Application of Assessment Metrics for an Academic Department Faculty Development Program

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Faculty development is increasingly seen as a cornerstone of career sustainability in academic medicine, pediatrics, and other disciplines. Many current senior academic medical faculty developed their careers in systems that are distinctly different from current paradigms.[1] Multiple internal and external variables have caused the academic environment to transform. These variables include rapidly changing technology, the opening of the academy to public scrutiny, external rankings, changes in the opportunities for academic advancement (including the increasing predominance of non–tenure track faculty),[1] sharp reductions in protected time for teaching, increased pressure to meet measurable benchmarks for academic and financial productivity, and an increased emphasis on multidisciplinary team science to more rapidly advance biomedical research. Faculty must also become adept at assessing learning outcomes, and engaging in collaborative projects that couple scholarly expertise with the local, national, or international communities.[2,3] The increasing incidence of burnout and other sequelae of chronic stress among medical faculty is well documented[4,5] and has led to recommendations for more formalized institutional attention to these threats to the academic medical enterprise.

Thus, the future of academic medicine would seem to depend in part on success at engaging and supporting the faculty workforce in the context of a changing culture.[5-10] Recent studies have described the range of mentoring programs in academic medicine,[11] the benefit of faculty development programs for women,[12,13] and programs for enhancing teaching skills of faculty.[14,15] In response to issues facing women in medicine, for example, Boston Children's Hospital established an Office of Faculty Development whose goals included demystifying promotion criteria, promoting excellence in teaching, and supporting work–life balance and diversity.[16] A similar project was undertaken by the University of Rochester Department of Pediatrics, with an added emphasis on adaptation to environmental changes and faculty development in later career stages.[17]

Despite these recent examples, relatively little literature describes the practical aspects and outcomes of faculty development in large, multimission academic medicine departments, and very few have used quantitative outcome assessments beyond survey data.[18] We describe the implementation of, and short-term outcome metrics associated with, a structured general faculty development program in the Department of Pediatrics at the University of North Carolina School of Medicine.

Faculty Characteristics and Faculty Development Program Infrastructure

The Department of Pediatrics in the University of North Carolina School of Medicine employs 137 full-time faculty representing all pediatric subspecialties and several basic science and health services research areas. Of the faculty, 27% are tenured or tenure track, and 73% have yearly or multiple year contract (fixed term) appointments; 63% are women. The distribution of rank is as follows: 14% instructor, 24% assistant professor, 26% associate professor, and 36% professor. The Department's main clinical facility is the North Carolina Children's Hospital in Chapel Hill, North Carolina, which is part of the University of North Carolina Health Care System. The department's faculty also practice at several affiliated or outreach centers in the state. The faculty are engaged in the full spectrum of the academic mission, including clinical care, research, education, and advocacy. The mission focus for individual faculty members varies widely and often involves multiple missions. Our faculty development initiatives were developed to enhance faculty success across this wide spectrum. These faculty developmental initiatives were a natural outgrowth of sustained department interest in supporting faculty performance, satisfaction, and achievement.

In 2012, the Chair of Pediatrics designated a Vice Chair for Faculty Development, who was charged with assisting the chair in designing and implementing a spectrum of faculty development initiatives. Recognizing the importance of building evaluation into the initiatives, we used a conceptual framework including our own adaptation of 6 evaluation steps (engaging stakeholders, describing program, focusing evaluation, gathering data, justifying conclusions, and deploying the lessons learned) commonly recommended by the US Centers for Disease Control and Prevention and others as necessary

AAMC Association of American Medical Colleges
FFES Faculty Forward Engagement Survey

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Table. Faculty development program individual projects, with primary goal, process metrics, and outcome metrics

Projects	Primary goal	Process metrics	Outcome metrics
Mentoring program	Faculty are supported to achieve career goals	Percent participation	Faculty satisfaction
Leadership development	Faculty achieve leadership roles inside and outside the department	Successful nominations for campus leadership training programs; faculty use of leadership training funds	Faculty in specific institutional and national leadership positions
Promotions	Promotions process is transparent and timely	Time from process initiation to promotion	Percent successful promotions; faculty understanding of processes
Faculty development curriculum	Useful curriculum that does not duplicate other campus programs	Attendance	Faculty evaluation of seminars
Faculty wellness	Faculty become aware of burnout risk and techniques for prevention	Establish resources for faculty wellness, engagement, and mechanisms for scholarly leave	Faculty satisfaction with supportiveness of work environment

