

Aligning Compensation with Education: Design and Implementation of the Educational Value Unit (EVU) System in an Academic Internal Medicine Department

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Abstract

The authors report the development of a new metric for distributing university funds to support faculty efforts in education in the department of internal medicine at the University of Kansas School of Medicine.

In 2003, a committee defined the educational value unit (EVU), which describes and measures the specific types of educational work done by faculty members, such as core education, clinical teaching, and administration of educational programs. The specific work profile of each faculty member was

delineated. A dollar value was calculated for each 0.1 EVU. The metric was prospectively applied and a faculty survey was performed to evaluate the faculty's perception of the metric.

Application of the metric resulted in a decrease in university support for 34 faculty and an increase in funding for 23 faculty. Total realignment of funding was US\$1.6 million, or an absolute value of US\$29,072 ± 38,320.00 in average shift of university salary support per faculty member. Survey results showed that understanding of the purpose of

university funding was enhanced, and that faculty members perceived a more equitable alignment of teaching effort with funding.

The EVU metric resulted in a dramatic realignment of university funding for educational efforts in the department of internal medicine. The metric was easily understood, quickly implemented, and perceived to be fair by the faculty. By aligning specific salary support with faculty's educational responsibilities, a foundation was created for applying mission-based incentive programs.

The rapidly changing environment of academic medicine continues to pose challenges to its leaders. Those responsible for allocating funding within academic medical centers face the pressures of limitations in resources related to decreased government funding for medical education and increasing demands on faculty time, along with increased demand for public accountability.¹ Increasingly, leaders of academic medical centers are recognizing the importance of developing systems that specifically assign resources in support of all academic missions, but especially the mission of educating students and residents.^{2,3}

In 1999, Watson and Romrell reported development of a process that came to be known as "mission-based budgeting." The three-step process described by the University of Florida group consisted of identifying revenue streams to fund each of the institution's missions, evaluating each faculty member's productivity with regard to each mission, and aligning funding source with faculty effort.⁴

Interest in mission-based budgeting and management has grown. The Association of American Medical Colleges (AAMC) has established a Mission-Based Management (MBM) Program to aid deans and department chairs in the task of realigning funds to match missions. In 2000, position papers of the AAMC's MBM task force emphasized the need for deans and faculties to develop formalized methods for allotting financial resources to support their institutions' goals in education, research, and patient care.^{3,5} The MBM task force for medical education emphasized that each medical school should establish guidelines and metrics consistent with the school's education mission.³

In addition, the task force suggested applying a template for approaching MBM in education, beginning with listing all faculty educational activities, then assigning each activity a weight in relative value units (RVUs). Factors recommended for consideration included time required to perform the educational function, time required to prepare, level of faculty expertise, and relative importance of the activity to the professional development of the institution's trainees, and the institution's

mission. The group also recommended attempts at the potentially difficult but important task of linking compensation to quality of teaching, rather than focusing exclusively on quantity of work.³

The AAMC's call for more robust mechanisms for faculty evaluation and compensation has led to several published chronicles of experience in MBM.^{2,6-10} Initial reactions to MBM have been mixed, with obstacles including faculty's resistance to change and logistical difficulties with collecting data.² However, deans and department chairs are recognizing the value of quantifying their faculty's educational and clinical activities as a method of developing evidence-based accountability of faculty for progress toward goals.^{11,12}

In the midst of growing discussions of MBM within the community of academic medicine, data collection was underway at our institution to define how our faculty members devoted their time to each of the department's missions. The intent was to link faculty members' compensation to designated funding sources according to mission, with clinical productivity defining compensation for patient care, grant dollars supporting research, and state

funding supporting education of students and residents. However, the MBM data had not yet been used to develop a metric for distributing state-appropriated dollars for education.

Funding for our department's educational mission originates from two sources: state appropriations and Medicare Direct Medical Education (DME) funding. The state of Kansas appropriates funding for the University of Kansas Regents' system, which then allocates funding for the University of Kansas Medical Center. The University of Kansas School of Medicine receives a portion of the funds, which are then allocated to academic departments by the dean.

