

Tenure in the 21st Century in the School of Medicine at the University of Pennsylvania.

Harvey Rubin*, MD/PhD, Medicine-Infectious Diseases

Peter Sterling*, PhD, Neuroscience

* Co-chairs,

Janet Zinser , Staff Coordinator

Maja Bucan, PhD, Psychiatry

Andrew Costarino, MD, Anesthesia

Malcolm Cox, MD, Medicine

John Detre, MD, Neurology

David Dinges, PhD, Psychiatry

Steven Douglas, MD, Pediatrics

Harold Feldman, MD, Medicine-Renal Electrolyte

Yale Goldman, MD/PhD, Physiology

Susan Guttentag, MD, Pediatrics

Marilyn Hess, PhD, Pharmacology

Stephen Kimmel, MD, Medicine-Cardiology

Thomas Kleyman, MD, Medicine

Gregory Kopf, PhD, Obstetrics-Gynecology

Virginia Lee, PhD, Pathology

Donald O'Rourke, MD, Neurosurgery

Brian Salzberg, PhD, Neuroscience

James Saunders, PhD, Otorhinolaryngology

Amita Sehgal, PhD, Neuroscience

Rebecca Simmons, MD, Pediatrics

Rosemary Stevens , PhD, History & Sociology of Science

A. Joshua Wand, PhD, Biochemistry/Biophysics

Drew Weissman, MD/PhD, Medicine-Infectious Diseases

Summary.

We affirm the importance of the tenure system at the University of Pennsylvania and recognize its general health. We identify several specific problems that require serious attention. These problems arise largely from shifts in the financing of medical care and medical education over the past decade. As was evident at the Dean's Symposium (November 5, 1999), Penn's problems resemble those of other academic medical centers. We do not propose financial solutions, which would be beyond our charge. Rather, we identify the problems facing our tenure system and present some straightforward recommendations. Some of these would be quite easy to implement; whereas others will be more difficult under the current financial constraints. Nevertheless, to the extent that this Report is genuinely targeted for the next Century, we emphasize key values and specific goals to strive for beyond the current financial crisis.

Recommendations

- 1. To rectify a departure from the University-wide tenure system:** raise the “academic base salary” for Clinical faculty to the level of Basic faculty of comparable seniority and level of achievement.
- 2. To stem the decade-long decline in numbers of physician-scientists in Clinical departments:**
 - a.** Reform recruiting at the Assistant Professor level. Follow the model used in Basic departments: national search that emphasizes “scientist” as well as “physician”. Internal recruiting naturally favors clinical performance and helps solve short-term patient care problems for the Chair; however, it cannot identify the best young *scientist*-physicians who will best serve the University’s longer term goals.
 - b.** Improve the recruitment package and working conditions for the scientist-physician. This is critical if new recruits are to establish competitive research programs. It is also critical if senior scientist-physicians are to remain competitive:
 - guarantee 80% effort for research.
 - improve space and startup package to make them comparable to those for Basic departments.
 - specify clerical staff to support the efforts of junior faculty conducting research.
 - specify the package in writing (as now required for hiring postdoctoral fellows). This will insure that promises made in the heat of recruitment are not “forgotten”.
 - c.** Establish mechanisms to assure comparable recruitment procedures and packages within a Clinical department and across Clinical departments.
 - d.** Establish a mechanism to assure *annually* that working conditions for Clinical faculty remain consistent with competitive research performance.
- 3. To strengthen the research infrastructure in Clinical departments, encourage recruitment of top level PhDs to Clinical departments.**
- 4 To reduce unnecessary anxiety during the probationary period:**
 - a.** Prepare a pamphlet that accurately summarizes the School’s criteria for promotion to Associate Professor with tenure. This should be provided by all Chairs to each new recruit.
 - b.** Exemplify the true criteria for promotion by placing the CVs of individuals promoted over the previous five years on the Web. This will allow junior faculty to assess whether their own performance reasonably meets the current standard.
 - c.** Inform new faculty what to expect from mentoring, where to find help in preparing grant proposals, and where to seek counsel if the promises made at the time of recruitment are not met. Most junior faculty feel very hesitant to point out to a Chair that the promised space, funds, or protected time have not been forthcoming.

5. Return to the University-wide principle that a major responsibility of the tenure track faculty is to set and execute the curriculum.

- a. Address the financial pressures that have eroded the tenure track faculty initiative and participation in teaching by establishing a separate fund to pay for this activity. In this respect we should emulate the recent steps by Harvard and Columbia University to establish an endowment to pay for teaching.
- b. Establish a new Workgroup to consider whether the optimal balance has been maintained regarding teaching clinical medicine and its experimental basis.

