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Does mentoring matter: results from a survey of faculty mentees at a large health sciences university

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***Background*:** To determine the characteristics associated with having a mentor, the association of mentoring with self-efficacy, and the content of mentor–mentee interactions at the University of California, San Francisco (UCSF), we conducted a baseline assessment prior to implementing a comprehensive faculty mentoring program.

***Method*:** We surveyed all prospective junior faculty mentees at UCSF. Mentees completed a web-based, 38-item survey including an assessment of self-efficacy and a needs assessment. We used descriptive and inferential statistics to determine the association between having a mentor and gender, ethnicity, faculty series, and self-efficacy.

***Results*:** Our respondents ($n = 464$, 56%) were 53% female, 62% white, and 7% from underrepresented minority groups. More than half of respondents ($n = 319$) reported having a mentor. There were no differences in having a mentor based on gender or ethnicity ($p \geq 0.05$). Clinician educator faculty with more teaching and patient care responsibilities were statistically significantly less likely to have a mentor compared with faculty in research intensive series ($p < 0.001$). Having a mentor was associated with greater satisfaction with time allocation at work ($p < 0.05$) and with higher academic self-efficacy scores, 6.07 (sd = 1.36) compared with those without a mentor, 5.33 (sd = 1.35, $p < 0.001$). Mentees reported that they most often discussed funding with the mentors, but rated highest requiring mentoring assistance with issues of promotion and tenure.

***Conclusion*:** Findings from the UCSF faculty mentoring program may assist other health science institutions plan similar programs. Mentoring needs for junior faculty with greater teaching and patient care responsibilities must be addressed.

Keywords: *mentoring*; *faculty development*; *program evaluation*; *self-efficacy*

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Prior research has shown that mentorship in the academic health sciences has an important influence on academic productivity, personal development, and career guidance for students, fellows, and junior faculty (1–5). As a result, there has been growing interest in developing mentoring programs for protégés at all levels of career development (6–8) in a variety of health professional settings (9–13) and for diverse mentors and mentees (14–16). Most of these programs have been modest in scope, informally organized, and have faced challenges to long-term sustainability, in part due to increased clinical and administrative demands on mentors and mentees (1, 17).

The University of California, San Francisco (UCSF) recently established what we believe to be the largest and most comprehensive mentoring program in the USA for health sciences faculty (http://acpers.ucsf.edu/mentoring/). Junior faculty members from the professional Schools of Dentistry, Medicine, Nursing, and Pharmacy are eligible for participation in the program. The primary goal of the UCSF faculty mentoring program is to promote the careers of junior faculty members by facilitating and

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supporting their relationship with a *career mentor* who can help guide their professional development. At the time of the launch of the faculty mentoring program in 2006–2007, we conducted a comprehensive baseline survey of all potential mentees to assess if UCSF faculty were currently receiving mentoring, the characteristics associated with having a mentor, the association of mentoring with self-efficacy, and the content of mentor–mentee interactions.

Methods

All junior faculty members (below the Associate Professor rank) in the Schools of Medicine, Nursing, Dentistry, and Pharmacy were considered eligible to receive the baseline survey. Eight hundred and fifty-two junior faculty with appointments of greater than 50% were invited by e-mail between October 2006 and January 2007 to complete a web-based 38-item mentoring survey. To maximize recruitment, we contacted the faculty by e-mail a total of five times over the course of three months, inviting them to participate in the survey. No incentives were offered. The UCSF Committee on Human Research approved the research.

The study investigators created the survey after extensive review of prior research in mentoring program evaluation for academic health professionals. It was then reviewed and pilot tested by experts in medical education and professional development at UCSF to assure relevance and wording.