program evaluation procedures.[19] We executed the first 2 program evaluation steps—engaging faculty stakeholders and describing the program—by holding faculty-wide retreats, meeting with divisions, and using department communication strategies to remind faculty of emerging programs. The third and fourth steps - focusing our evaluation design and gathering data - occurred at several levels. The vice chair created standing Faculty Development Advisory and Promotions Advisory Committees. We consulted extensively with experts in the School of Medicine's Faculty Affairs offices and in the university's Center for Faculty Excellence on the program's goals and the best metrics for assessing our progress. We conducted internal department surveys, gathered performance data from annual evaluations, and took advantage of our participation in the Association of American Medical Colleges (AAMC) Faculty Forward surveys of 2011 and 2016, relying on the expertise of a faculty member with decades of survey research and analysis experience. Each year, we assessed the process and outcomes data to determine whether faculty development programs required change or replacement.

Our initial emphasis was on establishing a formal mentoring program for junior and midlevel faculty, and a mechanism for supporting development of leadership skills for all faculty. Other projects included updating promotions criteria and processes, and a faculty development curriculum seminar series. In 2015, we added a faculty wellness initiative.

Faculty satisfaction is a critically important outcome metric for 2 of our largest program goals, namely, mentoring and faculty wellness. We measure faculty satisfaction with internal surveys and with data summarized for our department from the AAMC Faculty Forward Engagement Survey (FFES; this program is now named StandPoint Surveys).[20] Data from the 2016 survey (4 years after initiation of our program) compared with data from the 2011 survey (before the initiation of our program) permit some indirect imputation of program effects. Faculty answered questions in the survey using a 5-point Likert scale. The data for our department were reported by AAMC as either an average score (eg, 3.9) or percentages in each category (1-5), for specific questions or themes. In addition to comparing 2016 data with our own department's data from 2011, we were provided comparison with 4 "peer" pediatric departments at other institutions or in some cases with the entire survey cohort of 33 institutions.

Other process and outcomes metrics are drawn from department performance data, including faculty annual reports, and from collection of outcomes of individual processes, such as time to promotion. The primary goals for each component project, process metrics, and outcome metrics are shown in the **Table**.

Mentoring Program

We established a structured mentoring program in which all MD or PhD faculty at the assistant and associate professor levels were expected to participate. A mentoring group of 3-5 faculty from inside and outside the department and school, chosen primarily by the mentee, was established for each mentored faculty member. Each mentoring group was asked to meet and provide a report at least annually. The primary goal of the program was to support faculty to achieve career goals, regardless of mission focus. The main process metric, the proportion of the faculty actively participating in the program, was defined as meeting and/or providing a committee report annually. Active participation by this measure started at a fairly high level and has been maintained for the most part, but decreased slightly in the most recent academic year (**Figure 1**; available at www.jpeds.com). We used an internal survey to measure the effectiveness of the mentoring program after its first year. A higher proportion of assistant professors (65%) than associate professors (50%) strongly valued the program and these numbers led us to explore its usefulness to the latter group. Further discussions with faculty and division chiefs helped us to identify a subgroup of faculty, namely, associate professors in the rank for more than 5 years, for whom the mentoring program as originally configured seemed less useful. We made the mentoring program optional for that group of associate professors.

The mentoring program is consistently cited by new faculty recruits as a positive influence on their decisions to join our department. In the 2016 AAMC FFES, the department's response rate as reported to us by AAMC was 70%. Fifty-five percent of our faculty respondents reported having a mentor, compared with 36% by peer institutions, and 85% were satisfied with mentoring quality, compared with 79% reported for our peer institutions. Only 66% of our faculty who completed the FFES felt that mentoring was important to them per-

sonally, which may have reflected the proportion of more senior faculty who participated; alternatively, the structured program could have made mentoring seem like less of a privilege.

Leadership Development

Resources were set aside to support faculty participation in leadership development programs, both on campus and outside the institution. Process metrics were defined as success rates of nominations to competitive programs, and faculty use of available funds designated for this purpose. The majority of nominations (67%-80%, for total of 24 nominations) were successful over the first 4 years of the program. Department leadership systematically identified leadership development opportunities and nominated appropriate faculty for these programs.

