

RVUs and RO1s

The Economic Realities of Pulmonary and Critical Care Medicine

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During a career in academic pulmonary and critical care medicine, one has a crucial responsibility to counsel those who follow us through this process. Through conversations with pulmonary and critical care fellows, we can learn much about the economic, cultural, and intellectual pressures that uniquely entangle our evolving fellowship training environment. It is clear that we are facing a crisis in the retention of fellows and junior faculty as physician-scientists. The period from 1983 to 1998 alone saw a 22% decline in the number of academic physician-scientists (1). The reasons for this loss are myriad and have been attributed in many institutions to economic concerns. However, the reality is far more complex. With the troubling delay in fellows achieving an independently functioning research lab, and the average age of first RO1 grant recipients now being greater than 42 years old (2), a loss of employment security currently carries far more risks than in prior decades. Fellows fear the very real risk of academic failure (due to alarmingly low K award and RO1 success rates) at a point in their mid-thirties to mid-forties. At this crucial point in their careers, their non-medical colleagues are entering their peak earning years, and career instability can be devastating to the fellow's financial solvency and family support system. In fact, in my experience, it is commonly the fellow's spouse that will initially and cogently voice the greatest concerns over the stress that a career as a physician-scientist is placing on the stable economic functioning of the family as a whole.

How do we counsel fellows on the important decisions and potential pitfalls that professionally lie ahead? The difficult choice must be made between a "limited information strategy" versus a "full-disclosure strategy." Obviously, imparting a limited amount of information to a fellow might avoid an intimidating amount of potentially negative information, which could theoretically dissuade the fellow from continuing in this challenging pursuit. However, in the setting of resource-depleting fellowship training (typically occurring in urban areas with expensive housing markets), fellows clearly require more economic data than they typically have access to.

NIH Data

As the NIH is the lifeblood of the academic physician-scientist, no fellow/junior faculty member can survive professionally without a keen knowledge of the historical machinations of this entity. In 1999, Congress mandated a doubling of the NIH budget over the next 5 years. This mandate was enacted, leading to an increase in budgetary outlays, although with adjustments for inflation, this increase was far less than expected. Furthermore, this mandate triggered a significant expansion in researcher hiring at academic institutions, leading to an increase in NIH applications from 24,151 in 1998 to 46,688 in 2006 (3). Concurrently, the size of grant awards grew by 40% between 1998 and 2006 (3), further constraining the number of grants that could be awarded. The net result of this constellation of factors was a dramatic increase in the burden of grant review within the NIH and a dramatic decrease in RO1 success rates. In fact, in 2006, the success rate for new RO1 grants dropped to a dismal 16.3% (4), and the number of grants awarded on the first attempt decreased to 12% (5). Coupled with an ongoing decrease in the relative percentage of MD researchers (6) and a decline in the percentage of MDs on NIH-specific review panels to 28% in 1995 (7), the prospects for MD physician-scientists continues to be extremely challenging. An insufficient amount of research funding additionally means that the NIH must choose between supporting older, seasoned researchers versus junior physician-scientists.

With respect to the training environment itself, the picture is no less daunting, with NHLBI K08 success rates decreasing to 35.2% and K23 success rates decreasing to 26.3% in 2007 (4). Furthermore, even in cases where the junior physician-scientist is fortunate enough to procure K funding, nearly 25-30% of K awards lead to no subsequent NIH grant application or funding (6), suggesting a significant amount of researcher attrition. One cannot help but believe that this attrition is tied closely to a stark realization of the economic factors that are entwined with this career choice.

Career Alternatives Outside of Academia

While the pressures of academia may seem complex, the transition to a career in private practice or in “industry”-affiliated research require uniquely different skill sets. Fellows

not only fear that the skills that they have acquired within the academic realm (clinical, research-related, and administrative) may not translate well to other career choices, but that during prolonged research training, they will begin to lose the pulmonary and critical care clinical skills they have already attained. The challenge of maintaining one's research and clinical skills becomes more difficult as the length of training extends. Furthermore, facing a real statistical possibility of academic "failure," the maintenance of a high level of clinical skills (particularly in terms of critical care medicine and procedural skills) becomes an essential part of maintaining one's external marketability. It is often said by fellows that "the private practice that will hire you cares very little about how many gels you have run." This statement speaks pointedly to the concerns over the limited "translatability" of research skills into nonacademic careers.

The professional structure of private practice pulmonary and critical care medicine is evolving rapidly, making the choice to leave academia an uncertain proposition. The traditional outpatient/inpatient private practice model is slowly giving way to practitioners who do almost exclusively outpatient pulmonary medicine. In conjunction, shift-working, salaried intensivists have increasingly subsumed the inpatient responsibilities in many urban regions of the country. In those regions that have a shortage of intensivists, electronic ICU (eICU) monitoring services have been growing slowly to provide intensivist monitoring of ICU patients from a remote location. In both the outpatient and inpatient world of private practice, the relative value unit (RVU) has become the universal yardstick of physician workload and worth. The RVU (initially developed by Medicare in 1992) is composed of a "physician work" component, a "practice expense" component, and a "liability insurance expense" component. However flawed, the RVU has been adopted by many medical groups as the basic measure of physician productivity. A clear understanding of billing practices, RVU structure, and collections is a crucial knowledge base that fellows entering private practice have traditionally not been educated in within academia and, therefore, must newly acquire when entering private practice.

Salary Issues

According to 2007 Medical Group Management Association (MGMA) data, the median salary for pulmonary medicine positions was \$255,807, and the median salary for critical care positions was \$275,000. Given the median starting academic salaries for assistant professors data from the American Association of Medical Colleges (AAMC)(8), a graduating fellow can expect an approximate \$100,000 differential to join a private practice group, compared with accepting an academic position. Furthermore, since fellows are increasingly being required to engage in extended post-fellowship training, they are typically not offered assistant professor positions straight out of fellowship. Consequently, the salary differential from a clinical instructor position (where salaries are even lower) is even more dramatic. Given the lifestyle advantage of many intensivist positions (with inherent shift-work-driven limitations on daily and monthly hours), from a purely economic point of view, academic medicine appears to be at a significant disadvantage. The choice made by a fellow to remain in a multi-year clinical instructorship (at a low salary) with its associated 60-80-hour workweek, compared with an intensivist position with a 40-hour workweek can indeed be problematic.

Conclusions

Deciding among various career choices for the pulmonary and critical care fellow is a highly individualized process that crucially depends on being able to obtain adequate and accurate economic information together with an honest assessment of his/her needs to sustain personal and professional growth. It is clear that radical interventions must be implemented to address the salient cultural, economic, and personal factors and stem the flow of these crucial individuals from academia. Ideally, fellowship should represent a professional opportunity to explore one's strengths, weaknesses, and career options. By assisting the fellow to set and *achieve* goals that are realistic, relevant, and timely, both the institution and the profession gain from maintaining a pool of vital, productive individuals. The costs of the loss of fellow/junior faculty physician-scientist mindshare from our academic institutions may be obvious in some respects, but the true impact likely will not be known for a decade or more when the academic system is depleted of an entire generation of pulmonary and critical care physician-scientists.

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