

**THRIVING ON THE MEDICAL SCHOOL TENURE TRACK
AT THE UNIVERSITY OF MICHIGAN:
A STUDY OF ASSISTANT PROFESSORS**

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SEPTEMBER, 2011

THRIVING ON THE MEDICAL SCHOOL TENURE TRACK AT THE UNIVERSITY OF MICHIGAN: A STUDY OF ASSISTANT PROFESSORS¹

EXECUTIVE SUMMARY

THE STUDY

The UM ADVANCE Program conducted a study of junior (assistant professor) tenure track faculty in the Medical School to identify those factors that allowed junior tenure track faculty to thrive and facilitated their success at the Medical School. When assessing whether or not a faculty member is succeeding, considering all the features of an academic position is complicated; we tried to take into account a range of these elements in this study and acquired data on the faculty from a number of different sources. Measures of success in this study included publication records and grant activity. We also obtained success ratings from the Medical School's Dean of Instructional Faculty and the faculty themselves.

The focus of the study was all assistant professor tenure track faculty who had been on the tenure track for three to four years, but had not been promoted to associate professor as of the summer 2010 (n=61). Most had a clinical department appointment. Two-thirds had an M.D. and two-thirds had a Ph.D. (a third had both). We obtained publication and grant information for all 61 faculty. At the time of the study the dean had reviewed and rated success levels for 37 of the faculty.

All faculty in the sample were asked to participate in a confidential interview that addressed several questions about the structure of their work, work experiences, expectations for success, sources of support and family and leisure activities; 40 agreed to be interviewed (67% response rate). Response rates were slightly higher for the women faculty and those with M.D.s; rates of those from basic science, surgical and non-surgical clinical departments were similar to the full sample.

SUMMARY OF FINDINGS

INDICATORS OF SUCCESS

First, we considered the relationships of the indicators of success (publications, grants, success ratings) to each other as well as to relevant features of the sample (e.g., gender, type of department). The findings suggest that, on average, faculty have a good sense of how they are doing—at least in comparison to the dean's assessment. There were no statistically significant differences on the indicators by gender (except that men had higher ISI-H Index scores). Faculty in the surgical

¹ This study was conducted by members of the UM ADVANCE Research and Evaluation staff (Janet Malley, Chelsea Goforth and Keith Rainwater) in collaboration with UM ADVANCE Director Abby Stewart. Invaluable assistance and advice was provided by Dean Margaret Gyetko, Dean Kevin Chung, and the Medical School's ADVANCE Advisory Committee.

departments had significantly more publications as first or last author compared with those in basic science departments, and fewer R01 grants compared to those in non-surgical clinical departments.

FACULTY EXPERIENCES AND RELATIONSHIP TO SUCCESS

Second, we summarize the work experiences of the faculty as reported to us in their interviews and examined the relationship of those experiences to the success indicators. Most faculty reported that they felt things were going well in their jobs, especially in the areas of research and grant. About half of the faculty reported that they were clear what they needed to do to get tenure. Moreover, most of the faculty felt they were headed in the right direction, and several identified as evidence their successes with grants and publications.

Faculty generally described positive interactions with colleagues, including receiving advice from them, and reported that their units valued their work and their research. In particular, those who described themselves as more successful reported more support in the department compared to those who had a more negative view of their success.

Almost all faculty indicated that they had a formal mentor. Most faculty also reported seeing their unit head at least monthly; receiving annual feedback; and described positive relations with the head. Those with more grants as PI were more likely to describe their mentors as helpful and those with higher levels of success indicators were more likely to report that they receive career advice from their mentors and had more positive relations with their unit head.

All but one faculty member reported having protected research time and half of them indicated that the protected time worked well; this was particularly true of those identified as more successful by the dean. Those with more grants as co-PI were more likely to indicate that more protected time would be helpful and that deadlines and/or multiple demands were stressful. Most faculty indicated that they thought that resources were allocated equitably. However, those in non-surgical units were less likely to report equitable allocation of resources compared to all other faculty.

We also assessed differences in faculty experiences and perspectives by gender and by primary department affiliation (surgical, non-surgical clinical, and basic science departments). The largest number of group differences arose in the comparisons by gender. Women were more likely to find the job different, and more negative, from what they expected and were more likely to identify problems with the climate and teaching compared to men. Women also reported less help in the form of advice, informal feedback from their unit head, administrative support and effective protected research time. Women also reported significantly more administrative responsibilities, and were more likely to feel that their research was not valued by their unit.

Faculty in a basic science departments were more likely to report receiving problem-solving help from colleagues compared to surgical department colleagues. Compared to non-surgical faculty, surgical faculty were less likely to report that their work was valued. They were also more likely to express a wish for more clarity about expectations for tenure, find the tenure process stressful, and worry about changing standards for promotion.

COMPARING HIGH AND LOW ACHIEVING FACULTY

Finally, we were interested in determining what, if any, experiences as revealed through the interviews distinguish those faculty who were consistently judged to be doing very well compared to those who were consistently judged to be doing poorly across the different measures of success. To do so, we

identified four faculty at the top of the rankings for publications, grant activities and dean's rating and four faculty at the bottom of the rankings in each area and compared these two groups of faculty on their experiences.

Very few comparisons were statistically significant different, suggesting that in many instances the experiences of these two groups of faculty were quite similar. Important differences, however, did emerge concerning faculty mentoring. Although most of the faculty in the full sample indicated that they did have mentors, it is notable that all four faculty members in the high success group, but only two faculty in the low success group, reported having mentors. Moreover, there was a statistical trend for those in the high success group to report that their mentors were helpful. Furthermore, those in the high success group were statistically significantly more likely to report that their mentors provided career help (all four faculty in this group reported such help; in contrast, no faculty in the low success group indicated that they received career advice from mentors). In addition to these findings, there was a statistical trend for those in the high success group to be more likely to report that their units valued their research.

CONCLUSIONS

These results indicate that for a large segment of this sample of junior tenure track faculty in the Medical School things are going well and their careers appear to be on track. Direct evidence for this is found in the dean's assessment of their career trajectories as well as the faculty members' own descriptions of their work experiences and their sense of how they are progressing. Moreover, these assessments did not differ importantly by gender, department type or level of protected research time.

The interview data further suggest that faculty success is related to the various kinds of support provided to the faculty—especially helpful mentoring—but also in the form of advice from colleagues, administrative support, and effectively protected research time. In addition, successful faculty felt that colleagues valued their contribution to the department and to scholarship more generally and they reported more positive relationships with their unit heads. These findings were underscored in the comparisons of faculty at the extreme ends of the success continuum and demonstrate that supportive mentoring and career guidance are key to faculty success.

However, the experiences of women faculty in this sample were importantly different. Women reported fewer experiences of support within their units. They described a more negative climate, less informal feedback from their chairs or directors, and less advice more generally. In addition, they reported more administrative responsibilities than men, but less administrative support. Given this, it is noteworthy that women appear to be succeeding at the same rate as men.

Of course, what we have described here is our best assessments of success for these junior faculty on the tenure track in the Medical School. The validity of those assessments will become apparent as we observe the longer term career trajectories of this sample of faculty. Nevertheless, the evidence suggests that a supportive department, particularly in terms of good mentoring, is important. Beyond considerations of success, it is also clear that the experiences of women faculty should be of concern. Although they are succeeding at similar rates to their male colleagues, they describe, in the aggregate, a less positive experience.

