The Crisis in Academic Radiology: Will We Help Ourselves?
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The overall health of academic radiology suffers from insufficient funds and manpower. Although the largest academic programs in the country may have sufficient resources to maintain robust academic environments, one third to half of the academic radiology programs in the United States are struggling to maintain stable academic environments. The impact of an impaired academic radiology enterprise on the specialty of radiology is far reaching. As academic departments falter, the quantity and quality of research and educational programs deteriorate. In the short term, this situation makes our specialty vulnerable to predatory strikes by other specialists who covet our field; in the long term, it leads to obsolescence. Fortunately, radiology is a lucrative specialty, and we have the wherewithal to help ourselves. To ensure a vibrant future for our specialty each of us must accept an obligation to invest in our academic foundation. In particular, private practice radiologists must recognize this obligation and pledge their time and/or resources to help shore up the academic departments.

\textbf{Key Words:} Academic radiology, manpower crisis, private practice radiology


\section*{INTRODUCTION}

The community of medicine has lived for decades with a natural competition between academic centers and private practice groups, a “town-and-gown divide” to which the profession of radiology has not been immune. The competition over the years has resulted in friendly local turf battles and one-upmanship for the most part. The missions and economic foundations of the 2 communities have been sufficiently different to permit each group to thrive without adversely affecting the other. Academic departments have had sufficient revenue streams from tax-based funding, endowments, or clinical reimbursement to support the academic missions of research and education. Private practice groups have delivered clinical services to the bulk of the population and enjoyed strong financial returns proportional to the volume of clinical work performed and good payer mixes. Fundamental to this competitive coexistence has been the adequacy of both funding and manpower. Today, the financial and human resources to support the academic enterprise in radiology have become critically deficient. Radiology is witnessing an academic crisis that, if not addressed, will erode the foundations of our profession [1,2].

\section*{HOW DID WE GET HERE?}

Radiology is in the midst of an acute manpower crisis that is the direct result of 2 events of the early 1990s, the Clinton administration’s health care reform efforts and the insurance industry’s forceful implementation of managed care. Both initiatives were designed to shift patient care from high-cost medical subspecialists to more affordable and accessible primary care providers. The perceived impact of these actions on both the demand and need for radiology services and radiologists was extremely negative. Multiple papers were written about the uncertain future of radiology and an impending manpower surplus [3]. In response, the radiology community at large retreated. Both academic and private practice radiology groups implemented a veritable hiring freeze on radiologists, and radiology training programs decreased the number of residency slots. Medical students, one of our most sensitive barometers of the health of medical subspecialties, clearly agreed with the dire predictions and chose in mass to shun radiology residencies.

However, the events of the intervening decade have reinforced the notion that forecasts and reality are often incongruous. The continued development of improved diagnostic imaging technology and the ever expanding indications for imaging services have created an unforeseen explosion of clinical radiologic workload. As a result,
by the early 2000s, both private practice and academic radiology groups had opened their doors and begun hiring every available radiologist. Unfortunately, the reaction to the feared manpower surplus had already exerted a significant negative impact on the number of graduating radiologists; thus, instead of a manpower glut, the radiology community has found itself facing a severe manpower shortage. Supply-and-demand economics has taken hold of the radiology manpower marketplace. For new graduates, the market has been spectacular, with inflated starting salaries and reduced time to partnership in the private sector. However, for academic departments, the highly competitive job market has led to a further deterioration of an already weakened academic environment. The inability of academic departments to compete with the deep pockets of private practice for available radiologists has made the recruitment of new faculty members difficult. Chronically short-staffed departments have placed the burden of the ever increasing workload on the shoulders of the remaining faculty members, to the detriment of academic pursuits.