The primary outcome goal was for our faculty to successfully achieve leadership roles, both within the institution and within their professional disciplines. Although meaningful short-term outcome metrics for leadership development are difficult to define, we identified several specific markers trackable through our institutionally required annual reviews of faculty accomplishments. Numbers of faculty in editorial leadership roles, on National Institutes of Health study sections, and presenting at national or international conferences all seemed to increase over the 3- to 4-year period after initiation of the program (**Figure 2**; available at www.jpeds.com). A related question on the FFES asked whether faculty had adequate opportunities for professional development. Our faculty's average response was 3.5 (1-5 scale; 5 best), which was the same as our peer departments at other institutions, and an improvement since 2011 when the same measure was at 3.0.

Promotions

The primary goals of the project were to improve transparency and timeliness of promotions processes. The department's promotions guidelines were reviewed carefully and, after obtaining input from the faculty and the dean's office, were revised to clarify department-specific issues, particularly concerning non–tenure-track faculty. Annual seminars are held as part of the faculty development curriculum (discussed elsewhere in this article) to reinforce faculty awareness of criteria and processes for promotion. An interim departmental survey 1 year after initiation indicated that 90% of faculty were satisfied with their knowledge of the promotions process. An improved tracking process for "on-time" initiation of promotions reviews was instituted. Average time from initiation of the promotions process to actual promotion showed improvement (**Figure 3**; available at www.jpeds.com). Our main outcomes metric was percent of promotions packages sent out from the department that were successful, and our success rate has been 100% each year. The AAMC survey results for 2016 showed that for questions regarding the clarity and reasonableness of promotions criteria (average, 3.7), we compared favorably with both our peer institutions (average, 3.4) and with our own 2011 results (average, 3.4).

Faculty Development Curriculum Seminars

A monthly seminar series was initiated to provide a useful forum for discussions on topics relevant to career development in academic medicine. Specific topics have varied each year and have included manuscript and grant writing, promotions criteria, curriculum vitae maintenance, physician burnout, statistics and study design, mentoring, women and leadership, quality improvement research, and the ethics of medicine. Given the difficulty of scheduling such seminars at a time when attendance is feasible for significant numbers of faculty, we chose attendance as a process metric. Overall, sessions addressing academic medicine culture and work environment have achieved highest attendance, with low attendance for sessions devoted to more specific skills like grant writing or statistical analysis. For outcomes assessment, faculty evaluation of individual sessions has been solicited on an informal basis as well as through annual review by the Faculty Development Advisory Committee. Well-attended or well-evaluated sessions have been repeated, and poorly attended or evaluated sessions have been removed from the agenda for the following year. In response to these forms of feedback, we have reduced the frequency of seminars and scheduled them into existing and longer standing faculty meeting times, and have reduced sessions with topics addressed in other seminar series on campus.

Faculty Wellness

In 2015, our department initiated a process to determine modifiable variables leading to or remediating burnout, and to enhance faculty wellness. Our primary goal was to improve faculty awareness of risk for burnout and approaches to its prevention, thereby enhancing the sustainability of the department's missions. Initially, we held a series of faculty focus groups to identify major potentially modifiable workplace issues contributing to burnout risk, followed by meetings with department leadership and others with interest in burnout prevention to determine next steps. Our initial process goal was the establishment of resources for faculty wellness and engagement, such as new effort support for a faculty expert on professional burnout to ensure access to career counseling and awareness of mechanisms for reducing risk, and enhanced opportunities for communication among faculty and between faculty and department leadership.

One meaningful outcome metric in this area is a direct assessment of faculty satisfaction with the work environment, although it is recognized that many forces shape this outcome. In the 2016 AAMC survey, 83% of our faculty reported overall satisfaction with their jobs and the work environment, compared with 79% for our peer institutions and 75% for the overall AAMC survey cohort. In the same survey 36% of our department's respondents indicated some level of burnout,

although fortunately most was of a milder degree. The survey was administered soon after the start of our faculty wellness initiative.

Discussion

We initiated a faculty development program in an academic pediatrics department, including a formal mentoring program, updated promotions guidelines and processes, a seminar series, and leadership development opportunities. To assess the value of these initiatives for our faculty, we defined process and outcome metrics to measure each component's contribution to faculty development, and to highlight areas for improvement. A novel feature of our approach was to use an externally administered instrument, the AAMC FFES,[19] to assess some of the program elements.