THRIVING ON THE MEDICAL SCHOOL TENURE TRACK AT THE UNIVERSITY OF MICHIGAN: A STUDY OF ASSISTANT PROFESSORS

INTRODUCTION

In summer 2010 the UM ADVANCE Program initiated a study of junior (assistant professor) tenure track faculty in the Medical School. The study was requested by the Medical School's ADVANCE Advisory Committee and was designed to identify those factors that allowed junior tenure track faculty to thrive and facilitated their success at the Medical School. When assessing whether or not a faculty member is succeeding—and even flourishing, considering all the features of an academic position is complicated. Of course, there are the established standards necessary to achieve tenure (e.g., a publication and external funding record). But there are also the faculty members' own sense, as well as others' views, of their successes and achievements. We tried to take all of these elements into account in this study.

Thus, for the purposes of this study, we obtained data on the faculty from a number of different sources. Using the faculty members' CVs we assessed their publication records. From UM's Division of Research Development and Administration (DRDA) data base we gathered information on the faculty members' grant activity as a principal investigator and/or co-principal investigator. We also asked the Medical School's Dean of Instructional Faculty to assess each faculty member's level of success based on their third year reviews. Finally, a major source of information was the faculty themselves, based on an individual interview with each faculty member who was willing to participate in the study.

We begin with a description of what we've identified as the various indicators of success and thriving—including more external assessments (i.e., publication records, grant activity, dean's rating) and the faculty members' own internal assessment of their level of achievement as an assistant professor on the tenure track. Further, we considered the relationships of these indicators to relevant features of the sample (e.g., gender, type of department). Second, we summarize the experiences of these junior faculty as reported to us in their interviews to understand more about the factors that may be supporting or inhibiting their success. We explore this further through an examination of the relationship between both the external and internal indicators of success and the faculty members' experiences of their positions as assistant professors in the Medical School.

Tabled data can be found at the end of this report.

STUDY SAMPLE

The focus of the study was all assistant professor tenure track faculty who had been on the tenure track for three to four years, but had not been promoted to associate professor as of the summer 2010 (n=61). The sample was two-thirds male (67%). Most (87%) had a clinical department appointment; eight of the faculty (13%) had primary appointments in a basic science department. Thirty-seven (61%) were in a non-surgical clinical department; and the remaining 16 (26%) were in a surgical department². There were no differences in these rates by gender. Two-thirds (62%) had an M.D. A similar 66% had a Ph.D.; 30% held both degrees. There was a trend ($p \leq .10$) for more men than women to hold M.D.s, but there was no statistically significant difference by gender on having a Ph.D.

MEASURES OF SUCCESS

DESCRIPTION OF MEASURES

The elements that define a successful junior faculty career are complex. Thus, we've identified several factors that are thought to be relevant to this process. These include straightforward measures of publications and grant activities, as well as an assessment of faculty members' success to date by the Dean of Faculty. In addition, we queried the faculty themselves about their own sense of thriving. Following is a description of each of these measures of success.

PUBLICATIONS

We obtained the most current CV for all faculty; drawing on this information we identified several measures of publication productivity, including number of peer-reviewed journal articles since appointment start date, number of peer-reviewed journal articles as first author since appointment start date, number of peer-reviewed journal articles as last author since appointment start date, and sum of peer-reviewed journal articles as first or last author since appointment start date. This last variable was highly correlated ($p < .001$; average correlation coefficient of .80) with the three other variables so we used this variable as a measure of publication productivity. The mean number of peer reviewed journal articles as first or last author was 7.6, with a range of 0 to 33.

In addition, using publication information from the CV we also assess the ISI-H Index; this is a measure of both the productivity and impact of a published work. The mean ISI-H Index score for this group of faculty was 12.36 with a range from 4 to 29. The ISI-H Index was not correlated with total number of publications as first or last author.

GRANT ACTIVITY

From UM's Division of Research Development and Administration (DRDA) we identified the number of federal grants for which each faculty member in the sample had served as principal investigator (PI) or

² Basic science departments represented in this sample are Cell & Developmental Biology, Human Genetics, Microbiology & Immunology, Molecular & Integrative Physiology, and Pharmacology. Surgical departments in this sample are Neurosurgery, Obstetrics & Gynecology, Ophthalmology & Visual Sciences, Orthopaedic Surgery, and Surgery. Finally, non-surgical clinical departments represented in this sample are Anesthesiology, Internal Medicine, Medical Education, Pathology, Pediatrics, Physical Medicine & Rehabilitation, Psychiatry, and Radiation Oncology.

co-principal investigator (co-PI) since coming to UM as an assistant professor. We compared these numbers to those reported by the faculty in their CVs and found them to be highly correlated. The mean number of federal grants as PI since coming to UM as an assistant professor was 1.21 with a range of 0 to 10. Twenty-six (43%) of the faculty had no federal grants as a PI. The mean number of federal grants as co-PI since becoming an assistant professor at UM was .64, with a range of 0 to 4. Forty (66%) of the faculty had none; 19 (31%) had no grants as either PI or co-PI.

In addition to number of grants, from the CV we coded whether or not each faculty member was the primary investigator on an active or past RO1 federal grant; 17 (28%) were.

MEDICAL SCHOOL RATING

During the academic year 2011, the Medical School's Dean of Instructional Faculty was given the list of 61 faculty members in the sample and asked to rate them on a three-point scale (doing well, doing less well, may be in trouble) based on their third year review (in one case a faculty mentor who was more familiar with the faculty member's area of scholarship provided the rating). We received ratings for 37 of the 61 faculty (61%). Among those, most (n=26, 70%) were rated as doing well; 11% (n=4) were identified as doing less well and the remaining 19% (n=7) were described as in trouble. In addition, 4 faculty had recently been reviewed for tenure and promotions were pending. To increase the analyzable sample size, we included those faculty in the "doing well" category. Of those remaining, 5 were scheduled for review in the next academic year, one had terminated from the position, and 14 others had chosen not to have a review.

FACULTY MEMBER'S SELF-ASSESSMENT

We developed one other measure of success, based on the interviews with faculty (the interview and interview process are described more fully below). Faculty were asked how well they thought things were going for them in their jobs; responses were coded into three categories: they felt things were going well (n=17, 43%); their sense of things was mixed (n=20, 50%), and they felt things were not going well (n=3, 8%).

RELATIONSHIPS OF INDICATOR VARIABLES

RELATIONSHIPS AMONG SUCCESS INDICATORS

The dean's rating was significantly and positively correlated with the faculty members' self assessment of how things were going (see Table 1 for correlations among the success indicators). It was also significantly and positively correlated with number of grants as PI, number of publications as first or last author since their UM appointment as assistant professor, and the ISI H-Index. Number of publications as first or last author was also significantly and positively correlated with the faculty members' self assessment; no other variables were correlated with the faculty members' self assessment.

We also compared those who chose not to be reviewed with those who were reviewed by the dean to determine if they differed on the other measures of success. In fact, there were no statistically significant differences on any success indices (publications, grants, or self assessment). The fact of no difference (that is, they were not doing significantly better in any external or internal measure of their success), suggests that these faculty are just as likely to benefit from a review as those who chose to be reviewed and that they should be required, or at least strongly encouraged, to participate in the review process.

Number of grants as PI since coming to UM was significantly and positively correlated with ever having an R01 and number of grants as co-PI since coming to UM. Ever having an R01 was significantly and positively correlated with the ISI H-Index. There was also a trend for the same variable to be positively correlated with number of federal grants as co-PI since their UM appointment. The grant variables were statistically unrelated to number of publications as first or last author since coming to UM and the two publication variables (number of publications as first or last author and ISI H-Index) were unrelated to each other.

RELATIONSHIP OF INDICATORS TO SAMPLE CHARACTERISTICS

We examined the relationship of the different measures of success with sample characteristics of interest. These include gender, type of primary department (surgical, non-surgical clinical, basic science), and the degree to which the position had protected research time. This last variable is based on information obtained from those faculty who were interviewed (described in more detail below); their jobs were coded as either at least 70% time spent working on research or at least 50% time spent engaged in clinical work.