6. To expand the representation of women in the tenure track, especially at the senior levels, we recommend:

- a. Recruit more women at all levels, particularly in departments where women are grossly underrepresented.
- b. Review women faculty in research and clinical educator tracks and recommend, where appropriate, promotion in the tenure track.
- c. Extend the policy of adding a year to the probationary period for a new child to include women with young children born prior to their arrival at Penn.
- d. Encourage the Administration to accommodate needs of women; e.g., provide on-campus day care. Also, department chairs and staff should be advised not to schedule professional activities at times that are likely to conflict with child care.
- e. Develop a system to mentor women at all levels, by senior faculty.

Introduction.

The Tenure Workgroup comprised 24 faculty members from the School of Medicine. There were 7 women and 17 men, including junior and senior faculty from Basic and Clinical departments. Five members were current or past members of the Committee on Appointments and Promotions (COAP). Dr. Rosemary Stevens (former Dean of SAS) attended many meetings and provided helpful perspectives. The Workgroup, meeting biweekly from September, 1999 through January, 2000, considered the following questions:

- (1) What function is served by the tenure system?
- (2) Does tenure carry a financial obligation by the University?
- (3) What is the current state of the tenure track faculty in Basic and Clinical departments?
- (4) How can we improve the system of fostering junior faculty during the probationary period?
- (5) Can the evaluation procedure for tenure be improved?
- (6) Is the tenure track faculty adequately executing its responsibility to teach?
- (7) What is the nature of posttenure review?
- (8) Are we favoring men over women in hiring, mentoring, promotion, and pay?

These questions were addressed partly through research into existing rules of governance as set out in the Handbook for Faculty and Administrators (HFAA). The Workgroup also obtained information on current faculty composition and trends, promotion data, etc, mostly assembled by Victoria Mulhern, Janet Zinser, and their colleagues in the Office of Faculty Affairs. The Workgroup also held discussions with a variety of faculty, including current and past members of COAP.

This report strongly affirms the value of the tenure system. It also identifies certain problems and recommends some solutions. These problems, we emphasize, are no one's "fault." Our School of Medicine has sustained tremendous growth in size and excellence over a decade of strong leadership. Thus, in identifying issues and suggesting improvements, no one is rebuked. We believe that, as it becomes possible to implement these recommendations, the School and the University will be strengthened as we progress into the 21st century.

(1) What function is served by the tenure system? Will it survive into the 21st Century?

Outside universities, many citizens doubt the wisdom of awarding tenure. It is considered an invitation to laziness because the guarantee of continued employment is perceived to remove the incentive for hard work. Tenure is also considered unfair because its guarantee does not extend to other professions. Even inside the universities many faculty members doubt that tenure will survive into the 21st Century. They seem resigned to the prospect that, *de jure* or *de facto*, tenure will be abolished. Here we recall how tenure serves the university's key functions, and how it thus serves the larger society. Within this context, we then consider the state of the tenure track at the University of Pennsylvania's School of Medicine and review possible ameliorations.

Purpose of the tenure system. (paraphrased from the HFAA)

The tenure system consists of rules and procedures that establish an essentially *self-regulated body of scholars* enjoying continuity of existence and economic security. The responsibilities are to push forward the frontiers of knowledge and also to teach the next generation. Research and teaching go together because scholarship is unavailing if its results are

not communicated, and communication is best done by those who are actually advancing the frontiers^(p47 HFAA).

This system is profoundly rooted in individual pursuit of intellectual passion and on teaching that is both inspired by that passion and informed by the rigors of investigation. Yet, even though individuals are hired one-by-one, a true community of scholars nevertheless does emerge. The system of assembling groups of knowledge-seekers and providing them with time and facilities to interact, creates something greater than the sum of individual investigators. It establishes a *passionate community* whose members encourage, stimulate, and critique each other and who collaborate on larger projects.

Community is reflected in the intense and continuous rounds of research seminars presented by intramural faculty and extramural research leaders. Community is reflected in “journal clubs” organized by professional interest across departmental lines. Community is reflected in informal consultation on research methods, in critiques of grant applications and manuscripts and in sharing of equipment and facilities. Community, both within and across departments, is reflected in formal research collaborations and in collaborative fundraising: program projects, research centers, collaborative training programs, etc. These communal research activities have been encouraged and supported administratively within the School. Community is also reflected in teaching. For example, “Curriculum 2000” for medical students reflects a multi-disciplinary, integrated program taught by the community of faculty in the School of Medicine. Similarly, the curriculum for graduate students is team taught and broadly integrated across departments. However, while a community of scholars emerges, the individual scholar, whether part of collaborative projects or not, never has the focus of the academic faculty in the major modern research university.

Value of academic freedom.

The tenure system relies on protections of “academic freedom”, that is, the freedom of a faculty member to pursue and communicate his/her own line of thought and research. The standard example of the need for protection is the political investigation of leftist faculty during the early 1950s. This example now seems too remote to serve as the primary argument for continuing the tenure system. But, although freedom to pursue individual intellectual passion may not be threatened by Congress or the Legislature, it can easily be subverted by local administrators when they control hiring, promotion, and key institutional resources.