In addition, DME Medicare dollars are paid from the University of Kansas Hospital to the School of Medicine, and these funds are pooled with the state appropriations. Thus, resident education at our institution is underwritten in part by the state of Kansas, due to our relatively low portion of Medicare DME funding, which is insufficient to support the salaries and benefits of our residents, and thus cannot provide compensation for faculty members' efforts in resident education.

Distribution of departmental funds, including the portions of clinical revenues and research overhead distributed to the divisions, in addition to the allocated state funds, has previously been the prerogative of the department chair. No clear metric linking these funds with mission for individual faculty was

used. For example, some subspecialty divisions with minimal direct involvement with teaching had historically benefited from generous allotments of university funding, while other divisions, such as general medicine, received disproportionately little university support despite having extensive educational responsibilities. This inequity was further compounded by the assignment of the bulk of the funding to individual faculty salary lines with no provision for meaningful adjustments from year to year based on changing levels of responsibility for and participation in mission-critical education activities. Absent a well-defined method of linking mission-related activities to compensation, faculty expected that their individual levels of state funding would at least remain stable from one fiscal year to the next. More often, the expectation was that their compensation would automatically increase at the same rate as that of other state employees. Yet in those years of budgetary contraction, the expectation was that faculty salaries would not decrease. Finally, the historic methods of allocating state funds to faculty left no room for the creation of meaningful incentives for clinical productivity and for exceptional performance in medical education, particularly for faculty members whose salary sources were not consistent with their mission-based activities.

In order to improve upon our institution's history of ill-defined revenue streams and to strengthen financial

support of educational efforts, our department of internal medicine was tasked by the university with developing a system for distributing state appropriations that supported the educational mission of the school of medicine. Our department was selected to pilot a mission-based budgeting effort because departmental distribution of university funding was perceived to be especially misaligned, and because the department was one of the few within the institution lacking incentive programs for clinical productivity and teaching. We formed a committee to address the challenge. Here, we report the design and implementation of a simple, prospective, and time-based system for compensating educational efforts in our internal medicine department, and our faculty's responses to the changes. The educational value unit (EVU) system resulted in the alignment of expectations of physician's educational effort with compensation and accountability, dramatically changing how our department paid for the educational mission and how our faculty understood its funding.

Development of the EVU Metric

In 2003, the EVU Task Force was formed with eight members including division directors, residency program directors, clerkship directors, and financial administrators, as well as representation from the medical school leadership. The committee met weekly for four months. Initially, efforts were focused on a review of recent mission-based analysis of faculty activities and compensation at the medical school. Faculty Medicare time sheets, historical distribution of financial support, and the educational responsibilities of the department were carefully considered. In addition, a review of the literature was conducted to identify other efforts in the medical education community to align educational effort with compensation.

As suggested by the AAMC's MBM Task Force,³ the committee began the RVU-based method of listing all educational activities in the department and assigning a relative weight. We encountered difficulty with comparing and assigning value to the various teaching efforts of our faculty members and were concerned about the subjectivity inherent in the weighting process. Standardizing the array of each faculty's educational

Table 1

Comparison of Core and Clinical Educational Value Units (EVUs), University of Kansas School of Medicine, Kansas City, 2003

Characteristic of EVU calculation	Core EVU*	Clinical EVU†
Assignment is pre-set at the start of each fiscal year, based on expected teaching productivity.	Yes	No
EVUs are accrued based on billable clinical time with learners, from inpatient and outpatient staffing schedules.	No	Yes
Faculty members are required to log time spent in nonpatient-related educational activities.	Yes	No
Time spent in educational program administration is included.	Yes	No
Service on educational committees is included.	Yes	No
Preparation time for lectures is included.	Yes	No

* The core EVU is defined as teaching time spent educating students and residents that is not associated with billable clinical activity.

† The clinical EVU is defined as time spent participating in Grand Rounds, Morning Report, clinicopathologic conference, small-group discussion with medical students, and all development time for didactic lecture preparation and presentation.

activities with an RVU-based scale and translating these values into a specific dollar amount challenged our ideal of defining expectations prospectively for each faculty member and detracted from faculty’s autonomy in determining how they could best contribute to education. Moreover, the foreseeable task of updating the system with each change in curriculum or personnel was daunting.