The survey consisted of 10 demographic questions about the respondent, eight questions about current mentoring relationships, if any, and their mentoring needs, and six questions about academic self-efficacy. In addition to baseline demographic information, we asked faculty to identify in which of the five UCSF faculty series they held an appointment. [The faculty series consist of Ladder Rank, In Residence, Clinical X, Health Sciences Clinical (the 'Health Sciences' designation was added to distinguish it from the title given to volunteer clinical faculty), and Adjunct.] In general, faculty in the Ladder Rank, In Residence, and Adjunct series are expected to spend most of their time engaged in research and their advancement and promotion is mainly linked to accomplishments in this domain, while faculty in the two clinical series (Clinical X and Health Sciences Clinical) are evaluated for promotion on the basis of their teaching and clinical competence. In addition, respondents were asked to indicate (in intervals of 20%) the amount of time they spent teaching, providing patient care, conducting research, and doing administrative tasks.

Respondents were also queried about their academic self-efficacy. The self-efficacy questions were derived from a previously validated survey reported in prior research on faculty development (2, 18). The six self-efficacy items were rated on a scale from weak (1) to strong (9) for level of confidence in key academic skills such as identifying their professional goals and interests and identifying the requirements for advancement and promotion at UCSF. These items formed a single factor in a principal components factor analysis, and the scale had an internal consistency reliability of 0.84.

We also asked the faculty members to indicate which of 20 topics, if any, were discussed with a mentor. These same topics were rated on a scale of 'no interest in assistance' (1) to 'strong interest in assistance' (5).

Descriptive statistics were used to characterize respondent faculty and their mentorship experiences at UCSF. Associations of gender, ethnicity, and faculty series with having a mentor were assessed with chi-square tests and odds ratios. A *t*-test was used to determined differences in self-efficacy between mentored and non-mentored faculty.

Results

Response rate and participant demographics

Fifty-six percent of the faculty members we contacted responded to the survey ($n=464$). The majority of respondents (84%) were in the School of Medicine, 53% were women, 62% white, 27% Asian-American, 3% African-American, and 4% Latino. Our respondents were very comparable to those eligible who were 89% from the School of Medicine, 54% female, 61% white, 29% Asian, 2% African American, and 3% Latino.

About two-thirds ($n=319$) of the respondents reported that they currently had a mentor; of these, 67% said they found the mentor themselves and 20% had the mentor assigned to them. Overall, 28% of faculty reported they needed help finding a mentor.

Characteristics associated with having a mentor

Those with a mentor were younger (m = 38.7, sd = 5.7) than those without a mentor (m = 40.8, sd = 7.1, $p=0.004$). Table 1 shows the association with having a mentor by various demographic variables. Faculty series was associated with having a mentor ($p<0.001$). When examining the association, we found that faculty in both of the clinical series were significantly less likely to have a mentor compared to the other series (p values ranged from <0.001 to 0.022). There was an association between time for teaching and having a mentor ($p=0.001$), with those teaching less than 60% time more likely to have a mentor than those junior faculty members who reported spending more time teaching. Likewise, time spent engaged in research and the likelihood of having a mentor were associated ($p<0.001$); faculty with 20% or less time for research were significantly less likely than all other levels of protected time for research to have a mentor. Likewise, patient care was associated with having a mentor ($p<0.001$); those who reported spending 20% or less of their time in patient care were more likely to have a mentor

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Table 1. Descriptive statistics for demographics from 464 survey respondents of whether they have ($n=319$) or do not have ($n=145$) a career mentor

Variable/value	Have a mentor, *n* (%)	*p**
Gender		
Female	154 (51.7)	0.50
Male	144 (70.2)	
Ethnicity		
White	186 (68.1)	0.57
Asian	83 (70.9)	
African-American/Latino	24 (72.7)	
Other	10 (55.6)	
School		
Dentistry	20 (64.5)	0.68
Medicine	266 (83.4)	
Nursing	14 (66.7)	
Pharmacy	19 (79.2)	
Series		
Ladder rank	30 (76.9)	<0.001
Clinical X	41 (49.4)	
Adjunct	105 (82.0)	
In Residence	57 (67.9)	
Health sciences clinical	86 (66.2)	
Percentage of time – teaching		
0–20	168 (72.7)	0.001
21–40	90 (62.9)	
41–60	26 (78.8)	
61–80	3 (25)	
81–100	2 (33.3)	
Percentage of time – patient care		
0–20	129 (80.1)	<0.001
21–40	65 (73.0)	
41–60	44 (56.4)	
61–80	22 (44.9)	
81–100	8 (47.1)	
Percentage of time – research		
0–20	63 (50.8)	<0.001
21–40	55 (73.3)	
41–60	36 (69.2)	
61–80	97 (87.4)	
81–100	37 (72.5)	
Satisfaction with time allocation		
Yes	231 (77.5)	0.026
No	67 (22.5)	