This is the case, for example, in Japan, Italy, and Germany. In these countries appointment, promotion, and resource distribution are not controlled by a “self-regulated body of scholars” but instead by an “old boy” network. Rather than strictly recruit the brightest and most skilled faculty, it also recruits the best connected and promotes those who work on the projects of those who hired them. Our foreign colleagues acknowledge that our self-regulated system for research training is the most effective.

We cite a fresh, domestic example of the problems that accompany a “topdown” model of research organization. In the 1960s and ‘70s intramural research on the NIH campus led the country. However, intramural scientists were not hired and promoted by a self-regulating body of scholars, but rather by independent “lab chiefs”. Only two decades were required for this hierarchical system to attenuate the quality of the intramural program. Harold Varmus, upon

becoming Director of NIH, did not abolish tenure. Instead he established a competitive, nonhierarchical system for hiring and promotion to tenure modeled precisely on that of first rank universities.

What causes rot is not security of employment. Rather, the true cause of rot is a system of noncompetitive hiring and promotion that quickly accumulates weak personnel who are obligated to pursue the interests of a chief. Where hiring and promotion are conducted democratically with high standards, the most vigorous and ambitious individuals are recruited. Then, the security of employment (tenure) ensures that individuals can pursue their interests independent of the chief. Thus, although public discussions of “tenure” commonly focus on the final award of job security, this is only one element in the American system of self-regulated scholarship which undisputedly leads the world. In short, the “tenure system” is likely to survive as a core of the American system of higher education, not because of entrenched interests, but because it is extremely effective in identifying the best minds for our national research enterprise.

(2) Does tenure carry a financial obligation by the University?

The question commonly arises: would a tenured faculty member who failed to raise a significant fraction of his/her salary from research grants or clinical practice, continue to receive a salary from the University? Is the University truly compelled by its own rules to actually meet the financial commitment that tenure seems to imply? To answer these questions we turned to the University of Pennsylvania’s *Handbook for Faculty and Academic Administrators* and had several exchanges with Associate Provost, Dr. Barbara Lowry. The following verbatim selections clearly indicate that tenure does carry a firm financial commitment, and that “base salary” across the University means the actual current salary paid to a faculty member by the University. For the Basic departments and for PhDs in Clinical departments, this clearly means the full 12 month salary. For tenure track physicians in Clinical departments, the Workgroup identified a problem that needs to be addressed.

From the *Handbook* (*italics added*):

“The tenure system consists of rules and procedures which establish *an essentially self-regulated* body of scholars *enjoying the continuity of existence and economic security* within which academic freedom is both fostered and protected.” II.C.1.; p. 47.

“The University expects that each recommendation for a tenure appointment will be made....in the context of *a financial plan commensurate with the new commitment* proposed to be undertaken.” II.C.2; p. 48.

“Faculty members on 12-month appointments will accrue eligibility for leave at full or half academic base for six months or twelve months after full-time service for corresponding six month...periods.” II.E.2. (p.57).

Here it is perfectly clear that “base salary” means the *actual* salary.

“Academic base salaries of faculty members may be decreased only in accordance with an expressed agreement between the faculty member and the University or because of financial exigency. Decreases for financial exigency shall

be limited to the following: (a) simultaneous uniform percentage decreases in the academic base salaries of all faculty members in the University and (b) simultaneous uniform percentage decreases in the academic base salaries of a class of faculty members such as a particular rank, department or school. II.E.11.:p.70

In short, the academic salary of a tenured faculty member cannot be reduced on an individual basis.

However, the Workgroup identified a problem regarding tenure track physician-scientists in Clinical departments. Their “academic base” salaries are now far less than their actual salaries and in fact less than the salaries for corresponding academic rank in Basic departments. For Clinical departments, the *minimum* academic base salaries, i.e., salaries guaranteed under tenure commitment are: \$51,900 for Associate Professor, \$63,700 for Full Professor. This departure from University-wide policy was established more than a decade ago, as a mechanism to allow the Hospitals to pay less University Employee Benefits. However, it clearly violates the spirit and the letter of the University-wide rule regarding financial commitments of the tenure system.

(3) What is the current state of the tenure track faculty in Basic and Clinical departments?

The faculty of the School of Medicine totals roughly 1200. This is comparable to other top research medical schools, such as Johns Hopkins, Yale, Washington University, etc. Faculty composition has changed significantly since 1991 (Table 1). The tenure track faculty in Basic departments has markedly expanded (by 40%); whereas the tenure track faculty in Clinical departments has markedly shrunk (by 33%). Meanwhile, the clinical educator track has *doubled* and now constitutes more than half of the total.