After much deliberation, the committee determined to generate a new metric. Several criteria were identified as vital. The committee sought a system that could be easily understood and adopted by faculty; one that would engender a prospective, goal-setting approach; and that would allow efficient use of faculty time and resources. Based on these criteria, the group decided against an RVU-based metric, and chose instead to create a time-based metric.

The EVU was defined as a unit of time spent in education of students and residents. By using a time-based metric, we avoided subjective assignment of relative values to different educational activities, and chose to value different educational activities of faculty members with the same metric, regardless of subspecialty or level of experience. In order to translate time spent in teaching effort to EVUs, 0.1 EVU was designed to represent approximately four hours of work per week. In theory, the EVU for a particular activity represents the fraction of the time devoted to purely education related functions while completing the activity.

After developing the concept of the EVU and relating it to faculty time, the committee further defined the core and clinical subdivisions of the EVU (see Table 1). The core EVU was defined as teaching time spent educating students and residents that is not associated with billable clinical activity. Examples of core education include time spent participating in Grand Rounds, Morning Report, clinicopathologic conference, small-group discussion with medical students, and all development time for didactic lecture preparation and presentation. Core EVU time was also allotted for the administration of education, for residency program directors, fellowship program directors, and clerkship directors (see Table 2). The allotment for program administration was taken from national certifying bodies as well as our own experience. For the first year of implementation, each faculty member was presumed based on committee consensus and review of prior mission-based reports to contribute a baseline of 0.2 core EVU while conducting nonbillable clinical activities. This presumption was to be validated during the year with recorded logs of educational time submitted by faculty members.

In contrast, the committee defined clinical EVUs as those associated with billable clinical activities, and thus the data could be accrued automatically based on inpatient and outpatient attending schedules (see Table 3). Clinical EVUs were not meant to fully

replace clinical income, but rather to compensate for the expected decrease in faculty efficiency and productivity during patient care in the presence of learners.¹³ For example, a faculty attending on an inpatient service would accrue a clinical EVU allotment in recognition of his or her time spent during rounds in bedside teaching, including listening and providing feedback to a learner’s presentation of a patient, and informal discussions of diagnostic and therapeutic topics related to a specific patient’s care. However, if the attending physician also presented a lecture for the team that was not directly related to patient care, then time spent preparing and delivering the lecture would be recorded in the faculty’s core EVU log. The value of the clinical EVU was based on the committee’s analysis of mission-based reports and their collective experience with the impact that student and resident learners have on rounding efficiency in our institution.

The committee communicated plans for implementation of the new metric to the faculty through divisional and departmental meetings, e-mails, and one-on-one sessions with faculty members to review expectations for teaching time and compensation. Faculty members kept core EVU logs of hours spent in teaching and administration and submitted them during the year for review.

Implementation of the EVU Metric and Faculty Response

The calculated annual total EVU production for the department was 24.8, including 15.4 core EVUs (of which 2.3 were administrative) and 9.4 clinical EVUs. When divided by the total amount of university educational funding for the department (US\$3.12 million), each 0.1 EVU was worth US\$12,562.00.

An EVU template was developed for each faculty member, allowing them to determine their proportion of work and compensation for the educational mission. The EVU calculation shown below is for a hospitalist with 4.5 months of inpatient rounding and 2.5 months of general medicine consults, who also serves as student subinternship clerkship director. This faculty member’s total EVU allotment is 0.4275, producing a total of US\$53,702.55 of educational salary support from university funding.

Table 2
Core Educational Value Unit (EVU) Allotment of Administrative Positions in Medical Education Programs, University of Kansas School of Medicine, Kansas City, 2003

Position	Core EVU allotment*
Residency program director	0.30
Residency associate program director	0.30
Residency program key faculty	0.10
Fellowship director	0.10
Student sub-internship director	0.10
Student critical care rotation director	0.05
Student physical diagnosis course director	0.20
Student ambulatory course director	0.20
Student clerkship director	0.20

* The core EVU is defined as teaching time spent educating students and residents that is not associated with billable clinical activity.