**p* values determined by chi-square analyses. Significant chi-squares were followed up with pair-wise comparisons to determine which categories were significantly different from each other. Note: Due to missing data, responses do not always total to 319.

than those who reported spending a higher percentage of their time at work in patient care activities. Finally, having a mentor was associated with being more satisfied with the time allocations at work ($p=0.026$). We found no association with having a mentor and gender, ethnicity, or school.

Self-efficacy and mentoring

We found that those with a mentor had an average self-efficacy score of 6.1 (sd = 1.4), which was statistically significantly higher than the self-efficacy scores of those without a mentor, 5.4 (sd = 1.4, $p<0.001$). This corresponds to a modest effect size for having a mentor of 0.5 (19).

Issues discussed with mentor

Table 2 indicates the topics that the mentees reported discussing with their mentor and their level of interest in seeking assistance about these topics from the new faculty mentoring program. As seen in Table 2, the topic most often discussed with mentors was obtaining funding (57% discussed with their mentor) and the least common topic was computer and statistical skills (11%). Teaching was discussed by 34% of mentees. Surprisingly, only 28% reported that they discussed their merit and promotion packet with their mentor. Yet, while obtaining funding was the topic that mentees most frequently talked to mentors about, mentees indicated that they most wanted assistance from the new faculty mentoring program on issues related to promotion and tenure. There were no differences in topics discussed based on gender or ethnicity. However, there were differences in what was discussed based on series. Generally, issues related to funding, grant writing, presentation, research design, and delivering presentations and manuscripts were less frequently discussed in the clinical series compared to the other series.

Discussion

In this study, we examined the processes and content of mentoring relationships and the mentoring needs of junior faculty in a large academic health sciences university prior to the implementation of a structured mentorship program. We found that at baseline, faculty who focus more heavily on teaching and clinical responsibilities are less likely to have a mentor and that faculty with a mentor have higher academic self-efficacy. While our findings are limited by the fact that we surveyed faculty members only at a single institution, we believe that these observations make an important contribution as this is the largest such survey reported in the peer-reviewed literature. We expect that our results will not only inform the development of the faculty mentoring program at UCSF, but will also help guide the

Table 2. Topics reported by all respondents as discussed with or would like assistance from any mentor

Topic	Percent discussed with any mentor ($n=464$)	Would like assistance from Faculty Mentoring Program[a]		
		n	Mean	sd
Obtaining funding	57	441	3.72	1.43
Manuscript preparation and publishing	51	440	3.09	1.44
Grant writing	49	443	3.48	1.44
Research design	44	439	3.22	1.41
Long-term career planning	41	441	3.72	1.43
Understanding promotion and tenure	40	442	3.12	1.29
Presentation/posters	39	437	2.49	1.29
Time management	36	439	3.01	1.46
Networking nationally and internationally	34	441	2.67	1.35
Teaching	34	436	2.40	1.40
Curriculum vitae	33	441	3.69	1.26
Networking on campus	32	442	3.65	1.33
Clinical care	32	443	3.09	1.40
Balancing personal/professional demands	31	446	3.60	1.25
Communicating effectively with colleagues	31	437	2.94	1.35
Review promotion/merit packet	28	444	3.95	1.30
Developing a research portfolio	28	441	3.04	1.42
Translational research skills	15	437	3.09	1.39
Developing an educator' portfolio	12	441	3.08	1.36

[a]Assistance rated from no interest (1) to strong interest (5).

development of similar programs at other health sciences universities.