Despite a recent modest decrease in participation, the faculty mentoring program has been sustained. In both internal and external surveys, a majority of faculty were satisfied with the program and the quality of mentorship. However, there were less consistent responses as to how important the program is to individual faculty members. Based on this feedback, adjustment in the segments of the faculty for whom participation is "expected" have been made to promote and improve the flexibility and overall value of the program. Although structured mentoring has long been part of the research culture in academic medicine, it has historically been less consistently used for faculty not in a tenure track, and we anticipate this subgroup will also derive long-term benefit from mentoring in terms of career development.

Other initiatives also showed signs of success. Leadership development resources were well-used and the numbers of leadership roles increased (**Figure 2**). Some reporting bias could have affected this measure, because it became routine to report these outcomes during annual evaluations. Promotions processes became more efficient (**Figure 3**), with survey data indicating that faculty were cognizant of and positive about the clarity and reasonableness of promotions criteria. Curriculum seminars on faculty development topics were modified annually based on attendance and feedback.

Improving faculty awareness of risk for burnout and increasing available evidence-based resources to address these issues has been an important area of intervention.[21] Subsequently, we have observed that greater numbers of faculty are now willing to reach out for help and support in the form of coaching or more formal mental health support when feeling stressed or overwhelmed. The growing use of services may reflect that increasing awareness has had the positive benefit of destigmatizing seeking help for a variety of concerns. The University of North Carolina School of Medicine recently endorsed the "quadruple aim."[10] Thus, there are now significantly more dialogue and resources available in both the Department of Pediatrics and across the School of Medicine to decrease burnout and promote faculty engagement in wellness enhancing strategies, which will be evaluated in the longer term.

Although our approach may be useful as a general model for larger academic medical departments with faculty working in multiple mission areas, the specific composition of faculty development programs will, of course, vary by department focus and institutional context. Many variables other than programmatic efforts are likely to influence the outcomes we followed. These include the changing composition of leadership teams and the faculty itself over time. However, our experience and our overall conclusion is that a useful assessment of faculty development initiatives is possible through use of predefined goals and metrics, and a quality improvement–like process of repeated annual assessment. This approach will ensure that limited resources are used in an effective and efficient manner, an important consideration for many institutions with increasingly limited funds available for faculty development programs. Ultimately, consideration of the contribution of such programs to improvements in patient care and the workplace environment should be evaluated in any assessment of resource use. Finally, addressing issues related to burnout and sustainability in the context of the changing academic medicine work environment may be one of the most important areas of focus for such programs. ■