Table 3

Clinical Educational Value Unit (EVU) Allotment of Faculty's Specific Patient-Care Activities with Learners, University of Kansas School of Medicine, Kansas City, 2003

Activity	Clinical EVU allotment*
Inpatient medicine	0.02/month
Consults	0.015/month
Staff clinic with learners	0.001/half-day
Resident continuity clinic	0.002/half-day

*The clinical EVU is defined as time spent participating in Grand Rounds, Morning Report, clinicopathologic conference, small-group discussion with medical students, and all development time for didactic lecture preparation and presentation.

Clinical EVU:

Inpatient attending: 0.020/month x 4.5 months = 0.09 EVU = US\$11,305.80

Consults with resident: 0.015/month x 2.5 months = 0.0375 EVU = US\$4,710.75

Total = 0.1275 Clinical EVU = US\$16,016.55

Core EVU:

Baseline expectation = 0.20 EVU = US\$25,124.00

Administrative: Subinternship director = 0.10 EVU = US\$12,562.00

Total = 0.30 Core EVU = US\$37,686

Total = 0.4274 EVU = US\$53,702.55

Fifty-seven faculty members had a change in their salary structure as a result of the EVU system (see Figure 1), 34 of whom had a decrease in salary support from the university. Among those whose university support decreased, the mean change was $-US\$28,814 \pm 30,158$ (mean \pm SD) for a net loss for those faculty of US\$979,676. The remaining 23 faculty saw an average increase in university support of $US\$29,453 \pm 19,979$ for a net gain of US\$677,419. Overall, there was a total realignment of US\$1.66 million in funding among faculty members with an average shift in university funding, in absolute dollars, of US\$29,072 per faculty member. In addition to the 23 faculty who had an increase in university dollars, there was a net gain of US\$302,257 in distribution of university funds that was used for salary support for new faculty. Specifically, ten new faculty members were hired with a base of 0.2 core EVU, or US\$25,124, per faculty, and the remaining approximately US\$50,000 was held in reserve for support of educational missions, including recruitment of faculty for the following academic year.

A number of faculty members who were heavily involved in teaching were able to decrease their clinical responsibilities, allowing time for teaching activities while maintaining their salaries. Those who were less involved in teaching had a decrease in university educational support, and as a result were more dependent on clinical productivity to maintain their salaries. Despite the large shift in university funding distribution, application of the metric did not appreciably change total faculty compensation, but rather created a realignment of salary sources with the department's educational and clinical missions. Individual faculty members who faced a decrease in university funding because they did not have a significant teaching mission were given adequate warning and were expected to increase their clinical productivity or identify other sources of salary support.

In December 2003, four months after implementing the EVU system, a faculty survey was conducted to evaluate changes in faculty perceptions regarding distribution of state funds. Faculty were asked their perceptions of the purpose of university educational funding before and after implementation of the EVU system, the implications of the EVU compensation for educational productivity, and their perceptions of the fairness of the EVU metric. Potential differences in faculty perceptions before and after implementation of the EVU system were evaluated using proportional analyses.

Individuals excluded from participation in the survey were volunteer faculty (not eligible for university funding), emeritus professors, and members of the EVU committee. Although 57 faculty members had changes in university funding, 79

questionnaires were distributed to the remaining full-time department faculty members. (Twenty-two were faculty members who were considered full-time but on either research or other tracts.) Twenty-nine faculty members returned completed questionnaires (37%).

Faculty members were asked to identify their perceptions of the purpose of university funding before and after implementation of the EVU system. They were asked to check all responses that applied. While only 27 of 84 responses (32%) indicated that university funding had been directed toward teaching efforts under the previous system, 28 of 44 responses (64%) indicated that the EVU system matched teaching efforts with university funds ($p = .001$) (see Table 4). We found no other statistically significant differences.

When asked about the implications of the EVU compensation system for educational productivity in their division, 11 (39%) faculty members believed productivity would be better, and 13 (46%) felt that it would be unchanged. With regard to research productivity, two (7%) felt that it would be better, 17 (59%) believed it would be unchanged, and ten (35%) believed research productivity would be worse than it was under the previous system.