Found versus assigned mentors

While a majority of junior faculty at UCSF reported having a career mentor, one-third said that they could not identify a mentor. Of these, most faculty members stated that they needed assistance in finding an appropriate mentor. The mentorship literature suggests that organically derived mentoring relationships are generally more satisfying and productive than those based on assignments but supports an assigned mentor as superior to none at all (21). In fact, junior faculty without mentors are at risk for isolation, do not feel as closely tied to their department or institution, and may rely too much on a risky strategy of trial and error for information about the institution and as a career-building strategy (22). In the new UCSF faculty mentoring program, junior faculty who cannot identify a career mentor are contacted by their departmental mentoring facilitator and together they identify an appropriate mentor for the academic year.

Mentoring for women and underrepresented minority faculty

We found that women and underrepresented minority faculty at UCSF were as likely to have a career mentor as other faculty. This finding is contrary to some previous research in the area. A systematic review of mentorship in academic medicine found that women report more difficulty in finding mentoring compared with men, though they found mixed results regarding sex concordance and satisfaction with mentoring and mentee productivity (1). It is critical that we better understand the work experiences of minority and women faculty and women in academic health settings and provide outstanding mentoring to ensure that we recruit, retain, and support a diverse health professions workforce (23–26). While some research has found that gender and/or ethnic concordance in mentoring relationships may be preferable (27), given the current workforce in academic medicine this is often not feasible and in fact has not been found to be critical to mentee satisfaction with mentoring (3, 28). A national survey of US medical schools found that women and minority faculty felt that such matching was not important, though this research was limited by the lack of diversity in the study participants (29). What seems clear, however, is that mentor training and mentoring programs that specifically address the needs of women and minority faculty can be effective in improving recruitment of similar faculty and trainees to that institution (30, 31).

Clinician educator faculty less likely to have mentors

We found that clinical and clinician educator faculty were significantly less likely to be mentored than

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research intensive faculty. This is a disturbing though perhaps not surprising finding, since traditional mentorship models at academic health sciences settings focus on career development in research-oriented faculty. Prior research has suggested that mentoring programs for clinician educator faculty members may enhance productivity and job satisfaction, but few mentoring and faculty development programs explicitly target these faculty (32, 33). This may explain, in part, why retention of clinician-educator faculty is often a challenge in academic health sciences institutions despite the fact that these faculty members are highly valued as educators. Enhanced mentorship may offer an opportunity to improve retention of clinician-educator faculty members.

Correlates of mentorship

Our results indicate that faculty with mentors were more likely to be satisfied with the distribution of their work and had higher self-efficacy than those who were not mentored. Self-efficacy is defined, in part, as a belief in one's ability to accomplish specific goals and tasks (34–36). Because of the cross-sectional nature of our data, we cannot say with confidence that mentorship necessarily leads to enhanced self-efficacy and positive academic outcomes, as those who have high self-efficacy may be more likely to seek out mentoring. However, other research suggests that protégés with more exposure to mentoring report higher levels of self-efficacy (2, 15, 18, 19, 20, 34, 37, 38), and results from a faculty development program for medical faculty found a positive correlation