A Case Study

A review of the operating budget of the Department of Radiology at the University of Texas Health Science Center at San Antonio will illustrate the economics of the situation. The department, part of a large public medical school, performs 330,000 radiologic examinations annually, for which it collects approximately $11.3 million. It receives an additional $2 million from the state to support its educational programs. On the basis of national data, the department should have 33 clinical faculty members to be at the 50th percentile for clinical productivity for academic departments (Association of Administrators in Academic Radiology [AAARAD]). At the national average income for academic radiologists plus 27% for the standard benefits of insurance and pension plans, the cost to the department for the 33 faculty members would be $11.5 million (AAARAD Physician Compensation Report and Physician Production Survey, Fall Meeting of the Society of Chairmen of Academic Radiology Department, October 9-13, Bethesda, Maryland). Total income ($13.3 million) minus total faculty compensation would leave a net profit of $1.8 million, which gives the impression of financial solvency. However, overhead and institutional taxes, most of which are not experienced by private practice radiologists, must be considered. The department has a direct administrative overhead of $1 million, direct and shared billing costs of $2.4 million, an institutional tax (the dean or president’s tax) of $780,000, and a shared group practice debt of $800,000, resulting in a total overhead expense of $4.98 million. Thus, a fully staffed department would post an annual operating loss of $3.2 million. Because the department is required by the university to maintain a balanced budget and deliver competitive radiologic services, the only option for the department is to increase faculty clinical productivity.

The increasing clinical workload occurring in academic departments around the country is a serious threat to their stability. As the clinical workload increases, the time for academic pursuits is compromised. Without time to develop academic careers, faculty members begin to find it difficult to justify the marked decrease in compensation that academics provides relative to private practice. Again, the experience of the case study department will illustrate. Two summers ago, 23% of the members of the department left the institution. The exodus was based on a common perception that limited resources and increasing clinical demands had eroded the academic experience to the point at which their professional lives were more like private practice, only with significantly less income. The exodus severely destabilized the department, and it has had considerable difficulty recovering. Was this an isolated event, an anomaly in an otherwise stable national academic environment? No. Two years ago, at the peak of the radiology manpower crisis, there were more than 600 unfilled academic faculty positions in the United States, or roughly 6 vacant positions per department. Today, although the crisis has abated somewhat, there remain approximately 400 vacant academic faculty positions around the country.

WHY SHOULD PRIVATE PRACTICE RADIOLOGISTS CARE?

What relevance do the marginalized academic programs have to you and the profession of radiology? One might ask, rhetorically, will not the more prestigious programs survive this manpower crisis? National Institutes of Health grants and private sources of funding will support the premiere programs, which will have little difficulty recruiting faculty members. Why must we be concerned with the survival of second-tier programs such as the case study? Let the marketplace sort out the fittest programs.

Who Will Train Our Future Radiologists?

Academic radiology programs have 3 unique missions of education, research, and leadership development. The educational mission is broad reaching; it includes medical students, residents, fellows, and all forms of continuing medical education. Should a substantial percentage of the second-tier or third-tier programs go bankrupt or lose their residency program accreditation and cease to exist as functioning departments within the medical school community, the educational burden will necessarily fall onto the remaining top-tier programs. However, given the limitations of the essential infrastructure of
these institutions, such as hospital size and clinical workload, the number of graduating residents and fellows will decrease. This will translate into fewer practicing radiologists with the necessary expertise to collaborate and compete with our nonradiology colleagues. Weakened and overworked, we will become more susceptible to predatory strikes on our specialty. Radiology is currently faced with competition from other specialties over the ownership and the performance of diagnostic imaging. Many medical specialties covet diagnostic imaging as an area of expansion for their scopes of practice. The private practice market has already witnessed a resurgence of self-referral practices. With the demise of academic radiology departments, the vacuum left behind within the medical school community will only encourage other specialties to subsume diagnostic imaging within their residency training and board certification processes. The long-term consequence for all of radiology of this shift from radiology to other specialties in academic training should be obvious.

Who Will Do the Research?