Very few relationships were statistically significant. T-test analyses by gender revealed that women had, on average, a significantly lower ISI-H Index, compared to men; there were no differences on the other publication or grant variables, the dean's rating or their self assessments. The only differences found comparing faculty by type of primary department were: faculty in the surgical departments had significantly more publications as first or last author compared with those in basic science departments, and fewer R01 grants compared to those in non-surgical clinical departments. There were no differences among these groups on their own or the dean's assessment of their success. Finally, there no statistically significant differences on any assessment variables comparing those with more and less protected.

SUMMARY

These findings suggest that, on average, faculty have a good sense of how they are doing—at least in comparison to the dean's assessment. Interestingly, the faculty members' self-view appears focused principally on publication record; in contrast, the dean's assessment was related to their federal grant record in addition to publications. Viewed separately, publication record and grant activity variables were generally unrelated to each other.

INTERVIEW STUDY

Following is a description of the interview study that was conducted during the summer, 2010 with all faculty from the sample of 61 who were willing to participate.

SAMPLE

We identified all assistant professor tenure track faculty in their third or fourth year as an assistant professor and asked them to participate in the interview study. Of the 61 faculty in the sample, 40

agreed to be interviewed (67%). Of the remaining, 6 refused, 1 person agreed but was never successfully scheduled, and 14 did not respond to email or phone requests to participate.

Slightly more than half of the respondents (58%) were male; whereas the full sample of 61 was 67% male, indicating that women participated in the study at a higher rate than men. Most of the interviewees (60%) identified a non-surgical clinical department as their primary home; 25% identified surgical departments and the remaining 15% were from basic science departments; these rates are comparable to the sample as a whole. Three-quarters (76%) of the faculty respondents reported that they had Ph.D.s; 55% had M.D.s and 42% had obtained both degrees. The rates for the full sample of 61 faculty was slightly lower for Ph.D.s (66%) and slightly higher for M.D.s (64%) suggesting that faculty with Ph.D.s are overrepresented in this sample. The rate for faculty with both degrees was comparable to the interview sample (33%).

The faculty were also asked how their time was allocated between clinical and research efforts. Most (63%) indicated that at least 70% of their time was spent on research. Far fewer (18%) reported that at least 50% of their times was devoted to clinical work. For the remaining 19% it was unclear how their time was allocated.

METHODS

In the interview participants were asked several questions about the structure of their work, work experiences, expectations for success, sources of support and family and leisure activities; it normally took less than one hour to complete. Interviews were confidential and were conducted by trained interviewers who had no direct or indirect relationship with the faculty member with whom they talked. Interviews were normally face-to-face, however, a few were completed on the telephone at the interviewee's request. The conversations were audio-recorded when permission was granted by the faculty member; in addition, notes were taken during the interview and reviewed and refined immediately after the interview was completed.

All interview notes were de-identified to preserve the confidentiality of the participants. Several of the interview records were then reviewed to develop and refine a coding scheme. A different subsample of interviews was then coded by two ADVANCE staff members, using the coding scheme, who obtained an acceptable inter-rater reliability of .85. One of the coders then coded the remaining interviews.

Following, we report results for all assistant professors who were interviewed. Analyses describe the work experiences of the faculty interviewed, including the factors they perceive to be supporting or inhibiting their success.

FINDINGS

THE JOB

Reasons for taking the position. Faculty were asked their reasons for taking the position as assistant professor at the Medical School. Most frequently identified as a positive feature of the position (mentioned by 45%) was the ability to do their research and 25% indicated that the position was good for their careers more broadly; a few indicated that they were looking specifically for a tenure track

position (see Table 2 for frequencies of all responses³). Some identified positive feelings about the department and/or the University more generally (seven had been at UM previously). Others commented on the prestige or reputation of the department or a particular specialty. A few were advised by a mentor to take the position and/or had a mentor in the department they were joining. Some reported that the position was good for their clinical work and one noted a positive medical setting. Finally, a few mentioned lab resources or good salary and/or startup package.

In addition to these job-specific aspects, some mentioned that the position was good for their families and/or provided a partner position. A few indicated that the job's location was a plus for them.

Did the job meet expectations. More than half (60%) reported that, after arriving at UM, they found the job to be as they expected; another 30% said the job included elements that were both expected and unexpected. A few (10%) indicated that the job was quite different from what they anticipated.

When asked what was different from what they expected, one quarter (23%) said nothing was different and another 20% articulated more generalized positive aspects of the position (see Table 3 for frequencies of all responses). In contrast, nearly half (45%) reported more generalized negative aspects about the position than they expected and a third (35%) found research to be more demanding. Some found administrative (18%) and clinical (13%) work more challenging.

How things are going. Nearly half of the faculty reported that things were going well for them as assistant professors in the Medical School (43%) and an additional 50% indicated that at least some aspects of the job were going well. Only 8% indicated that they thought things were not going well. Respondents were also asked what, specifically, was going well, and not so well, in their current position. More than half (60%) reported that research was going well for them and about one third (35%) described things in general as going well (see Table 4 for frequencies of all responses). A similar percentage described research activities, including grants (40%) and collaborations (30%), as successful and a few (15%) identified publications. A similar number mentioned students and/or teaching (20%) and clinical work (15%). A few identified mentoring (10%) and their personal lives (5%) as going well.

Respondents referenced a much broader range of work experiences that were going less well for them. Most frequently named was the work environment; more than one quarter (28%) reported problems with the climate (see Table 5 for frequencies of all responses). Also more frequently mentioned were aspects of scholarly work including research (18%), grants (23%) and publications (20%). Even more (38%) identified the mechanics of research (including managing animal facilities and lab personnel) as not going well. In addition, a few mentioned difficulties in getting students and/or post docs (8%).

Some identified teaching (8%) and clinical work (8%) as problematic. Some respondents noted that mentoring (13%) and networking efforts (5%) weren't going as well as they would have liked. Time management (8%), administrative work (5%) and administrative red tape (5%) were also mentioned by a few as difficult.

Finally, a very few reported that their salary (8%), the promotion criteria (3%) and work-life balance (3%) were challenging aspects of their jobs. In contrast, nearly one quarter (23%) reported that everything was going well.

³ Note that for many of the questions described in this section faculty could provide more than one response; thus, frequencies across items do not add up to 100%.

Experiences of stress. About one-fifth (21%) of the faculty reported that they experience a great deal of stress and an additional 32% indicated that their stress levels vary. A few (8%) reported a moderate level of stress and a third (34%) reported little stress. The stress level for four faculty members (10%) could not be categorized.

A third of the faculty (33%) reported that the general environment within their departments was a factor in increasing stress for them (see Table 6 for frequencies of all responses). A similar percent identified multiple demands (35%), administrative issues (28%), and meeting deadlines (23%) as contributing to their stress. Nearly half (43%) identified grants; however, there was no statistically significant difference between those who did and did not report grants as a source of stress in the number of grants as PI or co-PI they've had since their current appointment at UM.

Some pointed to research (15%) and publications (20%) as increasing stress. However, nearly a third (30%) reported that concerns about promotion were stressful; again, there was no statistically significant difference between those who did or did not express concerns about the promotion process. In terms of how well they thought they were doing.

Patient care was identified by one quarter (23%) as stressful. In addition, a few pointed to teaching (13%), work-life balance (8%) and insufficient sleep (8%) as contributing to their stress.

The department environment was also identified as a resource for reducing stress for many faculty. Half reported that administrative support (48%) or a supportive work environment (38%) mitigated their stress; see Table 7 for frequencies of all responses. Other specific aspects of their positions also helped mitigate stress for some faculty; these included opportunity to extend the tenure clock (13%), good students and/or postdocs (5%), job security (5%), a convenient location (e.g., for travelling to D.C.; 8%), and reimbursement for critical child care expenses (3%). Faculty also identified things they could do at work to manage stress; these included doing a good job (20%), seeking and/or getting advice from others (15%), lowering their expectations for their performance (10%), being organized (5%), and picking their battles and/or not getting upset about things out of their control (5%). In addition, beyond work, faculty identified family and vacation time (28%), leisure and lifestyle activities (e.g., reading, getting enough sleep, exercise; 20%), time for reflection and/or relaxation (18%) and religion (1%) as things that could mitigate their stress at work.