Table 1. Changes in faculty composition 1991-1999

Faculty Track	1991	1999	% Change
Tenure (Basic)	123	172	+ 40%
Tenure (Clinical)	418	283	- 33%
Clinical Educator	309	619	+ 100%
Research Track	105	110	+ 5%
Total	995	1194	+ 24%

There may also be a decline of PhDs in the tenure track in Clinical departments. Table 2 shows that there are substantial numbers of PhDs in Clinical departments at the level of Full Professor, but far fewer at the lower ranks, perhaps reflecting the lower rate of recruitment over the last decade.

The decline of tenure track faculty in Clinical departments reflects a national decline in physician-scientists. For PhDs the numbers of grant applications and awards have risen steadily since 1970; for MDs and MD/PhDs the numbers have remained nearly flat. First-time applications from MDs for NIH research grants have fallen, as have graduating medical students with intentions toward research careers (Rosenberg, L.E. Science 283:331-332, 1999). At Penn a key mechanism for the decline of tenure track faculty in Clinical departments seems to be that initial appointees become discouraged and switch to the clinical educator track. Thus we asked in detail

what problems drive this loss of physician-scientists, and what can be done at Penn to stem this loss and reverse the trend?

Table 2. PhDs in Clinical departments in tenure track

Department	Full	Associate	Assistant
Anesthesia	0	0	0
Dermatology	1	0	0
Medicine	0	0	1
Neurology	0	0	0
Neurosurgery	2	0	0
Obstetrics/Gynecology	2	0	0
Ophthalmology	1	0	0
Orthopedic Surgery	0	2	0
Otorhinolaryngology	2	0	0
Pathology & Lab Med	7	1	1
Pediatrics	1	1	0
Psychiatry	7	2	4
Radiation Oncology	3	1	0
Radiology	6	0	2
Surgery	0	0	1
TOTAL	32	7	9

There is also attrition of tenure track faculty from Basic departments, and it relates to the expected level of performance. The pressure that drives individuals from promising academic careers also affects key communal activities in the School, such as teaching. This report will return to these issues after considering the changes in faculty life.

Changes for the Basic science faculty.

Over several decades the nature of the job for Basic science faculty has changed radically, for better and for worse. What is better? Research facilities have greatly expanded and improved (Stellar-Chance, CRB, BRB, etc.), and there has been an infusion of superb young scientists. The expansion has allowed the Basic science faculty to develop a ‘critical mass’ in many areas that previously were represented by only a few isolated labs. Penn’s School of Medicine has moved into the front rank of research institutions, imparting a satisfying sense of pride. There are practical benefits to this in that we can now compete nationally for first rank faculty, postdoctoral, and graduate students.

What is worse? The increased pressure. In past decades, a faculty member needed to raise only a summer salary (22% of the total). Graduate students were supported on training grants; overhead and employee benefits were lower; technology was simpler, and the pace of most fields was modest. Commonly a lab thrived on only one grant. A decade ago, when Dean Kelley arrived, the expectation for salary on grants was already at 50%, and with the extremely tight funding situation, that expectation held steady for awhile. Now, however, faculty are expected to raise 70-80% of total salary on grants, pay graduate stipends, health benefits for postdocs, and larger slices for overhead, employee benefits, ethernet lines, etc. This requires a major and

continuing scramble for funds – at a substantial cost in time, energy, and anxiety. Dean Kelley’s recent shift of responsibility for salary to individual departments places still greater stress on the individual faculty member not to draw salary at the expense of his/her immediate colleagues.

Beyond fund-raising, there is the challenge of the actual research. To accomplish the work proposed in two grants requires considerable managerial effort. Recruitment of graduate students, postdocs, technical staff is unrelenting, and the competition for personnel is stiff. Thus, even for the senior faculty who have succeeded in earning tenure, the job remains one of considerable stress. The stress has increased over the last decade (along with the improvements noted above) and shows no sign of reaching asymptote. There is no basis for any concern that a Penn faculty member would, upon earning tenure, kick back and relax.

In this intense research environment what has become of the responsibility/commitment to teaching? The Basic science faculty is motivated to teach effectively in the graduate courses because it provides opportunities to compete for graduate students. However, this motivation does not generally apply to teaching in the medical curriculum. Consequently, as clinical educator faculty have taken greater responsibility for the medical curriculum, the Basic faculty have tended to cede their former contributions willingly – and even gratefully. Although this is completely understandable, it inevitably undermines the scientific foundation of medical education. In the current scientific climate, where basic research is translating to clinical science ever more rapidly, the need for basic science in the medical curriculum is increasingly important.

Changes for the Clinical faculty.

The pressures for the Clinical faculty have increased enormously – to say *alarmingly* would not be an exaggeration. Consider first the senior faculty. Whereas a Basic scientist devotes ~ 90% of his/her effort to research, which includes time to read and keep up with the field, a physician scientist must keep up with the research field and also maintain skills and current knowledge in a clinical specialty. The minimum effort deemed practical to carry out both activities is 80% research vs. 20% clinical and teaching. Formerly, funds generated through the clinic could be used to protect research time for the tenure track faculty. Under current conditions, the physician-scientists in Clinical departments are challenged to raise full salary from a combination of grants + practice. But the income from clinical effort is set so low that 20% effort doesn’t cover 20% salary, and in the national competition for grant funds, the single-tasked scientists in Basic departments have the advantage.