The research mission of academic departments is the lifeblood of the profession. Research is what keeps our specialty new, exciting, and relevant. Again, one might ask why the top-tier programs cannot carry out the necessary and vital research for the entire profession. After all, the best and brightest minds are attracted to the top-tier programs, where the most productive research will occur. This argument fails to recognize the significant contribution of the second-tier programs; in fact, there are innumerable high-quality faculty members at many institutions who have made substantial contributions to the science and developments of our field. Moreover, most clinical radiology research inherently requires access to large volumes of patients. The subset of the top-tier programs have access to only so much clinical material. To do justice to the full range of clinical radiology research requires the investigation of a much larger population base than the subset that the top-tier programs can provide, as well as demonstration of the reproducibility of clinical effectiveness at multiple sites. The ACR Imaging Network\(^6\) enrolls many of these programs in large multicenter trials of new technology and procedures. Local and state academic radiology programs bring a large population of patients to the overall research agenda. Finally, as research by radiologists has been and will continue to decrease because of marginal staffing, this does not mean that there will be a decrease in diagnostic imaging research. Imaging research will continue, maybe even increase, but radiologists will not conduct it. Nonradiology clinical specialties are moving into research areas that historically have been within the domain of professional radiologists. Is it any mystery that radiology faces fierce competition from cardiology in the application of cross-sectional cardiac imaging when a large portion of the peer-reviewed papers come out of cardiology departments? Cardiology is hardly the only specialty looking to expand its research into diagnostic imaging. When vital research comes out of other specialty departments, how can the profession of radiology hold onto its intellectual property rights? The technology assessment committees of major payers such as the Centers for Medicare and Medicaid Services, Blue Cross Blue Shield of America, and others identify the specialty that produces the research as the experts in a new procedure or modality under consideration.

Where Will Our Leaders Come From?

Academic departments grow and support the majority of the leadership in virtually every one of our scientific, educational, political, and regulatory organizations. With the demise of academic programs, the availability of interested and well-trained leaders from academia will diminish. Who will step up to lead the major professional organizations, such as the ACR, the American Roentgen Ray Society, the Radiological Society of North America, and numerous subspecialty societies? One barometer suggests that there is already a shortage of leaders in radiology; many chair positions of academic radiology programs around the country are vacant and have been so for some time. Indeed, informal discussions regarding chair positions often focus on the limited available resources with which to build a healthy academic environment, difficulties recruiting and retaining faculty members, and the inability to offer competitive salaries. The situation is so pervasive that the question “Why would anyone want to be a chairperson?” is a common utterance among radiology faculty members.

POTENTIAL SOLUTIONS

One option is to ignore the issue and let the marketplace determine the outcome, blindly expecting academic training programs to come up with their own fiscal and manpower solutions. We could encourage programs to apply for more grants and seek alternative sources of funding from industry. Unfortunately, most education and research funds are relatively limited and fixed, making competition for these funds a zero-sum proposition. Although some programs will succeed, others will necessarily fail.

Another option would be to lobby Congress for more government assistance. Perhaps we should direct the ACR’s government relations staff to mount a campaign to convince Congress to divert more tax revenues into radiology education and research. In this economic climate, with health care costs escalating and the costs of
diagnostic imaging escalating at twice the rate of the rest of medicine, the odds of winning this political battle would be nearly zero. Even if successful, these funds would not be specialty specific.

Yet another option would be to convince the deans of medical schools to divert more of discretionary institutional funds to radiology departments. Unfortunately, radiology departments are often viewed as “fat cats” within medical schools on the basis of their revenue streams and salaries relative to other departments. Unless a medical school owns and operates its own hospital and thus has access to the technical component of imaging, it is unlikely that a radiology department will be successful in a bid to obtain substantial support from the dean. In those schools that own hospitals, the technical component is often seen as the ancillary revenue stream needed to support the primary care physicians; thus, competition for those funds is typically stiff.

At institutions at which teaching hospitals are independent of the medical schools, some support may be generated by negotiating for a portion of the technical revenue stream to compensate for physicians’ administrative duties; however, this is unlikely to provide substantial additional revenue. Last, departments can open outpatient imaging centers targeted at a better payer mix. This option is the most contentious within the house of radiology, because it pits academic against private practice.