Summary of the job. The ability to do research and move their careers forward more generally were most often cited as a reason for taking a tenure track position in the Medical School; more than half reported that the job turned out to be as they had anticipated it would be. However, nearly one-half reported some generalized negatives about the job, and a third found research to be more demanding than expected.

Most faculty reported that they felt things were going well in their jobs, and research and grant activity was most often identified as something that was going well. However, one-quarter identified problems with grants and the work climate more generally.

Two-thirds of the faculty reported some level of stress in the jobs. Most often cited as reasons for their stress included administrative issues, grants, and concern about promotion as well as the environment more generally. Administrative support and a supportive work environment were mentioned most frequently as factors that relieved faculty stress.

THE TENURE PROCESS

When asked, only half of the faculty (48%) indicated that they were clear what they needed to do to get tenure. An additional third (33%) were somewhat clear and a few (15%) said they were not at all clear. Responses were not available from two of the faculty members. Interestingly, one quarter of the faculty (25%) spontaneously mentioned the presentation by the Associate Dean for Faculty Affairs as an important source of information on the tenure process.

Faculty went on to articulate what they thought they needed to get tenure. Half identified external funding (45%), publications (45%) and teaching (45%) as critical elements for granting tenure; a third (30%) mentioned service (see Table 8 for frequencies of all responses). Slightly fewer identified specific aspects of their work including independent research (20%), having an impact (18%), and good clinical work (15%). Finally, a few reported that it would be important to have a network of colleagues (who could provide letters of support; 10%); two mentioned doing good work; and one each reported having a chair who mentors them and spending their start-up funds.

Faculty also articulated concerns they had about achieving tenure. Some (18%) expressed worry about the standards for tenure—specifically that the bar was too high and/or standards had changed over time (see Table 9 for frequencies of all responses). Others (15%) worried that their career paths were atypical for getting tenure. Some of these faculty worked collaboratively and/or were engaged in interdisciplinary research; others pursued careers with no clinical practice. A few expressed some concern about publications (5%), teaching (3%) and balancing competing demands on their time (3%).

When asked if they were headed in the right direction, most (75%) agreed that they were. An additional 20% also thought they were headed in the right direction, but had some concerns. The remaining two (5%) thought they were not on track.

Many of the faculty elaborated on the reasons why they think that are moving in the right direction. Several (35%) reported that this job is what they want to do and a few noted that they are making good progress (18%), know what they need to do to be successful (5%) and have mentor support (10%); see Table 10 for frequencies of all responses. Some mentioned specific aspects of their work that were going well, including: grants (25%), publications (20%), research (13%), collaborations (5%), teaching (5%) and patient care (1%). A few appreciated the status associated with the tenure track (5%) and some felt they were beginning to develop a reputation nationally (10%).

Faculty also volunteered several reasons why things were not moving forward as well as they hoped. Several (20%) indicated that work was progressing more slowly than they anticipated (see Table 11 for frequencies of all responses). Some reported specific difficulties and/or challenges, including: problems with their labs (8%), teaching (5%) or research difficulties (3%), and an insufficient number of clinical patients (3%). Others noted more generalized problems such as unclear expectations (8%), politics (5%), mentoring (3%), or insufficient support from UM (3%). A few identified difficulties with their families (8%) and one reported missing clinical work.

Faculty also noted many things that they thought could help them stay on track. Most (33%) identified mentoring (two also mentioned advice and one person mentioned “safe” advice); many also suggested that clarity about expectations (20%), administrative support (20%), and more protected time (5%), would be helpful (see Table 12 for frequencies of all responses). A few (5%) also noted the usefulness of

a formal review process. Several identified work-related things they could do to ensure their success, including more funding (18%), publications (18%), planning (8%), and engaging more, including more service (3%). Others identified more exposure (8%), a more active research community (3%) and collaborators (3%) as beneficial; one also suggested that UM ADVANCE could be helpful. Finally, a few (3%) thought there was nothing that could—or needed to—be done to help them stay on track; a similar percentage thought the solution was changing tracks.

Summary of the tenure process. About half of the faculty reported that they were clear what they needed to do to get tenure. A similar percentage mentioned grant funding, publication and teaching as critical elements of a good tenure case. Moreover, most of the faculty felt they were headed in their right direction, and several identified as evidence successes with grants and publications, as well as doing what they want to do. Most often cited as a something that could keep them on track included mentoring, clarity about expectations and administrative support.

SOURCES OF SUPPORT

Colleagues. The faculty were asked if they receive advice from colleagues; only 10% said they did not. Most (50%) volunteered that they receive helpful advice; one reported receiving unhelpful advice and the remaining 38% did not comment on the quality of the advice.

Faculty also mentioned the kinds of advice and support they received from their colleagues. Many described generalized support (30%), as well as problem-solving help (20%), a helpful chair or division chief (10%), and friendships with colleagues (8%); see Table 13 for frequencies of all responses. Other support included specific help and/or advice with work-related issues, including help with research (28%), grants (25%), publications (23%), clinical advice (19%), teaching (3%) and lab management (3%). A few also noted help with department politics (5%) and simply opportunities to vent (5%).

Some of the faculty identified help or advice they'd like to receive from colleagues that they are not getting (see Table 14 for frequencies of all responses). Most (18%) identified career advice, including how to get tenure. A few (5% each) also noted more general advice as well as help with research, time management and work-life balance.

Mentors. Most (70%) reported that they had a formal mentor. A few (15%) indicated that they only had an informal mentor and the remaining 15% reported having no mentor. Of those who had mentors, almost all faculty described their mentors as either very helpful (45%) or somewhat helpful (52%). One faculty member reported having a mentor who was not helpful.

Respondents also described the ways in which their mentors were helpful to them. A third (33%) mentioned career help and a quarter indicated that they received research help (28%) and general advice (23%) from their mentors (see Table 15 for frequencies of all responses). Some (13%) also identified practical help that mentors provide, including answering questions, and helping them set priorities and navigate UM. A few noted specific things mentors help them with, including publications (15%), networking (13%), grants (13%), clinical work (8%), students (3%) and presentations (3%).

Other support. Most (76%) also reported that they receive other support beyond that from their mentors (see Table 16 for frequencies of all responses). This support comes from different people including other department colleagues (50%), administrative staff (10%), collaborators (8%), colleagues in other departments (5%), mentors outside the department (3%) and other formal support services (3%). The kinds of support faculty mentioned receiving from these other resources included support for

their careers (8%), research (8%), grants (5%), publications (3%), and financial help (3%). A few (8%) also noted that they are supported by a good climate within their departments.

Summary of sources of support. Almost all faculty reported receiving advice from colleagues. Most also reported that they have a formal mentor. Career advice was most often cited as something they'd like to receive but were not getting.

UNIT LIFE

Division/department colleagues and head. Faculty were asked about their interactions with colleagues; most (69%) said they were good and one quarter (23%) described the interactions as more mixed. Two people (5%) felt they had insufficient interactions with their colleagues and another described the relationships as informal.

They were also asked how frequently they had contact with their unit head. Most (62%) saw their chair or division head more than once per month and an additional 11% had monthly contact. A similar percentage saw their unit head quarterly, or a few times per year and the remaining 16% had very infrequent contact with their unit head (e.g., annually or seldom). Most (84%) reported positive relationships with their unit head. A few reported neutral (11%) or mixed (5%) relationships.

