

Financing Research and Education: Current Challenges and Future Solutions—A Summary of the 2009 Intersociety Conference

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Academic radiology departments perform the majority of the educational and research functions that support and grow our specialty; however, these missions are financed heavily from the clinical revenue generated by academic radiologists. This financial dependence on an uncertain revenue stream places our academic missions at considerable risk and strains the solvency of our academic base. Distributing the costs of education and research across the primary beneficiaries of the education and research product would lessen the burden on our academic departments and create a more stable financial base for the future.

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Established by the ACR in 1979, the Intersociety Conference is intended to promote collegiality within radiology, foster and encourage communication among national radiology societies, and make recommendations on areas of concern. The subject of each meeting is selected by its executive committee. The 57 professional radiology societies that participate in this conference include both diagnostic and interventional radiology, radiation oncology, and radiologic physics.

The Intersociety Conference met from July 31 to August 2, 2009, in Banff, Alberta. As in prior years, the conference consisted of a series of plenary talks and breakout sessions in which each of 3 groups deliberated on specific aspects of financing research and education in radiology and reported their results to the conference attendees. Seventy-six members and executive directors participated in the conference. In addition, there were invited representatives from industry, private practice radiology, and leadership from an academic medical center.

RADIOLOGY'S EDUCATION AND RESEARCH ENTERPRISE

The advances in imaging that have occurred in the past 40 years have altered markedly the practice of medicine

and positioned radiology as one of the most critical and highly reimbursed medical specialties. Without the development of ultrasound, CT, MRI, single photon-emission CT, PET, hybrid imaging devices, and interventional radiology, the practice of radiology would have lost its luster many years ago. These technologies and their myriad clinical applications were developed through intensive research and brought to clinical practice via a well-developed educational enterprise. Although industry has played a major role in the development of these technologies, the substantial and critical role of academic departments in this process cannot be denied. Indeed, without our academic education and research enterprise, many of these technologies and their clinical applications might not have come to fruition. The future of radiology depends on the continuation of strong academic education and research programs; however, significant changes in revenue streams, politics, bureaucracy, workload, and the nature of our research are forcing changes in our academic departments that challenge the viability of these programs.

Residency Education

Our residencies used to function as apprenticeships wherein residents performed progressively independent roles as their skills and knowledge increased. Their salaries were paid either by the teaching hospitals or from departments' clinical revenues, and the number of residency positions was limited by the available revenue. In 1965, Congress recognized a need to support graduate

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medical education (GME) and included in the newly enacted Medicare bill a provision to reimburse teaching hospitals for their GME activities [1]. The Medicare GME program along with the other funding sources for resident education (Medicaid, the US Department of Defense, and the US Department of Veterans Affairs) stimulated a substantial increase in the number of residency training positions around the country. In fact, the program was too successful and grew too costly, prompting Congress to place a cap on the number of Medicare-funded GME positions through a provision in the Balanced Budget Act of 1997. As of 2007, Medicare GME funding totaled \$8.4 billion. These funds support both direct medical education (DME) expenses (resident stipends, supervising faculty salaries and benefits, and the administrative costs of running GME programs) and indirect educational expenses incurred by teaching hospitals due to increased case complexity, longer stays, and the increased case management time inherent in an educational environment. Although one might expect the majority of these funds to go to DME expenses, the opposite is true, with \$5.7 billion of the \$8.4 billion going to indirect educational expenses [1]. Of the DME expenditures, the large majority goes to resident stipends. The small residual that is allocated for faculty salaries and administration is a fraction of the global costs of resident education. At most academic centers, the amount of DME funds for these expenses is only slightly more than the salary of an educational administrator. In reality, faculty time spent training residents is not funded by the Medicare GME allocation. The primary revenue stream supporting these efforts is the clinical revenue stream generated by the faculty members.

Non-ACGME-approved fellowships are not funded by Medicare GME dollars. These programs, which include fellowships in musculoskeletal, breast, chest, abdominal, body, MRI, and cardiac imaging, although occasionally funded by hospitals, are more typically funded from academic departments' clinical revenues. Given that most institutional GME programs will not permit non-ACGME fellows to work independently of faculty members in their areas of training, these fellowships represent a significant financial obligation for academic departments without substantial return on the investment.

Medical Student Education

Radiology's participation in medical student education varies between medical schools in the United States. Although some funding for faculty members' time and effort exists at a number of schools, it is typically insufficient to cover the true costs related to the effort. Avoidance is a common consequence of the inadequate funding. Although it makes financial sense for radiology departments to forgo participation in medical student

educational programs, it is clearly detrimental to medical student training. If radiologists are not involved in medical student education, who will teach students basic image interpretation, appropriate indications for imaging tests, and the efficacy of interventional procedures? There are other, less obvious negative consequences of not participating in medical student education, such as diminished visibility and standing of radiologists in medical schools, lost opportunity to promote our specialty, and diminished student recruitment opportunities.

Continuing Medical Education

Continuing medical education (CME) is essential for ongoing professional development. In most states, CME is a requirement for relicensing, and it is an integral component of the ABR's [2] Maintenance of Certification program. Providing 30,000 practicing radiologists with the CME they need requires a substantial enterprise. Continuing medical education is available from multiple sources, including commercial programs, industry-sponsored programs, national and regional societal programs, in written form, and online. The majority of the CME content in these programs is produced by academic radiologists, and most of the activity is funded by the academic departments of the participating faculty members. Although there is some funding provided by some of the venues, it rarely covers the full cost of the effort and time involved. In the case of the national societies, the full cost of CME-contributing faculty members is borne by the academic departments. These costs include faculty members' time to develop CME educational material, time away from their departments to present the material, and all travel expenses. The recent significant reduction in industry-sponsored CME activity (because of conflict-of-interest policies) has exacerbated the situation [3]. This, combined with decreasing professional reimbursement, increasing clinical workload, and a poor payer mix, is challenging the sustainability of the existing CME construct.

Research

In the recent past, the bulk of the research in our specialty consisted of clinical observational studies and technology development and application. The clinical studies were often case reports or retrospective studies that lacked scientific rigor. Although the studies served to advance the field, they did not garner the respect of our clinical colleagues who were involved in basic science and clinical trials research [4]. Much of the technological development was performed in partnership with industry. Imaging equipment manufacturers would provide free or low-cost equipment and engineering support to facilitate the refinement of technologies and development of clinical applications. However, this relationship has been challenged recently with the development of conflict-of-in-

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