This extraordinary pressure on senior Clinical faculty has at least three negative effects. First, it erodes their research contributions and their ability to stay funded. Second, it erodes their teaching contributions. Teaching by tenure track Clinical faculty has declined sharply over the decade, leaving the clinical educator faculty with most of the responsibility. Recognizing the outstanding dedication and skill of the clinical educator faculty, we must also recognize that the essential value of a research institution in education is the *direct contact* between the explorers of the frontier and the students. This is stated clearly in the Handbook.

Third, the time and emotional pressures on Clinical faculty erode their capacity to effectively mentor the next generation of physician-scientists. A mentor provides, above all, an appealing model. Under current conditions, senior physician-scientists have barely the time to do all that is asked, oftentimes discouraging rather than encouraging younger physician-scientists. Even if the model was attractive, the physician-scientists lack adequate time to mentor effectively – by discussing science with fellows and junior faculty, by reading their grant

proposals and papers, etc. This handicaps recruitment of junior faculty to the tenure track and reduces their chances for success.

Conditions for the Junior Faculty: current operation of the tenure system.

In Basic departments, hiring for a tenure track position begins by establishing a *departmental faculty committee*, often including members from outside the department, to conduct an *international search* for candidates. Candidates selected for interview tend not to be recent graduates but seasoned, young scientists who have trained in at least two and often three labs and who have substantial records of publication and other accomplishments at world-class universities. A candidate spends several days on campus, presents a professional seminar plus a research plan, and is interviewed by numerous members of the department and other campus experts. All these individuals are polled for their opinions, and the final decision to offer the position weighs the views of a great many faculty. The average age at hiring for Assistant Professor in a Basic department is 35 years. The financial commitment to a new hire is substantial: on the order of \$440,000 for setup, plus \$200,000 to cover salary, benefits, etc. for two years.

The expectations of each recruit are essentially uniform: maximize achievement in research. Time available to do this is roughly 90%. This time is strenuously protected for the junior faculty, and if they show signs of devoting excessive effort to other activities, such as teaching or committee work, the senior faculty caution them against this. Progress is reviewed after two years to assess whether the contract should be renewed for another three years. After five years an Assistant Professor is evaluated for promotion to Associate Professor with tenure, a process that occupies most of the sixth year. Average age at promotion is 41 years.

In Clinical departments hiring procedures are considerably more varied. Some physician candidates for Assistant Professor are recruited from a national search, but many are recruited internally from the pool originally assembled by recruitment of residents and clinical research fellows. The average age at hiring (estimated from the average age at promotion) is 32, i.e., three years younger than in Basic departments. Since clinical training has occupied much of their time, their research experience compared to the Basic faculty might be 5-6 years less.

Expectations for new faculty within a Clinical department and between Clinical departments also vary. Some Assistant Professors are recruited for mainly research; whereas others are recruited mainly to fill a need of the clinical practice. Correspondingly, the startup packages for new faculty vary widely, and the investment is generally substantially less than for Basic departments. In many cases initial commitments for space and clerical support are minimal, and even the minimum promises may not be kept. Finally, in many cases “protected time” for research, which is *crucial* to success, is severely encroached upon due primarily to clinical demands. Teaching and clinical responsibilities generally occupy 20% of total effort, but “emergencies” caused by understaffing, loss of staff, etc. take extra time, leaving between 50-75% effort available for research. Finally, the system for mentoring junior Clinical faculty is poorly developed and inconsistently executed. Otherwise, promises would be better kept and time would be better protected.

The Workgroup found the junior faculty in Clinical departments painfully discouraged about the possibilities for accomplishing enough research to earn tenure – even over the extended probationary period of ten years. It is easy to see why. The procedures for identifying and

recruiting physician-scientists to research careers in Clinical departments is generally less rigorous than in Basic departments; certainly they are younger and less trained for the task; they receive less start-up assistance, less protection, and less scientific mentoring. The rate of success for candidates in the tenure track submitting dossiers to COAP is the same for Clinical and Basic departments. However, there is a high rate of dropouts among the Clinical junior faculty. Some leave Penn; others abandon their intense commitment to research and switch to the clinical educator track. The dropout rate for women may be as much as five-fold greater than for men.