Most faculty (78%) also received annual feedback from their unit head. Some (43%) reported that they received feedback informally and others described regular meetings with the chair or division chief about how they are doing (see Table 17 for frequencies of all responses).

Almost all faculty (90%) reported that they are part of a collaborative research group and most of these (68%) indicated that their relationships with their collaborators was good; the remaining 32% reported more mixed relationships. Most (60%) of these collaborations were within UM; 40% had at least some collaborators outside UM.

Most of the faculty (80%) indicated that they felt their work was valued in their unit; an additional 8% thought some, but not all, valued their work. Only 5% indicated that the department did not value their work and 8% were not sure about the department's view. Similarly, most (62%) reported that their research was valued by the department; 31% were not sure and the remaining 8% indicated that it was not.

Departmental/divisional structure. Faculty were asked if they felt the departmental or divisional structure is helpful to their careers or a hindrance. One quarter (25%) agreed that it was helpful and slightly more (28%) found it mixed (both helpful and a hindrance). Nearly one quarter (23%) reported that the structure of the unit was a hindrance to their careers; and a similar percentage (23%) indicated that it was neutral on this dimension.

Faculty described their typical day generally in three different ways: about half (53%) indicated that every day is the same in that they typically do some of everything they are responsible for. In contrast, more than a third (38%) had their work scheduled so that different days were devoted to different activities (e.g., clinical work, research). The remaining 10% indicated that they had no typical day.

Protected research time. All but one of the faculty members reported having protected research time. About half of these (45%) indicated that this protected time was of limited duration; the remaining 55% reported that there was no time limit to the protected time. Half (55%) thought the protected time

worked well and an additional third (38%) were more mixed in their assessment. A few (7%) reported that their protected time was not working well for them. There was no difference on these dimensions when we compared those for whom at least 70% of their time was spent on research and those for whom at least 50% of their time was spent in clinical work.

Administration. Most faculty (62%) reported that they receive administrative support for their research. An additional 27% indicated that they get some, but insufficient, support and the remaining 13% reported no administrative support.

Most (72%) also agreed that they had sufficient funding for their research. A few (10%) said they did not and the remaining 18% indicated that some aspects of funding were good (e.g., startup) but overall funding was insufficient.

Three-quarters (78%) indicated that they understood the salary model used in their unit; the remaining 23% did not. Few (18%) described the model as helpful to them; most (42%) indicated that it was neutral and a quarter (26%) described it as unhelpful to them. A few (13%) weren't sure how to characterize the model's helpfulness.

Most of the faculty (69%) described their level of administrative responsibilities as moderate and/or reasonable. A few (8%) reported that they had a good deal of responsibilities; in contrast, 21% reported no administrative work. Most (63%) didn't know if administrative responsibilities were allocated equitably. Some (20%) thought that they were; and a similar 18% thought they were not. In contrast, most (64%) reported that resources were allocated fairly; 23% were not sure and 13% indicated that they were not allocated equitably.

Summary of unit life. Most faculty described positive interactions with colleagues; although one quarter characterized them as more mixed. Most also reported seeing their unit head at least monthly; receiving annual feedback; and described positive relations with the head. About half also reported receiving informal feedback from the chair. Most faculty reported that their units valued their work and their research.

All but one faculty member reported having protected research time and half of them indicated that it worked well. Most faculty indicated that they thought that resources were allocated equitably; although more than one quarter were not sure or didn't think there was a fair allocation of resources.

FAMILY LIFE

Family demographics. Most (83%) of the respondents indicated that they have a partner; 18% did not. Nearly all (87%) partners were employed and/or students. In cases where both partners were employed, about half of the respondents (47%) reported that neither partner was the primary breadwinner. A similar percentage (47%) reported that the partner was the primary breadwinner and the remaining 7% indicated that they had that responsibility.

Very few (8%) partners were in commuting relationships. In contrast, three-quarters of the faculty (72%) reported that they have children and in most cases (93%) their children lived with them. Most (76%) were satisfied with their childcare arrangements; 17% were not. A few (7%) had children who were older or didn't use child care resources for other reasons.

Parental leave. Half (50%) of parent respondents said they did not take advantage of parental leave; fewer (29%) did take parental leave. The remaining 21% had children who were older, and parental leave was not relevant. Thus, 36% of faculty for whom parental leave was an option took advantage of it. Those who could, but did not take parental leave provided reasons for this. Some (15%) simply didn't ask for it (see Table 18 for frequencies of all responses). A few (8%) expressed concerns about negative consequences resulting from such a leave and a similar number (8%) did not know it was an option for them. Others (8%) had a partner who was available so parental leave was not necessary and one person (3%) indicated that parental leave was not available.

Reasons for faculty members taking advantage of the leave included that it was allowed (8%) and supported (3%) by their units (see Table 19 for frequencies of all responses). A few also identified health reasons: their partner (3%) or they (3%) had medical needs or it helped to reduce stress (3%).

In addition, two faculty members (15%) indicated that they are responsible for some care of elderly relatives.

Evenings and weekends. Faculty were asked how they spend their evenings and weekends. Most (70%) took care of chores in the evening (see Table 20 for frequencies of all responses). Half (50%) reported spending time with family, engaging in leisure activities, and/or working. One person indicated being on call some evenings.

Their activities were similar on the weekends; however, more (75%) reported spending some of that time working (see Table 21 for frequencies of all responses). They also spent time with family (58%), attended to chores (40%), and engaged in leisure activities (23%). Two faculty members also noted being on call some weekends.

Summary of family life. Most faculty reported having partners who were employed; very few of them were in commuting relationships. Most also reported having children; however, only a third of those for whom parental leave was an option took advantage of it. Faculty reported a good deal of time spent on leisure and family activities evening and weekends; most also reported some time working.

DIFFERENCES AMONG SAMPLE GROUPS

We assessed differences, based on characteristics of the sample, in faculty experiences and perspectives we learned about from the interviews. Specifically we examined differences by gender and by primary department affiliation (surgical, non-surgical clinical, and basic science departments); we also compared those whose position was principally research oriented (at least 70% research) with those whose position was more clinically-oriented (at least 50% clinical). Any references to group differences refer exclusively to differences found to be statistically different using the chi square test of significance ($p \leq .05$ —that is, differences or effects that would have occurred by chance under the null hypothesis at or less than 5 percent of the time, which is a generally accepted standard of statistical significance in social science research). However, with such a small and purposive sample, statistical significance can only be suggestive. Thus, when they occurred, we also report trends ($p \leq .10$) as they indicate differences of a magnitude that might be significant with larger samples.

DIFFERENCES BY GENDER

There was no statistically significant difference between men and women on how well they thought things were going. However, women faculty were significantly more likely than men faculty to report that the job didn't match their expectations and to identify general negative aspects of the position as different from what they expected. Women were also more likely to indicate that the climate was a problem. There was a trend for women to mention teaching difficulties more often than their male counterparts. In contrast, men faculty were significantly more likely to indicate that everything in their job was going well.

Women and men experienced similar rates of stress. However, men were more likely than women to report that grants and administrative issues were factors that increased stress for them (the latter was a trend). There was also a trend for women to be more likely to report concerns about promotion and their research as areas of increased stress, compared to men. Women were also significantly more likely to report that lifestyle choices reduced their stress levels.

Generally, faculty were clear about what they needed to get tenure, and this did not differ by gender. Women were, however, significantly more likely than men to point to publications and opportunities for public recognition as indications that things were going well; there was also a trend for them to express concerns about changing standards for achieving tenure. Men were more likely to identify funding as something that would help them stay on track.

Women reported less support in their unit, compared to men. They reported receiving less advice from colleagues and there was a trend for them to describe their mentors as less helpful. Women were also significantly less likely than men to report that they received feedback informally from their unit head or that their research was valued by the department. They also reported more collaborators within UM.