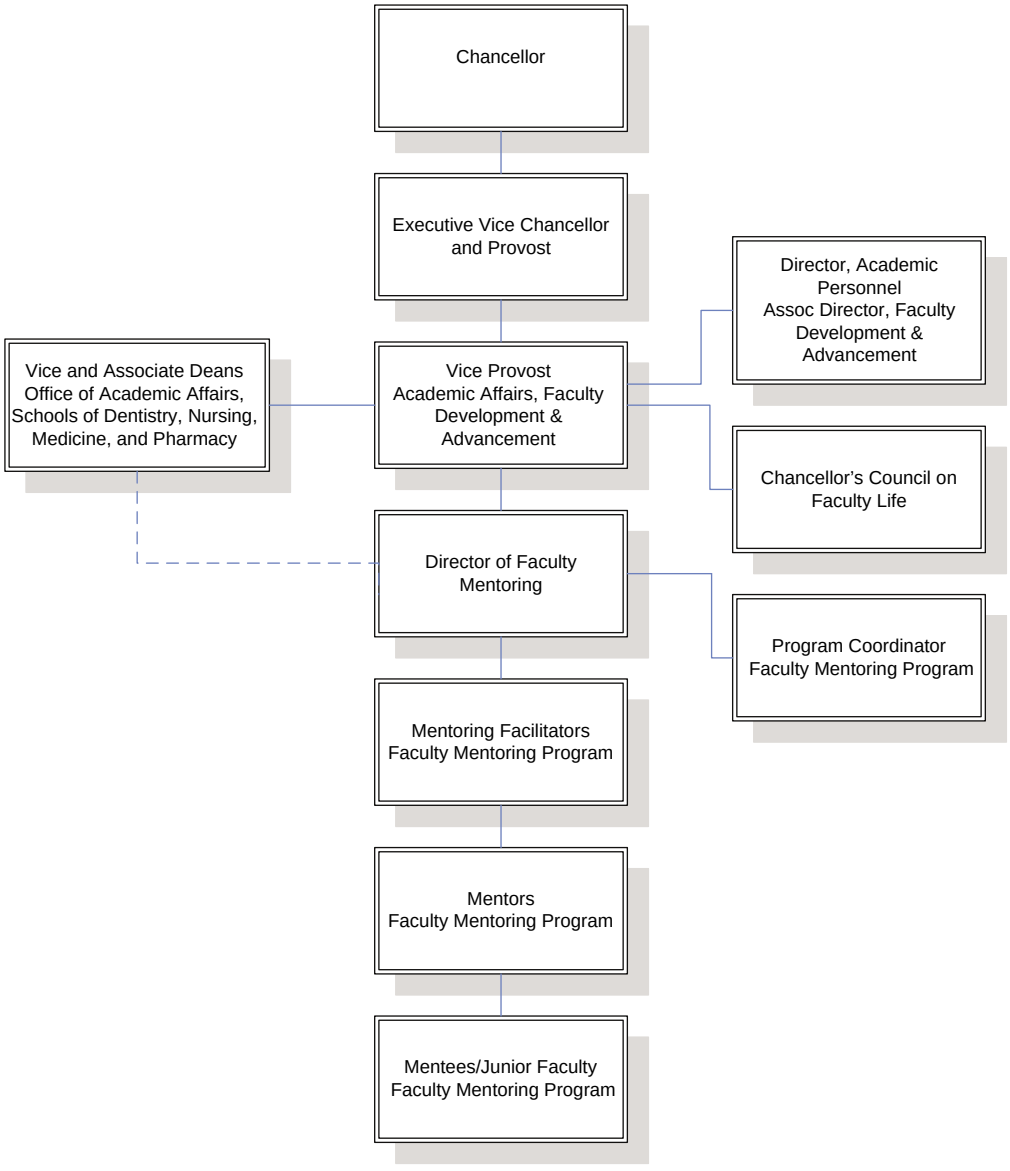

Fig. 1. UCSF Faculty Mentoring Program organizational chart.

between mentorship, improved self-efficacy, and enhanced research and leadership skills necessary for academic advancement and retention (2, 18).