The decline in quality of life for academic scientists, and especially for physician-scientists, is a national phenomenon. The stress is especially acute now because of changes in the financing of patient care at academic medical centers. When all faculty must account financially for every minute, a giving spirit towards colleagues, students, staff, and patients inevitably declines. Chronic stress impairs physical and mental health; it impairs marriages and family life; and it impairs all communal professional activities. Why is it that our European colleagues take vacations of 4-6 weeks; whereas few of us can manage anything comparable? Something seems grossly out of control, and we need to ask how can a faculty member in the 21st Century “get a life”? Although major changes are needed at the national level, there are various small reforms that could help relieve unnecessary stress.

(4) How we can better foster the junior faculty.

Protecting research time for Clinical faculty

A premier academic medical center requires a strong cadre of physician-scientists. These individuals have apportioned effort ~80% research vs. 20% teaching + clinical duties. More effort in both categories would be desirable, but less effort in either would lead to inadequate performance. It became obvious to our Workgroup that the "protected time" for research promised to Assistant Professors at hiring frequently disappears in the crunch of clinical emergencies. Furthermore, staff support that could maximize productivity of young physician-scientists is often lacking.

Now an "emergency", by definition, is an extraordinary event. But when emergencies are so frequent and sustained as to be accepted as a way of life, they bespeak a structural problem. A junior faculty member cannot establish a research program unless we vigorously protect the time. When a Chair signs off on an R01 that promises specific time, facilities, and support, obligations are assumed. These obligations must be filled.

The Workgroup recommends that the hiring package for a prospective Assistant Professor specify in writing: space, start-up funds, support staff, and protected time. Then the Department/School *must* deliver what was promised. To do otherwise leads to cynicism, discouragement, and to the current hemorrhage of promising physician-scientists from this track. A Chair requests annually from each faculty member a list of achievements, such as publications, invited talks, etc. and submits a report to the Dean. We recommend that this annual report include a section to describe the Department's achievement in protecting time for research and in otherwise meeting its obligations to the faculty, especially the junior faculty.

A mentor, by definition, gives advice. But junior faculty may at times need something more substantial — an *advocate*. Advocacy might involve, for example, assistance in obtaining initial invitations to speak at a meeting or another University. Advocacy might also be needed within the School of Medicine to address the possible conflict of interest between the need of a

Chair or Division Chief to staff the clinical enterprise and the need to protect the junior faculty member's time. In such cases the mentor may be needed as an advocate. We recommend that this point be added to the duties of a mentor, as explained in "Guidelines for the School of Medicine Faculty Mentoring Program". The occasional need for such mediation with a Chair or Division Chief may be most appropriately accomplished by a mentor from outside the Department.

Tenure track PhDs in Clinical Departments

Tenure track faculty in Clinical departments may include some individuals holding only the PhD. Overall there are 48 such individuals, but most are accounted for by a few Departments (Table 2). Thus tenure track PhDs in Pathology, Radiology, and Psychiatry total 30. However, Anesthesiology, Medicine, Neurology, Ophthalmology, and Surgery together have only 3. Furthermore, most of the tenure track PhDs in Clinical departments are at the Professor level (32); whereas only 8 are Assistant Professors, clearly reflecting a low rate of hiring over the last decade.

These scientists conduct research similar in quality to that in Basic departments, but in many cases with more obvious relevance to clinical problems. They also contribute to the department's success in obtaining NIH funding. Furthermore, these basic scientists contribute importantly to training residents and research fellows. They also strengthen the intellectual foundation for research in Clinical departments and enhance the technical infrastructure (e.g., advanced instrumentation). In some cases they have also participated to great positive effect in the courses taught by Basic departments.

One way to strengthen the intellectual foundation and technical infrastructure for research in Clinical departments would be to recruit first rank PhD research scientists to the tenure track. This now occurs sporadically, but most PhDs in Clinical departments are being recruited to the research, not the tenure track. For example, since 1995 the School has appointed seven Assistant Professors to the tenure track and 45 Assistant Professors to the research track. In many cases the research track faculty are focussed on contributing to the specific effort within a particular group and are thus less suited to building and mentoring a department's overall research effort.

The School's policy over the past decade has discouraged new appointments of PhDs. in Clinical departments and has discouraged their participation in the teaching at the basic level, partly because in many cases they must obtain 100% of their salary from grants. Ostensibly this is to avoid the risk that these individuals might sometime require support from the clinical practice. However, this may be short-sighted. Given the decline in numbers of young physician-scientists, and their clear need for assistance in establishing research programs for good mentoring in research, this group of faculty could help. They could be an important force in stabilizing the scientific programs in Clinical departments and in improving research guidance, and thus morale, for the junior Clinical faculty. Thus we recommend a change in policy to encourage recruitment of top level PhD scientists to Clinical departments.

(5) Clarifying expectations and improving evaluation for promotion to tenure.