Women were less likely than men to indicate that they receive administrative support for their research and more likely to report that their protected time was not working well for them. Women reported significantly more administrative responsibilities compared to men. In addition, there was a trend for more women to identify teaching and unit politics as areas that keep them from moving forward.

Finally, women were significantly more likely than men to have taken parental leave; they were also significantly less likely to report that they worked on the weekend (there was also a trend for fewer women with children to report that they worked on weekends compared to women without children).

DIFFERENCES BY TYPE OF DEPARTMENT

There were fewer statistically significant differences when we compared faculty experiences by type of department (basic science, surgical, and non-surgical clinical). There was a trend for faculty in the basic science departments to report that they experienced more administrative demands in their job than they expected compared to those in non-surgical departments. Comparing the same two groups also revealed trends for those in the basic sciences to be more likely to suggest it is necessary to demonstrate an impact on the field to be successfully tenured and that more exposure would assist their tenure case.

There was also a trend for more faculty in the basic sciences, compared to faculty in both the surgical and non-surgical departments, to identify family as potential inhibitors of their progress. (Although the

differences were not statistically significant, a larger percentage of faculty in the basic sciences had children compared to faculty in the other units.) In contrast, compared to non-surgical clinical department faculty, those in surgical departments were more likely to report that clarity about expectations for tenure would be helpful and concerns about promotion were stressful. They were also more likely to note worries about changing standards for promotion.

Significantly more faculty in the basic science departments, compared to those in surgical departments, indicated that they receive problem-solving help from colleagues. There was also a trend for those in surgical department to be more likely to report support from collaborators compared to those in non-surgical clinical departments.

In addition, faculty in surgical units were less likely to report that their units valued their work compared to those in non-surgical units; further, there was a trend for faculty in surgical units to report more administrative responsibilities compared to their non-surgical unit colleagues.

DIFFERENCES IN WORK DEMANDS: AT LEAST 50% CLINICAL VS. AT LEAST 70% RESEARCH

There were very few statistically significant differences comparing these two groups of faculty. Those whose work was at least 70% research were more likely to indicate that they receive advice from colleagues compared to those whose work was at least 50% clinical. In contrast, those whose work was at least 50% clinical were significantly more likely to report clinical and networking help from their mentors.

SUMMARY OF DIFFERENCES AMONG SAMPLE GROUPS

The largest number of group differences arose in the comparisons by gender. Women were more likely to find the job different, and more negative, from what they expected and were more likely to identify problems with the climate and teaching compared to men. Women also reported less help in the form of advice, informal feedback from their unit head, administrative support and effective protected research time. Women also reported significantly more administrative responsibilities, but were more likely to feel that their research was not valued by their unit.

Faculty in a basic science departments were more likely to report receiving problem-solving help from colleagues compared to surgical department colleagues. Compared to non-surgical faculty, surgical faculty were less likely to report that that their work was valued. They were also more likely to express a wish for more clarity about expectations for tenure, find the tenure process stressful, and worry about changing standards for promotion.

Those whose work was at least 70% research were more likely to indicate that they received advice from colleagues; in contrast, those whose work was at least 50% clinical were more likely to report clinical and networking help.

RELATIONSHIP BETWEEN MEASURES OF SUCCESS AND FACULTY EXPERIENCES

Finally, we examined the relationship between faculty experiences described in the interviews and the measures of faculty success previously described. Again, any references to group differences refer exclusively to differences found to be statistically significantly different ($p \leq .05$). Because of the small sample size trends ($p \leq .10$) are also reported as they suggest differences of a magnitude that might be significant with larger samples. First, relationships are described separately for each success measure (dean's rating, publication record, grant activity, and self-assessment).

DEAN'S RATING

We compared, through chi square analysis, those who were rated by the dean as doing well ($N=30$) with those who were rated as doing less well or may be in trouble ($N=11$) on a variety of experiences reported in the faculty interviews. In discussing what was different in the job from what they anticipated, there was a trend for those who were rated as doing well to be more likely to report that nothing was different (in fact, all faculty in this group indicated that the job was as they expected it to be). There was also a trend for these faculty to be more likely to report administrative support was helpful in relieving stress.

In contrast, those who were rated as doing less well were more likely to report that their teaching was not going as well as they would have liked (this was a trend). In addition, they were significantly more likely to report that advice from colleagues was helpful in mitigating any stress they might be experiencing.

In discussing things that could help keep them on track for tenure, those with lower ratings by the dean were significantly more likely to identify opportunities for exposure as helpful. In contrast, there were trends for those rated as doing well to be more likely to report their mentors as helpful and to identify administrative support as something that could keep them on track. They were significantly more likely than those with lower ratings to indicate that their protected time was working well for them, that their department structure was helpful to them, and that they felt their research was valued by the department.

PUBLICATIONS

Using t-tests, we assessed differences in faculty experiences based on publication success using total number of publications as first or last author since their current appointment. Faculty who reported that nothing was different from what they expected had significantly more publications than those who found the job had some elements they had not anticipated; similarly those for whom everything was going well also had more publications than those who identified things in their job that were not going well (this was a trend). In contrast, those with fewer publications were more likely to report that the job entailed more research demands than they expected, that their grant activity was not going well and that they anticipated needing more publications to achieve tenure (the latter two findings were trends).

Those with lower ISI H-Index scores were more likely to identify the need for teaching and external funding to achieve tenure (the latter was a trend); they were also significantly more likely to express

concern about the standards for tenure (including changes in the standard over time) compared to those with higher scores. Those with lower ISI H-Index scores were also more likely to identify funding and publications as things that would help their tenure case (the latter was a trend). They were also more likely to identify the need for more career support from colleagues.

GRANTS

T-tests were also used to assess differences in faculty experiences based on number of federal grants as PI as well as number of federal grants as co-PI. In addition, chi-squares were computed to assess differences between faculty who had or had not received an R01. In discussing what was different from the job than expected, those who expressed more generalized negatives about the job had significantly fewer grants as PI compared to those who did not voice such negatives. There was a trend for those who indicated that they thought the position would be good for their research endeavors to have more grants as a co-PI. Those with R01 grants were significantly more likely to report that the position provided good lab resources and/or research environment and reflected a good reputation for the faculty member's area of research (the latter was a trend). However, those who expressed less satisfaction with their salary were also significantly more likely to have more grants as co-PI; and there was a trend for the same group to be more concerned about time management.

There was a trend for those with fewer grants as PI to indicate that a supportive work environment would mitigate stress; the finding was similar when comparing those with and without R01s on this item. In contrast, those with more grants as a co-PI were more likely to identify deadlines and/or multiple demands as stressful. There was a trend for those with R01s to report stress concerning publications and that being organized helped to mitigate that stress.

Those with R01s reported being clearer about what they needed to do to achieve tenure, compared with those without such grants (this was a trend). Moreover, those who expressed concerns about the need for more publications to achieve tenure had significantly more grants as a co-PI (but not as a PI or having an R01). In contrast, those with more grants as co-PI were also significantly more likely to indicate that they had made a good decision by accepting this position. Teaching and service were significantly more likely to be identified as important for achieving tenure for those with R01s. This group was also significantly more likely to identify issues with managing a lab as a problem.

Faculty who reported that their mentors were helpful had significantly more grants as a PI. There was a trend for those with R01s to describe their chair or division chief as helpful and for their mentors to provide help with publications. Those with more grants as a co-PI were more likely to report the department structure was less helpful to them; there was also a trend for them to indicate that more protected time would be valuable. In contrast, those with fewer grants as co-PI were more likely to report that mentoring would be helpful to them. Finally, there was a trend for those without R01s to report more administrative responsibilities compared to those who have had such grants.