Few viable solutions exist to shore up the academic radiology enterprise. It is unlikely that we will find an external solution to our crisis. If radiology is going to survive and prosper, the solution must come from within the house of radiology. We do have the means to help our specialty; however, to do so will require breaking down the town-and-gown divide and rising to the occasion. It is time for the private practice community to step forward and partner with academic radiology to help shore up academic programs and invest in our future. To test the waters in this regard, a survey was made of 10 medium-sized and large-sized private practice groups in the state of Texas. The plight of training programs in Texas was presented to the leadership of the groups, and the importance of academic programs was acknowledged. With no exception, the leadership of the 10 groups was overwhelmingly supportive. However, when asked how the private practice groups could get involved; the dialogue ran into a blockade.

Promoting the true economic integration of academia and private practice will certainly meet with resistance because of different cultures and difficulties working out the mechanics of such a formal alliance. Support from the private practice community could come in many forms, both directed to specific institutions and more generally for radiology research and education. Examples include direct contributions of money, subsidizing fellowships, pro bono clinical work, endowing chairs, or providing research support. From the perspective of the private practice community, some forms of support may be more acceptable than others. Clearly, any such support that has mutual benefit is most desirable.

Two Case Studies

The private practice group of one of the authors (WTT) was in the process of recruiting a musculoskeletal radiologist. One applicant, a fourth-year resident at an in-state residency training program, had been accepted to a vascular interventional radiology fellowship for the following year but had decided early in his fourth year that he would actually prefer musculoskeletal radiology. Unfortunately, the musculoskeletal fellowship programs he contacted had filled their funded fellowship slots. His residency institution did offer a musculoskeletal fellowship, but it too was filled. A discussion with the section chief of the program indicated that he had more than sufficient clinical work to keep an additional fellow busy and provide good training experience and that he would be willing to take another fellow if funding existed. The practice group agreed to fund the applicant’s fellowship year, including his medical malpractice and health insurance. The offer was structured as a loan to the applicant that would be forgiven if he joined the practice at the conclusion of his fellowship and stayed for at least 2 years.

This ended up as a “win-win-win” solution:

- the practice secured a new partner whom it wished to hire with the skill set it needed,
- the applicant was able to complete the fellowship he desired and not have to worry about looking for a job after he finished, and
- the academic department had a free fellow for the year.

Several additional unanticipated fringe benefits accrued to the practice. The new partner was able to sit in on the “body magnetic resonance” conferences and read out sessions during his fellowship, which met an expanding need in the practice. In addition, he became an ambassador for the practice among those senior residents and fellows in the training program who were considering interviewing with private practices in the state. The practice has since hired 2 additional fellowship-trained partners from that program.

The private practice group of another of the authors (TBF) has a strong commitment to the academic community. The group has pledged $75,000 per year to the Radiological Society of North America’s Research and Education Foundation for the next 5 years. The group has also established an alliance with its academic neighbor, the Department of Radiology at the University of
Texas Health Science Center at San Antonio, to assist in its pediatric radiology educational program. Some years ago, the department lost its clinical infrastructure for pediatric radiology, leaving its residents without pediatric radiology training. The chairman of the department (GDD) approached the group to work out an alliance whereby the residents could spend time in the group’s pediatric hospital under the tutelage of the group’s pediatric radiologists. The alliance has been a win-win situation for both parties inasmuch as the service is provided free to the department, and in turn, the group has direct exposure to a large pool of possible future partners.

THE ACR ACADEMIC PRIVATE PRACTICE ALLIANCE TASK FORCE

In May 2005, we made a formal presentation of the subject to the General Council of the ACR. The response received from the council was overwhelmingly supportive of an initiative to bring private practice and academic radiology together to the benefit of our specialty. On the basis of this support, James Borgstede, MD, chair of the Board of Chancellors of the ACR, formed a task force to work on the issue and report its results to the council at the 2006 annual meeting of the ACR. Since the meeting, a committee of 12 with equal representation from private and academic radiology has been formed and has started to work on the issue.

CONCLUSION

The current state of our academic enterprise poses a major risk to the specialty of radiology. It is unlikely that we will receive help from external agencies or from another medical specialty. It is imperative that all radiologists actively support the academic infrastructure that feeds the specialty. In particular, it is time for private practice radiologists to partner with academic radiology to ensure the continued growth and vitality of our specialty.

REFERENCES