Promotions

Any "up or out" system inevitably generates a certain level of anxiety among those who are trying to meet the hurdle. This is not all bad because it can lend focus and intensity to an individual's effort and thus assist a career as well as helping the institution. Where promotion to

tenure is restricted by design to a small fraction of the initial candidates, competition between them can poison communal efforts. But this has never been the case at Penn. Rather, the goal has been to appoint individuals of great promise and to promote those who realize their promise by achieving national stature. In our environment mutual assistance is advantageous. And in fact most of those reaching the tenure evaluation stage are successful, as COAP's figures show (Table 3).

Table 3. Promotion to Associate professor with Tenure

1991	COAP: 14/16 (88%)
1992	COAP: 11/14 (79%)
1993	COAP: 6/8 (75%)
1994	COAP: 12/13 (92%)
1995	COAP: 9/11 (82%)
1996	COAP: 11/13 (85%) PSC*: 10/11 (91%)
1997	COAP: 13/18 (72%) PSC: 12/13 (92%)
1998	COAP: 13/14 (85%) PSC: 11/13 (85%)

* Provost's Staff Conference

However, the Workgroup identified two sources of anxiety for junior faculty that seem unnecessary and counterproductive. One concerns the perceived criteria for promotion, i.e., the perceived "level of the bar". The other concerns the real possibility of being evaluated by an inappropriate set of referees. On each point the workgroup offers a recommendation.

Criteria for Promotion

Penn's School of Medicine has become famous for the slogan, "two R01s and a program project grant" to describe the grant support expected of each faculty member. This slogan was coined a decade ago by Dr. Kelley as a wake-up call to an institution far sleepier than the one we now inhabit. It was meant to raise the faculty's level of ambition and to mobilize additional grant funds that would be needed to sustain the expansion that Dr. Kelley envisioned. Under current conditions this slogan represents a reasonable target for mature faculty and one we must meet in order to maintain the scope of our facilities and our competitive position.

But many junior faculty believe that this slogan represents the criterion for promotion. Although this belief comes partly from rumor, it is also explicitly stated by certain Chairs. For a newly appointed Assistant Professor, who has yet to apply for an R01, who has yet to hire or supervise a single technician or student, the goal of three grants is well beyond the actual level of managerial skills. A challenging but quite reasonable goal for the first five years that precede

evaluation for tenure is to demonstrate that one can fund and operate a vigorous research program. This is actually what COAP looks for. It is a realistic goal that best mobilizes spirit and energy.

Explaining the expectations.

Therefore, we propose that COAP prepare a document describing realistic criteria for promotion. This would include: (1) conduct cutting-edge biomedical research; (2) write up the work and carry it through to publication in leading journals; (3) develop a body of published work that identifies the candidate as a significant contributor to his/her field; (4) establish a track record of substantial funding, partly from federal sources; (5) recruit competent staff and junior colleagues to the lab, train them, and direct their efforts; (6) attract enough national and international notice within the field to obtain strong letters of recommendation.

The document might address briefly, but with examples, the most common issues that arise during evaluation: funding level and stability, number of publications vs. impact per publication, independence from training senior mentors, and national reputation. A draft of this document should receive comment from the Administration and from the Department Chairs before final publication, but then it should be given by the Chairs to each newly appointed Assistant Professor. This would go some way toward accurately communicating the "height of the bar" and might reduce unwarranted pessimism regarding the chances for promotion.

We also propose that COAP allow the junior faculty to peruse the CVs of everyone promoted over the previous five years by placing CVs on the Web. The CV is basically a public document; it is circulated, for example, when one presents a seminar outside the University. If junior faculty could see for themselves the actual diversity of routes to promotion, they could more easily locate the "bar". It is well established experimentally that reducing uncertainty by providing information reduces excess stress, and the junior faculty already have more than their share.

Soliciting outside reviews.

Another issue regards the method of selecting outside referees for promotion to Associate Professor with tenure. At present letters are requested from 12 external evaluators. Three names are provided by the candidate, one is provided by the Chair, and eight names are selected by an Ad Hoc committee established by COAP. All the letters are solicited by COAP and are unavailable to the Department.

One concern is that this method deprives the Department of external perspectives about the candidate. The other concern is that the Ad Hoc Committee, being insufficiently familiar with the candidate and the field, may select inappropriate referees. The members of our Workgroup who have served on COAP confirmed that this concern is well founded. This danger adds to the candidate's anxiety and increases the risk that the School could err in failing to retain an excellent candidate.

Therefore, we recommend that responsibility for selecting external evaluators should be shifted to the candidate's department. This is currently the practice in the School of Arts & Sciences (SAS). To minimize the opposite sort of error, namely selection of evaluators biased toward the candidate, SAS has evolved clear guidelines for selecting names. The list must be reviewed by the SAS Dean before letters are solicited. We recommend guidelines similar to

those used by SAS be adopted by COAP, and that final review of the evaluator list be made by COAP who would then solicit the letters. The letters should be provided to the Department to assist its decision. This would provide the opportunity for a better informed decision at the Department level, and would allow the Chair to communicate the Department's view of the external evaluations to COAP. The SAS evaluation form is appended.