SELF ASSESSMENT

We compared, through chi square analysis, those who were rated themselves as doing well (N=17) with those who indicated they were doing less well (N=23) on the same experiences reported in the faculty interviews. Not surprisingly, those who indicated that things were going well for them in their jobs were significantly more likely to report that there was nothing about their jobs that was not going well; there was also a trend for them to describe the job as a good move for them career-wise. In contrast, those

who felt things were not going as well in their jobs were significantly more likely to describe more research demands than they anticipated, and that the grants in general, as well as the mechanics of research specifically, were not going well (the latter was a trend). There was also a trend for this group to be more likely to report that their protected time was not working well for them.

Those with more positive self-assessments were significantly more likely to indicate that they received advice from colleagues and career advice from mentors. There were also trends for them to be more likely to report grant help and friendship from colleagues as well as generally receiving good advice from colleagues compared to those with less positive self-assessments.

Faculty who indicated that they were doing well were significantly more likely to have children. They were also more likely to report that they didn't take advantage of parental leave for fear of negative consequences (this was a trend).

Summary. Those identified as more successful by the dean were significantly more likely to describe their protected time was working well for them, to report that they felt their research was valued by the department and that their department structure was helpful to them. There was also a trend for this group to be more likely to describe their mentors as helpful.

In contrast, there was a trend for those with fewer publications to be more likely to report that the job entailed more research demands than they expected and that their grant activity was not going well. They also recognized the need for more publications to achieve tenure.

In discussing what was different from the job than expected, those with more grants as PI were less negative about the job. They also reported more help with grants from colleagues and were more likely to describe their mentors as helpful.

Those with more grants as a co-PI were more likely to indicate that they had made a good decision by accepting this position and were on the right track. They were also more likely to report that more protected time would be helpful and that deadlines and/or multiple demands were stressful. There was also a trend for this group to describe the department structure was less helpful and to express concern about time management. Moreover, those with more grants as a co-PI were more likely to identify the need for more publications to achieve tenure.

There was a trend for those who had R01s to report being clearer about what they needed to do to achieve tenure, compared with those without such grants. Faculty who had R01s expressed less concern about the need for publication to achieve tenure, and there was a trend for them to be more likely to describe their unit head as helpful and for their mentors to provide help with publications. In contrast, there was a trend for those without R01s to report more administrative responsibilities.

Finally those who described themselves as more successful in their jobs generally reported more support in the department compared to those who had a more negative view of their success. In contrast, this second group appeared to have more difficulty with grants and managing research activities.

COMPARING HIGH ACHIEVING AND LOW ACHIEVING FACULTY

The previous provides some information about the experiences of faculty in relation to each of the several measures of success identified in this study. We were interested in pursuing this further to determine what, if any, factors distinguish those faculty who were consistently judged to be doing very well compared to those who were consistently judged to be doing poorly across the different measures of success. To do so, we examined publication rates, grants received as a PI, and the dean's rating (when available) and selected, among the faculty who had participated in the interview, those who scored highest, as well as those who scored lowest, across all three measures. This process revealed four faculty at the top of the rankings who had a minimum of 10 publications as first or last author (this represents the top 20% of the sample) and at least two grants as principal investigator since their appointment as assistant professor (the top 15% of sample). In addition all four faculty were rated by the dean as doing well. In contrast, four faculty were identified at the bottom of the rankings who had no more than one publication as first or last author since joining the tenure track at UM (the bottom 10% of the sample) and no grants as PI (the bottom 40% of the sample). In three of these cases the dean rated them as possibly in trouble; in one case the individual was not reviewed.

The high achieving group was comprised of two men and two women. Two of the faculty were in a surgical department; one was in a non-surgical clinical department and the fourth was in a basic science department. Three of the faculty had M.D.s, two had Ph.D.s (one had both). All of these faculty members were married with children. The low achieving group was also comprised of two men and two women. All had Ph.D.s and none had M.D.s. Two of the faculty were in non-surgical clinical departments; one was in a surgical department and one was in a basic science department. Two of the faculty (both men) had partners and children; the two women did not have partners or children.

Using chi-square and t-tests, we compared these two groups of faculty on their experiences as reported in the interviews. Very few comparisons were statistically significantly different, suggesting that in many instances the experiences of these two groups of faculty were quite similar. Important differences, however, did emerge concerning faculty mentoring. As previously reported, most of the faculty in the full sample indicated that they did have mentors. Although the difference is not statistically significant, it is notable that all four faculty members in the high success group reported having mentors and only two of the faculty in the low success group had mentors. Moreover, there was a trend for those in the high success group to report that their mentors were more helpful.

These eight faculty members' comments about the effectiveness of their mentoring are revealing. One member of the high success group noted that their department chair provides most of the mentoring and "takes mentoring of junior faculty very seriously as a responsibility." This person noted access to other "incredible" mentors and described being "very happy with the way my mentoring team was set up from the very beginning by the department chair." It was clear to this faculty member that the department chair "genuinely wants me to succeed and realizes the importance of mentorship." Another faculty member in the same group, who also had multiple mentors, reported receiving "support and advice from both my colleagues and mentors; I get good advice from my mentors...I rely on their advice quite heavily" and "would not have received the level of success without their support and guidance." This faculty member went on to explain, "I have an outstanding mentor that has kept one step ahead of the game.... If people are not on track it is probably a lack of leadership—mentoring—or keeping up with the goals set up with their leadership or mentors."

In contrast, a faculty member in the low success group did not have a formal mentor and described a lack of support within the department: “untainted advice is quite difficult in the department—they give advice to me that will be helpful to them.” Another faculty member in the same group who did have a mentor described this person as “not helpful at all, not productive” and went on to suggest, “I think it should be up to us to choose our mentors; why allocate someone I may not like or who doesn’t have what I need? Ask us what area we need mentoring in.” This faculty member concluded, “At the end I will solve my problems alone because I am not getting help from the University or the department.”

It is further revealing that those in the high success group were statistically significantly more likely to report that their mentors provided career help (all four faculty in this group reported such help; in contrast, no faculty in the low success group indicated that they received career advice from mentors). In addition to these findings, there was a trend for those in the high success group to be more likely to report that their units valued their research.

Summary. Analyses comparing highly successful faculty with those identified as least successful across measures indicate that mentoring may be an important distinguishing factor. Beyond having a mentor, it seems clear that the quality of mentoring, and especially, good career advice from mentors, is helpful to junior faculty success. The data may also suggest that a team of mentors may be an effective strategy for providing broad advice and support to faculty.

CONCLUSIONS

These results indicate that for a good segment of this sample of junior tenure track faculty in the Medical School things are going well and their careers appear to be on track. Direct evidence for this is found in the dean’s assessment of their career trajectories—70% of those reviewed by the dean were viewed as doing well. This positive view is echoed in the faculty members’ own descriptions of their work experiences and their sense of how they are progressing. Moreover, these assessments did not differ importantly by gender, department type or level of protected research time.

More specifically, the interview data suggest that faculty success is related to the various kinds of support provided to the faculty—especially helpful mentoring—but also in the form of advice from colleagues, administrative support, and effectively protected research time. This support appears particularly useful in facilitating and encouraging faculty members’ grant activity as the primary investigator—one of the primary indicators of faculty success. Moreover, administrative support and/or a supportive work environment helped mitigate stress for many faculty and good mentoring was identified by several faculty as something that could help them succeed. In addition, successful faculty felt that colleagues valued their contribution to the department and to scholarship more generally and they reported more positive relationships with their unit heads. These findings were underscored in the comparisons of faculty at the extreme ends of the success continuum and demonstrate that supportive mentoring and career guidance are key to faculty success.