Mentor talk

As seen in Table 2, mentees report discussing a broad variety of topics with their mentor. Given the current funding climate, it is not surprising that junior faculty report that they need assistance with funding issues from their mentor and from the overall program. Conversely, it is interesting that several key topics are reportedly discussed infrequently with mentors although mentees indicate that they need assistance with them. For example, while only 28% of mentees reported reviewing their promotion/merit packet with their mentor, it was the top-rated topic that mentees said they wanted assistance with. Likewise, only 31% reported discussing issues of personal–professional balance with their mentor, but it was in the top five topics for which mentees reported wanting assistance. It is not clear what underlies this disconnect between what faculty mentors and mentees discuss in mentoring meetings and what areas mentees say they need assistance. Perhaps mentors define their mentoring relationships more narrowly (to assist with funding, grants, and manuscripts) than most mentees do, and mentees do not have the communication tools or confidence needed to broaden the agenda. Future research should address these barriers.

Strategies implemented at UCSF to date

The UCSF Faculty Mentoring Program targets all junior faculty in the four health sciences professional schools at UCSF (Medicine, Nursing, Pharmacy, and Dentistry). The Graduate Division supports its own mentoring program and similar programs are being developed for medical students and other trainees at the university. The program is led by the Director of Faculty Mentoring along with the Mentoring Program Coordinator, and the Vice Provost Office of Academic Affairs and Faculty Development and Advancement. Senior faculty 'mentoring facilitators' were appointed in each department to help facilitate the matching of mentor–mentee pairs and to help disseminate mentoring best practices across the campus (Fig. 1). In addition, to underscore the importance of mentoring, UCSF recently stipulated that mentoring activities must be documented on the CV to be evaluated at the time of promotion, along with competence in teaching. Numerous awards have been established to recognize and promote outstanding mentorship, and mentor development activities have been initiated along with mentoring resources.

The Faculty Mentoring Program aims to pair every junior faculty member (up to the Associate Professor rank) with a *career mentor*. We encourage junior faculty members to assemble a mentoring team consisting of a *career mentor*, *scholarly mentor*, and *co-mentor* with clear roles and responsibilities (Table 3). The junior faculty member is responsible for arranging meetings of the mentoring team on an annual basis to review career progress toward promotion. Additional meetings of the team are essential for faculty engaged in research. The career mentor is a senior faculty member usually in the mentee's home department, who is responsible for overall career guidance and support for their mentee, including a minimum of twice yearly meetings to review the mentee's CV and Individual Development Plan (IDP). The faculty mentee is expected to complete an IDP semi-annually and send it to the mentor with an updated CV prior to each meeting. The career mentor is also responsible for reviewing advancement and promotion issues, helping the mentee to set short- and long-term professional goals, assisting with networking in the institution and nationally, and reviewing issues of personal/professional balance as they arise. To avoid any real

Table 3. Types of mentors

Types of mentors	Characteristics
Career mentor	A senior faculty member primarily responsible for providing career guidance and support May not have expertise in the mentees' scholarly or research area Assigned by the Faculty Mentoring Program, Mentoring Facilitator in each department or school Expected to meet with the mentee at least every six months to review overall career goals and advise them on issues related to advancement and promotion Should not be a mentee's direct supervisor, but will usually be in their home department
Scholarly mentor	Must be expert in the scientific or scholarly area of the mentee Able to guide mentees in the following areas: Professional research and academic skills Develop a feasible, coordinated research plan Provide resources: databases, access to space, research staff, access to funding and potential funding sources (campus and national) Collegial networking: national, international Assist with communication of findings including oral presentations, writing of abstracts, manuscripts, and development of grants
Co-mentor	Responsible for working with the lead mentor on overall mentoring responsibilities (as outlined above) for the mentee and for providing particular guidance in their area of expertise

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or potential conflicts of interest regarding job responsibilities, we recommend that the career mentor should not be the mentee's direct supervisor, department chair, division chief, or laboratory head. While these leaders are expected to provide career advice to their junior faculty members and can effectively serve as a research or scholarship mentor, other senior faculty should be tapped to fill the role of career mentor in the faculty mentoring program.

Conclusion

We believe that the UCSF Faculty Mentoring Program is the largest and most comprehensive program for academic health sciences faculty in the nation. Lessons learned from this program should help to inform similar faculty developments efforts at other medical and health sciences universities.

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