Length of the probationary period.

According to the Faculty Handbook:

“There are two probationary categories in the tenure track in the health school; a seven-year tenure probationary period and a ten-year tenure probationary period” for clinically oriented Assistant Professors. Those electing the seven-year probationary category will be reviewed for promotion to the rank of Associate Professor with tenure not later than the sixth year. Further, Assistant Professors in either of these latter two categories (ten-year tenure probationary category or clinician educator) will be reviewed for promotion to the rank of Associate Professor during the ninth year.” p. 38

In practice documents for the tenure decision are gathered at the end of five years for the seven-year probationary period and after eight years for the ten-year probationary period, so the evaluations are effectively based on five and eight years¹. Some senior faculty feel that these intervals are too short for a reliable decision, and that we may be losing good people unnecessarily.

The Workgroup considered a proposal to lengthen the probationary period for Basic departments but found little support for the idea. Given that the average age at promotion is 41, it was felt that the track record by then should be sufficient to allow an informed decision. Moreover, since the promotion rate is already quite high (80-90% of cases reaching Provost Staff Conference), extending the probationary period without also raising the expected level of achievement, might retain marginal cases -- to the School's long run detriment. Extending the period while *raising* the expected level of achievement, would simply extend the period of most intense stress — to everyone's detriment.

(6) Is the tenure track faculty adequately executing its responsibility to teach?

According to the Handbook, the tenure track faculty is responsible for setting and executing the curriculum. This was plausible in past decades, when a faculty member was responsible for one grant and less than 50% of salary, when the teaching effort was not divided between graduate and a medical curricula, and when there were one-third more physician-scientists in Clinical departments. Naturally the increased pressure for grants, the expansion of the graduate curriculum, and the shrinking pool of physician-scientist teachers, have diminished the participation of tenure track faculty in setting and executing the medical curriculum. Major contributions to this task are now made by clinical educator faculty. The medical curriculum now absolutely depends on extensive collaboration between the tenure track and clinical educator faculties.

These efforts proceed smoothly and with good will. However, because clinical educator faculty tend to be concerned more with the clinic and tenure track faculty more with the

¹ An additional year is now allow in both categories for “family leave”, attending the arrival of a child.

laboratory, the question arises as to whether the optimal balance has been maintained between teaching clinical medicine and its experimental basis. This is a large topic with many facets, and we recommend that a new Workgroup be established to consider it systematically.

This is a particular concern since Penn is a premier *academic* medical center with more than one-sixth of the medical class in the MD/PhD track. One remedy over the long term will be to find financial support for teaching – enough to reduce the pressure on the faculty to a level where they can once more see teaching as something more than an obstacle to their making a living.

(7) Is there consensus for “incentives” and formal posttenure review?

The Workgroup discussed whether an “incentive” plan would be useful for Basic faculty, but no conclusion was reached. The Workgroup also discussed whether special procedures are needed for “posttenure review”. This issue is often raised outside the universities, reflecting suspicion that once tenure is achieved, effort will slacken. Yet, the school’s senior faculty are motivated from within and remain highly productive even into their sixties (see report from the Senior Faculty Workgroup). Furthermore, each faculty member’s performance is reviewed annually by the Chair, who has the power to recommend/withhold a salary increase. A faculty member who might feel aggrieved in this interchange may appeal to an elected committee of the Faculty Senate (the Committee on Academic Freedom). This mechanism for posttenure review and appeal seems sufficient.

(8) Are we favoring men over women in hiring, fostering, promotion, and pay?

There are 74 women in the tenure track and 390 men. Thus women comprise 16% of this track, compared to 27% in the clinical educator track and 34% in the research track. In the tenure track 60% of the women are Assistant Professor, 10% are Associate Professor, and 30% are Professor. The percentages for men are: 37% Assistant, 14 % Associate, and 49% Professor. There is considerable variation in the female/male ratio across departments; in general fewer women occupy higher levels — as administrators, department chairs, and division chiefs.

That 60% of the women are Assistant Professors apparently reflects their higher dropout rate from the tenure track. For example, in 1990 39 men were appointed Assistant Professor in the tenure track in Clinical departments. Eighteen were ultimately promoted (nine in the tenure track and nine in clinical educator track). In the same year, 21 women were appointed, but only two were promoted, one in tenure track and one in clinical educator track). Thus, for this cohort women dropped out at nearly 5-fold the rate of men. However, dropout rates for 1996-1999 were the same for men and women, so we may anticipate an increase of women at higher ranks.

The recruitment of women may be assisted by the University's good track record for recruiting couples. A survey of records from Biomedical Graduate Studies showed that graduate students are evenly distributed among male and female faculty. Average salaries for male and female Assistant Professors in Basic departments are the same. However, it is cause for concern that the School of Medicine is below the national average in percentage of women faculty, especially at the senior ranks.