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References

1. Basken P. Medical colleges shrink tenure as their teaching hospitals grow. 2010. http://chronicle.com/article/Medical-Colleges-Shrink-Tenure/124105/. Accessed January 18, 2018.
2. Sorcinelli MD, Austin AE. Developing faculty for new roles and changing expectations. Effective practices for academic leaders, Vol. 1. 2006. p. 1-16.
3. Frankel RM, Eddins-Folensbee F, Inui TS. Crossing the patient-centered divide: transforming health care quality through enhanced faculty development. Acad Med 2011;86:445-52.
4. West CP, Dyrbye LN, Erwin PJ, Shanafelt TD. Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis. Lancet 2016;388:2272-81.
5. Shanafelt TD, Dyrbye LN, West CP. Addressing physician burnout: the way forward. JAMA 2017;317:901-2.
6. Eckleberry-Hunt J, Tucciarone J. The challenges and opportunities of teaching "Generation Y." J Grad Med Educ 2011;458-61.
7. Chapman AB, Guay-Woodford LM. Nurturing passion in a time of academic climate change: the modern-day challenge of junior faculty development. Clin J Am Soc Nephrol 2008;3:1878-83.
8. Inui T. A flag in the wind: educating for professionalism in medicine. Association of American Medical Colleges (AAMC); 2003 https://members.aamc.org/eweb/upload/A%20Flag%20in%20the%20Wind%20Report.pdf. Accessed January 18, 2018.
9. Kirch DG. Culture and the courage to change. 2007 AAMC President's Address. http://www.ohsu.edu/xd/about/vision/upload/2007-20-AAMC-presidents-address.pdf. Accessed January 18, 2018.
10. Bodenheimer T, Sinsky C. From triple to quadruple aim: care of the patient requires care of the provider. Ann Fam Med 2014;12:573-6.
11. Kashiwagi DT, Varkey P, Cook DA. Mentoring programs for physicians in academic medicine: a systematic review. Acad Med 2013;88:1029-37.
12. Levine RB, Gonzalez-Fernandez M, Bodurtha J, Skarupski KA, Fivush B. Implementation and evaluation of the Johns Hopkins University School of Medicine leadership program for women faculty. J Womens Health (Larchmt) 2015;24:360-6.
13. Chang S, Morahan PS, Magrane D, Helitzer D, Lee HY, Newbill S, et al. Retaining faculty in academic medicine: the impact of career development programs for women. J Womens Health (Larchmt) 2016;25:687-96.doi:10.1089/jwh.2015.5608.
14. Lee SM, Lee MC, Reed DA, Halvorsen AJ, Berbari EF, McDonald FS, et al. Success of a faculty development program for teachers at the Mayo Clinic. J Grad Med Educ 2014;6:704-8.
15. Newman LR, Pelletier SR, Lown BA. Measuring the impact of longitudinal faculty development: a study of academic achievement. Acad Med 2015;doi:10.1097/ACM.000000000001016.
16. Emans SJ, Goldberg CT, Milstein ME, Dobriner J. Creating a faculty development office in an academic pediatric hospital: challenges and successes. Pediatrics 2008;121:390-401.
17. Schor NF, Guillet R, McAnarney ER. Anticipatory guidance as a principle of faculty development: managing transition and change. Acad Med 2011;86:1235-40.
18. Ries A, Wingard D, Gamst A, Larsen C, Farrell E, Reznik V. Measuring faculty retention and success in academic medicine. Acad Med 2012;87:1046-51.
19. Milstein B, Wetterhall S. A framework featuring steps and standards for program evaluation. Health Promot Pract 2000;1:221-8.
20. Association of American Medical Colleges Faculty Forward Engagement Survey. StandPoint surveys. https://www.aamc.org/services/facultyforward/survey/. Accessed August 7, 2016.
21. Schneider S, Kingsolver K, Rosdahl J. Physician coaching to enhance well-being: a qualitative analysis of a pilot intervention. Explore (NY) 2014;10:372-9.

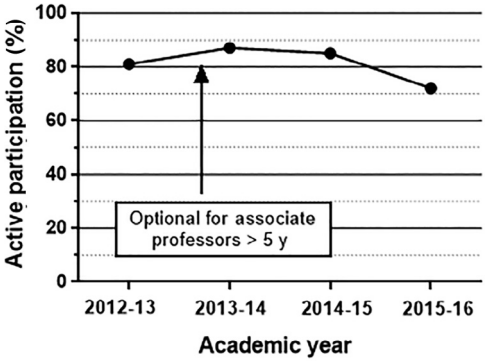

Figure 1. Percent of eligible faculty who actively participated in mentoring program over the 4-year period after initiation of the program.

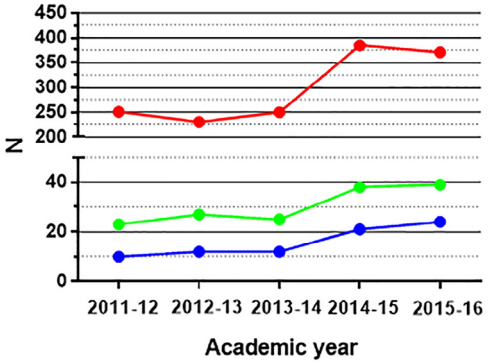

Figure 2. Outcome metrics relevant to faculty leadership development over time. Numbers of faculty with specific editorial (green line) or National Institutes of Health grant review (blue line) roles, and number of faculty presentations at national or international meetings (red line).

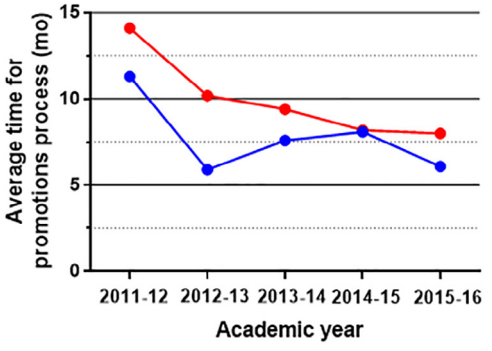

Figure 3. Average time for promotions process for tenure track (red line) and non-tenure track (blue line) promotions.