 73%). <sup>17</sup>	Teach networking skills, clinical skills, CV development, and confidence building to meet URM faculty needs.	B
At 3 years, 73% of minority faculty that participate in a structured faculty development program are still in part-time or full-time teaching in 3 years. <sup>9</sup>	Require URM faculty development to increase retention in teaching activities among URM faculty.	A
Faculty development including training in research methods, mentoring, teaching skills, and scientific writing skills allowed one school to increase their minority faculty by 32%. <sup>12</sup>	Include training in research methods, mentoring, teaching skills, and scientific writing skills to increase minority faculty.	B

URM—underrepresented minority

## Discussion

Faculty development programs are in place to a variable degree throughout the country with the aim of increasing minority faculty recruitment and retention. Our paper has identified, using a systematic review, the published papers that have specifically dealt with minority faculty. Although minority faculty face similar issues in academic medicine (lower pay, more demands on time) as other faculty, this paper identifies ways specific institutions are dealing with the issue of URM underrepresentation and attrition with unique models of mentoring, as well as more traditional methods.

We found that there are not enough faculty development programs for minority faculty. Minority faculty have identified a need for URM faculty development,<sup>17</sup> and our review suggests that they can increase recruitment and retention. Our review identified several characteristics that successful faculty development programs use. Effective and frequent mentoring; focused instruction on clinical, teaching, and research skills; providing networking opportunities; reducing clinical/administrative expectations to facilitate scholarly activities that lead to promotion, as well as providing institutional seed money for pilot projects all seem to have a positive effect on minority faculty retention.<sup>8,9,11,12,15,17</sup> Our review also suggests giving promotional weight to community service<sup>14</sup> and having on-site as well as off-site mentoring<sup>17</sup> can also increase retention.

Our review attempted to systematically capture all publications in the indexed literature dealing with URM faculty development in medical schools. Our inclusion criteria were rigorous, which significantly lowered the number of papers reviewed. This poses a potential threat to the validity of our findings because there may be other valid studies that may have been missed by our search. We chose to limit our search to those studies indexed in MEDLINE to ensure that our results focused on academic medicine and gave us an audience of

professionals in our field. Perhaps a systematic literature review including articles indexed in other disciplines may shine additional light on this issue and prove helpful in finding solutions.

Minority faculty, in addition to the issues listed above, face diversity pressures, isolation, racism, and lack of mentoring as driving forces in their departure from academic medicine.<sup>6</sup> While the above studies have addressed this issue at individual institutions, there has yet to be a national program designed, implemented, and analyzed in the literature for this cohort of faculty. The paucity of articles that met our criteria also suggests that there are other minority faculty development programs that have not been described or presented scientifically in the literature or that there are very few programs that focus on URM medical faculty.

Although this review is not the first to deal with URM faculty development,<sup>18</sup> it is the first systematic approach to use the SORT criteria to critically appraise each study. This method has allowed us to identify the value of the individual study findings to clinician educators and researchers. It is critical that existing programs share their data through the indexed medical literature to help improve the state of URM faculty in academic medicine. This systematic review demonstrates that more comprehensive application of targeted faculty development programs for URM faculty can increase URM recruitment and retention.

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