Faculty members were also asked about their perceptions of the fairness of the dollar amount assigned to each 0.1 EVU. Fourteen (47%) respondents stated that the dollar amount was "somewhat fair" or "very fair," and 6 (20%) faculty members thought that the dollar amount was somewhat or very unfair.

An additional outcome of implementing the EVU system was a dramatic improvement in faculty attendance at Grand Rounds, clinicopathologic conference, and Morbidity and Mortality Conference. For example, attendance numbers at Grand Rounds more than doubled from 14 faculty members per session to an average of 31 faculty members per session. We verified faculty self-reporting logs with residency program lecture schedule and conference attendance rosters and other backup data to ensure accuracy, and we found no evidence of faculty overreporting of educational effort.

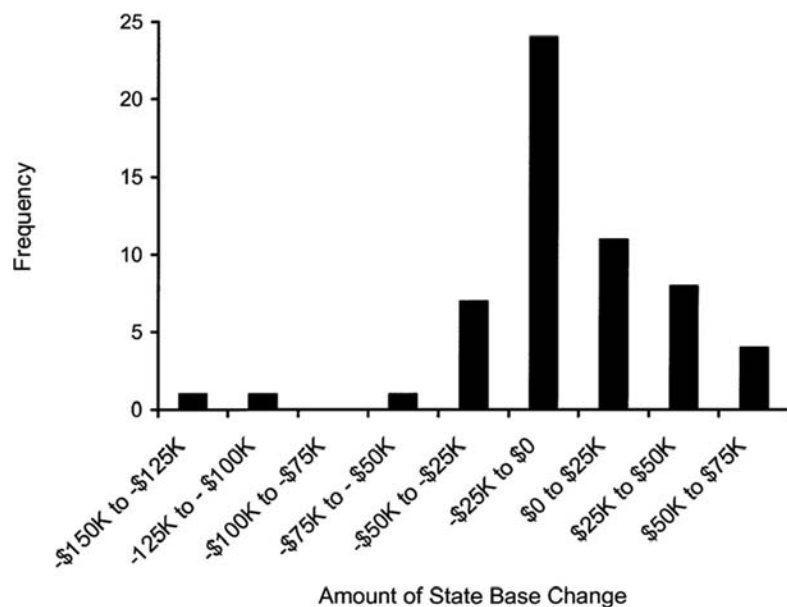


Figure 1 Fifty-seven faculty members had a change in their salary structure as a result of the educational value unit (EVU) system, of whom 34 had a decrease in salary support from the university, University of Kansas School of Medicine, 2003. An EVU is the faculty time spent educating students and residents.

Conclusions

We have described the development and application of a simple EVU metric that has allowed alignment of educational expectations with compensation and accountability in an academic department of internal medicine. The metric is easily understood, quickly implemented, and perceived to be fair by the faculty. After initially attempting to adapt published RVU-based systems to our department's needs, we found the task of enumerating and assigning relative values to each educational activity to be daunting. The committee foresaw that, even if a list of RVU-weighted educational activities could be agreed upon within the committee, it would not be well-received by the faculty due to its subjectivity, and would be too cumbersome to allow timely implementation. Finding no readily applicable precedent in the literature, we chose to create an MBM system that could be tailored to meet the specific needs of our department. Our system can be distinguished from previously-reported metrics by three key characteristics: It is time-based, prospective, and compensates bedside teaching in addition to formal lectures and program administration.

Instead of using well-described RVU-based metrics,^{2,6-10} we created a simple system that allowed faculty to self-report

their time spent in educational effort. We established a market value for an internist's teaching time, which is not specialty-specific. We considered whether various subspecialties should be reimbursed for teaching time differently, but the committee felt that educational funding should be related to the time invested in education and not based on medical specialty training, which does not necessarily enhance teaching ability. As with any system that establishes a flat compensation rate based on teaching activity, our metric may discourage subspecialists with higher rates of reimbursement for clinical work from teaching, just as it encourages faculty in fields with lower clinical compensation rates to participate in teaching activities. Thus far, there has been no decrease in subspecialist involvement in teaching efforts in our department, but this possibility will warrant further observation.