A critically important and revealing exception to this pattern, however, was found in the experiences of women. Although there were no statistically significant differences by gender on their level of success by the indicators reported on here (except in the case of the ISI H-Index), women reported fewer experiences of support within their units. They described a more negative climate, less informal

feedback from their chairs or directors, and less advice more generally. In addition, they reported more administrative responsibilities than men, but less administrative support. Given this, it is noteworthy that women appear to be succeeding at the same rate as men.

Of course, what we have described here is our best assessments of success for these junior faculty on the tenure track in the Medical School. The validity of those assessments will become apparent as we observe the longer term career trajectories of this sample of faculty. Nevertheless, the evidence suggests that a supportive department, particularly in terms of good mentoring, but also advice from colleagues and a positive relationship with their unit head, is important. Such support may make the difference for a faculty member who is not succeeding. Beyond considerations of success, it is also clear that the experiences of women faculty should be of concern. Although they are succeeding at similar rates to their male colleagues, they describe, in the aggregate, a less positive experience. As a result, the Medical School may lose successful female faculty who are unwilling to persevere in a climate in which they do not feel valued and supported.

TABLES

Table 1: Intercorrelations of Success Indicators (Ns in italics)

	Faculty report how things going	N Journals first/last author	ISI H Index	N federal grants as Co-PI	N federal grants as PI	R01
Dean's rating	.452 * 28	.409 ** 41	.334 * 41	.136 41	.355 * 41	.253 41
Faculty report of how things going		.353 * 40	.053 40	.010 40	.017 40	-.048 40
N Journals as first or last author			-.095 61	.013 61	.105 61	-.076 61
ISI H Index				.208 61	.192 61	.311 * 54
N federal grants as Co-PI					.430 *** 61	.222 ^t 61
N federal grants as PI						.410 *** 61

*** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$; ^t $p \leq .10$.

Table 2: Why did you take the position?⁴

	percentage	(n)
good for research	45%	18
good for career	25%	10
location	20%	8
liked department	18%	7
family issues	18%	7
at UM previously	18%	7
reputation/specialty	15%	6
wanted tenure track	15%	6
good for clinical work	15%	6
good lab resources/environment	13%	5
partner position	13%	5
mentor in department	10%	4
good startup/salary	10%	4
advised by mentor	8%	3
medical setting	3%	1

⁴ For Tables 2 through 21 please note that faculty could provide more than one response; thus, frequencies across items do not add up to 100%.

Table 3: What is different in job from expected?

	percentage	(n)
more generalized negatives	45%	18
more research demands	35%	14
nothing is different	23%	9
more generalized positives	20%	8
more administrative demands	18%	7
more clinical demands	13%	5

Table 4: What is going well?

	percentage	(n)
research	60%	24
grants	40%	16
generalized positive	35%	14
collaborations	30%	12
teaching/students	20%	8
clinical work	15%	6
publications	15%	6
mentoring	10%	4
personal life	5%	2

Table 5: What is not going well?

	percentage	(n)
mechanics of research	38%	15
climate	28%	11
nothing	23%	9
grants	23%	9
publications	20%	8
research	18%	7
mentoring	13%	5
teaching	8%	3
salary	8%	3
time management	8%	3
clinical work	8%	3
getting students/post docs	8%	3
administrative work	5%	2
administrative issues/red tape	5%	2
networking	5%	2
promotion criteria	3%	1
work-life balance	3%	1

Table 6: What increases stress?

	percentage	(n)
grants	43%	17
multiple demands	35%	14
general environment	33%	13
concerns about promotion	30%	12
administrative issues	28%	11
patient care	23%	9
deadlines	23%	9
publications	20%	8
research	15%	6
teaching	13%	5
work-life balance	8%	3
not enough sleep	8%	3

Table 7: What decreases stress?

	percentage	(n)
administrative support	48%	19
supportive work environment	38%	15
family	28%	11
lifestyle	20%	8
doing a good job	20%	8
time for reflection/relaxation	18%	7
advice	15%	6
extension of the tenure clock	13%	5
lower expectations for self	10%	4
location	8%	3
being organized	5%	2
good students/post docs/RAs	5%	2
job security	5%	2
pick battles	5%	2
reimbursement for childcare	3%	1
religion	3%	1

Table 8: What do you need to get tenure?

	percentage	(n)
external funding	45%	18
publications	45%	18
teaching	45%	18
service	30%	12
independent research	20%	8
have an impact	18%	7
good clinical work	15%	6
network of colleagues	10%	4
do a good job	5%	2
spend startup	3%	1
chair who mentors	3%	1

Table 9: What are concerns about achieving tenure?

	percentage	(n)
standard for tenure	18%	7
atypical career	15%	6
publications	5%	2
teaching	3%	1
balancing demands	3%	1

Table 10: How are you moving in right direction?

	percentage	(n)
doing what want	35%	12
grants	25%	10
publications	20%	8
making good progress	18%	7
research	13%	5
mentor support	10%	4
public recognition	10%	4
teaching	5%	2
collaborations	5%	2
know what need to do	5%	2
status of tenure track	5%	2
advised to do so	3%	1
patient care	3%	1

Table 11: What keeps you from moving forward?

	percentage	(n)
slower pace than want	20%	8
lab difficulties	8%	3
unclear expectations	8%	3
family	8%	3
politics	5%	2
teaching	5%	2
research	3%	1
insufficient clinical patients	3%	1
miss clinical work	3%	1
mentoring	3%	1
insufficient help from university	3%	1

Table 12: What would help you stay on track?

	percentage	(n)
mentoring	33%	13
clarity about expectations	20%	8
administrative support	20%	8
funding	18%	7
publications	18%	7
staying focused	13%	5
formal review process	13%	5
change tracks	8%	3
nothing	8%	3
plan	8%	3
more exposure	8%	3
more time/more protected time	5%	2
advice	5%	2
safe advice	3%	1
active research community	3%	1
engage more/more service	3%	1
collaborators	3%	1
ADVANCE Program	3%	1

Table 13: Advice/support received from colleagues

	percentage	(n)
general support	30%	12
research	28%	11
grants	25%	10
career	23%	9
publications	23%	9
problem-solving	20%	8
clinical advice	18%	7
helpful chair/division chief	10%	4
friendship	8%	3
opportunity to vent	5%	2
department politics	5%	2
teaching	3%	1
lab management	3%	1

Table 14: Advice/support would like to have from colleagues

	percentage	(n)
career advice	18%	7
general advice	5%	2
research	5%	2
time management	5%	2
work-life balance	5%	2

Table 15: Advice/support received from mentor

	percentage	(n)
career advice	33%	13
research	28%	11
general advice	23%	9
publications	15%	6
networking	13%	5
grants	13%	5
practical help	13%	5
clinical work	8%	3
students	3%	1
presentations	3%	1

Table 16: Other support received

	percentage	(n)
department colleagues	50%	20
administrative staff	10%	4
collaborators	8%	3
colleagues in other depts	5%	2
mentors outside dept	3%	1
formal support services	3%	1
family	3%	1
good climate	8%	3
career	8%	3
research	8%	3
grants	5%	2
publications	3%	1
financial	3%	1

Table 17: How often receive feedback from unit head

	percentage	(n)
annually	78%	31
informally	43%	17
regular meetings	15%	6

Table 18: Why didn't take parental leave

	percentage	(n)
didn't ask for it	15%	6
didn't know about it	8%	3
concerned re negative impact	8%	3
partner available	8%	3
not an option	3%	1

Table 19: Why took parental leave

	percentage	(n)
it was allowed	8%	3
it was supported by department	3%	1
partner illness	3%	1
faculty member's illness	3%	1
to reduce stress	3%	1

Table 20: How they spend their evenings

	percentage	(n)
chores	70%	28
time with family	50%	20
leisure time	50%	20
work	50%	20
on call	3%	1

Table 21: How they spend their weekends

	percentage	(n)
work	75%	30
time with family	58%	23
chores	40%	16
leisure time	23%	9
on call	6%	2