We used the new EVU system prospectively, using previously gathered MBM data to determine reasonable expectations of faculty effort associated with various teaching and administrative activities. Our prospective approach shortened transition time and allowed the departmental leadership to set clear expectations of teaching productivity by faculty members. A clinical productivity incentive program was simultaneously

implemented. Faculty salaries were structured according to expected teaching effort and clinical productivity, and faculty were responsible for meeting teaching expectations in order to maintain their university funding, and for generating the expected patient care work to maintain their clinical salary or be eligible for a productivity bonus.

Faculty members experienced a significant change in the allocation of university funding, but this change was generally perceived as fair and consistent with the university's mission-based emphasis on funding educational endeavors. For example, two faculty members had disproportionately large amounts of salary support from university funds, yet had relatively little participation in teaching efforts. While the faculty members saw decreases in their compensation from university funds of more than US\$100,000 (see Figure 1), both were heavily involved in clinical activities and thus were able to fully maintain their salaries with clinical income. By reallocating university funds from these two individuals to other faculty members who participated in medical education but had less clinical income, funding sources were more closely matched with missions in education and patient care. In addition, by creating compensation sources specifically for medical educators, we now have a foundation for creating incentive programs to reward quality teaching.

One of the key missions of an academic internal medicine department is to provide excellent clinical education for residents and students. The EVU committee valued the importance of bedside teaching and wanted to encourage faculty to teach on the inpatient services and in their outpatient practice. However, we recognized the tendency of learners to decrease faculty efficiency^{13,14} and the possibility that clinical productivity-based incentive plans may have the unintended effect of discouraging faculty from teaching during rounds or clinics. To address this concern, we designed the clinical EVU as an adjunct to clinical RVU production for faculty providing patient care in the presence of learners. By adding university funding in support of teaching that coincides with direct patient care, we can supplement a faculty physician's clinical billing to provide an incentive for faculty to teach while they care for patients.

Table 4

Faculty's Perceptions of the Purposes of State Funding Before and After Implementation of the Educational Value Unit (EVU), University of Kansas School of Medicine, Kansas City, 2003*

Activity	No. (%) faculty perceptions of purpose of state funding		p Value
	Under previous system	Under EVU system	
Teaching students/residents	27 (32)	28 (64)	.001
Community service	13 (15)	2 (5)	.07
Patient care	8 (10)	1 (2)	.13
Indigent care	14 (17)	2 (5)	.05
Research	7 (8)	2 (5)	.43
Administrative work	15 (18)	9 (20)	.72
Total responses	84 (100)	44 (100)	

* EVU is an educational value unit or the time spent educating students and residents. Responses were given to the statement: "Please indicate what you think the state base portion of your salary was/is paying for . . . (check all that apply)."

Our department was the first within our institution to implement an MBM system for medical education. The department-wide implementation was somewhat unique, since most programs reported in the literature have been implemented medical school-wide.² Lack of institutional precedent contributed to skepticism and inertia, but also provided freedom for innovation. Smaller numbers of participants allowed close observation of the impact on departmental finances, productivity, and morale as we piloted the program.

As we hoped, faculty participation in resident teaching and attendance at departmental conferences have dramatically improved. When provided with clearly defined expectations of teaching productivity and prospectively determined compensation for teaching efforts, our faculty members responded with more enthusiasm and interest in medical education. Scheduling faculty for medical student and resident lectures became easier, and faculty attendance at resident morning report improved. By heightening awareness of our educational mission within the department, we hope to ensure that it is viewed with importance equal to our patient care and research missions.

Although the survey results were generally positive, the response rate was low (37%), suggesting that the findings may not generalize to the rest of the faculty who did not respond. However, informal feedback from faculty and the

ease of implementation suggest that support was wide-spread. In addition, compliance with the educational logs was 100%. The EVU system is now being evaluated for more wide-spread use throughout the School of Medicine. We believe that the EVU metric can be easily adapted to the full range of medical specialties, and that it will be particularly useful in clinical departments that sponsor required medical student clerkships, and that typically receive lower per capita state funding under the existing, historical model of resource allocation.

By electing to implement our newly created EVU system instead of an RVU-based system, we were able to efficiently link university educational funding sources with faculty teaching efforts. A potential drawback to our system is that, by choosing to use a flat, time-based reimbursement rate for all educational activities, the department chair and the EVU committee relinquished influence over which specific educational activities our faculty members choose to emphasize in their allotted time. In addition, the value of the EVU depends on university funding which can vary from year to year. Indeed, one major challenge is to maintain the value of the EVU even while faculty size may change. However, many of these drawbacks are not unique to our EVU system, but rather are inherent in many mission-based budgeting strategies aimed at support of educational productivity.

Another limitation is that we do not yet have an incentive program, to measure quality of teaching effort and adjust compensation accordingly. Possibilities for incorporating quality assessment may include learner and peer evaluations of teachers and learner performance on exams. While high-quality educational effort is clearly a key outcome, defining and measuring quality teaching is far more complex than simply counting hours. We chose to proceed with implementation of the EVU metric to establish a baseline for mission-based compensation for teaching, while foundations for quality measures are in development. Our struggle to define and measure quality is not unique to our institution, or to the realm of education. As the academic medical community searches for innovative ways to identify and enhance both clinical and educational quality, we will need to incorporate newly-developed quality measures into our metric.

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References

- 1 Phillips RL Jr, Fryer GE, Chen FM, Morgan SE, et al The Balanced Budget Act of 1997 and the Financial Health of Teaching Hospitals. *Ann Fam Med*. 2004;2:71-78.
- 2 Mallon WT, Jones RF. How do medical schools use measurement systems to track faculty activity and productivity in teaching? *Acad Med*. 2002;77:115-23.
- 3 Nutter DO, Bond JS, Collier BS, et al Measuring faculty effort and contributions in medical education. *Acad Med*. 2000;75:200-07.
- 4 Watson RT, Romrell LJ. Mission-based budgeting: removing a graveyard. *Acad Med*. 1999;74:627-40.
- 5 D'Allesandri RM, Albertsen P, Atkinson BF, et al Measuring contributions to the clinical mission of medical schools and teaching hospitals. *Acad Med*. 2000;75:1232-37.
- 6 Ruedy J, MacDonald NE, MacDougall B. Ten-year experience with mission-based budgeting in the Faculty of Medicine of Dalhousie University. *Acad Med*. 2003;77:1121-29.
- 7 Williams RG, Dunnington GL, Folse JR. The impact of a program for systematically recognizing and rewarding academic performance. *Acad Med*. 2003;78:156-62.
- 8 Ridley GT, Skochelak SE, Farrell PM. Mission aligned management and allocation. *Acad Med*. 2002;77:124-29.

- 9 Tarquinio GT, Dittus RS, Byrne DW, Kaiser A, Neilson EG. Effects of performance-based compensation and faculty track on the clinical activity, research portfolio, and teaching mission of a large academic department of medicine. *Acad Med.* 2003;78:690–701.
- 10 Howell LP, Hogarth MA, Anders TF. Implementing a mission-based reporting system at an academic health center: a method for mission enhancement. *Acad Med.* 2003;78:645–51.
- 11 Jarrell BE, Mallot DB, Peartree LA, Calia FM. Looking at the forest instead of counting the trees: an alternative method for measuring faculty's clinical education efforts. *Acad Med.* 2002;77:1255–61.
- 12 Bland CJ, Wersal L, VanLoy W, and Jacott W. Evaluating faculty performance: a systematically designed and assessed approach. *Acad Med.* 2002;77:15–30.
- 13 Vinson DC, Paden C, Devera-Sales A. Impact of medical student teaching on family physicians' use of time. *J Fam Pract.* 1996;43:112–13.
- 14 Skeff KM, Bowen JL, Irby DM. Protecting time for teaching in the ambulatory care setting. *Acad Med.* 1997;72:694–96.