Radiology Fellowship With a Focus on Musculoskeletal Imaging: Current Challenges and Future Directions

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OBJECTIVE. Many musculoskeletal fellowships are nonaccredited, leading to heterogeneity of educational experiences. There is no governing body for these nonaccredited fellowships, leaving program content and rules to the program directors' discretion. In addition, imaging fellowships in general currently face many external pressures that challenge their capacity to provide a high-quality education. Federal cuts to Medicare, diminished reimbursement to radiology departments, and pressure for increased accountability exerted by insurance companies and hospitals all place additional stress on fellowship training programs.

CONCLUSION. Only those fellowships providing the highest-quality educational experience will continue to thrive.

Keywords: ACGME accreditation, health care policy, musculoskeletal imaging fellowship, radiology fellowship education, radiology fellowship funding

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The number of radiology residents electing to pursue fellowship education has risen over the past few years and is projected to continue to do so. An American College of Radiology study in 2005 revealed that 87% of graduating residents planned to pursue a fellowship [1]. By 2009, 95% of graduating residents intended to pursue a fellowship [2]. The recent American Board of Radiology (ABR) decision to change the timing of the certifying board examination in diagnostic radiology to 15 months after the end of the fourth year is projected to cause even more residents to pursue fellowships after residency [3]. In addition, residency and fellowship program directors are informally reporting that graduates are pursuing multiple fellowships after training. The ABR board changes, a weakened economy, and a tightening job market in radiology are all factors projected to make fellowship education, and even multiple fellowships, a more attractive option to residents who may have initially been tempted to go directly from residency into practice. This article discusses fellowship accreditation, American College of Graduate Medical Education (ACGME) standards, fellowship funding, residency restructuring, fellowship application process and match, and the general debate for and against accreditation and nonaccreditation.

Fellowship Accreditation

The ACGME offers accreditation for pediatric, interventional radiology, neuroradiology, abdominal, and musculoskeletal imaging fellowships. Accreditation by the ACGME is not offered for thoracic radiology, cardiothoracic radiology, MRI, information technology, emergency radiology, breast imaging, and women's imaging fellowships. Musculoskeletal fellowships have traditionally been one of the more popular imaging fellowships, as documented most recently in 2009 [2]. However, although formal statistics have not yet been published, the demand for musculoskeletal fellowships may be tapering in the tightened job market because other fellowships may be perceived as slightly more attractive. As of 2012, the majority of musculoskeletal fellowships are not accredited by the ACGME; of the 75 musculoskeletal fellowships, only 13 are ACGME-accredited [4].

The challenges facing the subspecialty of musculoskeletal imaging are not unique compared with the other subspecialties within radiology. No governing body provides oversight for these fellowships. Fellowship program directors are at their discretion to dictate program duties and requirements. Departments may require any type of call duty, some of which may be completely out of the realm of the trainee's fellowship. Examples include requiring a musculoskeletal

fellow to cover general call in the emergency department overnight for several weeks of the year, requiring a musculoskeletal fellow to staff an outpatient imaging center 1 day a week performing general imaging, or requiring a breast imaging fellow to cover body interventional procedures at night and on weekends. Working conditions can be highly variable. Compensation varies widely, ranging from above ACGME-established pay scales to self-funded fellowships in which fellows must moonlight or take a loan to support themselves while they train.

Radiology residency training, in contradistinction, is codified by ACGME regulation. The role of the ACGME is to evaluate and accredit residency programs and ACGME-accredited fellowship programs in the United States. The accreditation process is based on peer review and established guidelines. The ACGME mission is to improve health care by assessing and advancing the quality of resident physician training through exemplary education. Major interests of the ACGME include: curricula and standards for resident education, support of the program directors and faculty who teach residents, patient and resident safety, learning environments, institutions that are appropriate for graduate medical education, and chronically troubled institutions that need help with graduate medical education [5]. There are guidelines regarding curriculum and core educational content, with an eye toward outcomes and assessment. Radiology residents receive regular didactic sessions, and competencies are routinely assessed. Residents are regularly evaluated, and they are given the opportunity to provide feedback regarding their programs and faculty. In residency, the emphasis is placed on education rather than on service.

ACGME Fellowship Standards

In ACGME-accredited musculoskeletal fellowships, the ACGME goals, as stated in the revised guidelines published in 2010, include creating a closely supervised experience in the application and interpretation of all imaging examinations and procedures as they relate to the analysis of disorders of the musculoskeletal system; providing exposure to all facets of musculoskeletal imaging and interventions; providing an organized, comprehensive, supervised, and progressively responsible full-time educational experience in the selection, interpretation, and performance of these examinations and procedures; and providing fellows an opportunity to develop skills necessary for clinical or basic research in the subspecialty of musculoskeletal radiology. There are requirements for a fellowship-level curriculum and didactics to be in place, although the ACGME does not dictate the specifics of the curriculum per se. On the whole, ACGME-accredited programs provide a highly structured fellowship training experience that includes a well-rounded clinical experience, exposure to research, and the opportunity to develop teaching skills.

In non–ACGME-accredited programs, although adherence to ACGME standards is encouraged and some programs do comply with the standards, there is no requirement to do so, and many do not. This issue is not specific to musculoskeletal radiology but is seen across all subspecialty fellowships in radiology.

Hospital offices of graduate medical education and insurance companies in some states are beginning to exert greater control over nonaccredited programs, in some cases requiring program directors to bring their fellowships into conformity with their ACGME counterparts with regard to compensation, benefits, duty hours, guidelines, and documentation. Required interventions may include having fellow interpretations reviewed by a supervising attending physician and having all procedures directly supervised from start to finish. Programs must have ACGME core competency–based curricula, and there must be procedures in effect for feedback, evaluation, and filing of grievances. The only difference in this situation is that these non-ACGME fellowships remain unfunded by Medicare whereas accredited fellowships may be eligible for Medicare funding. However, many non-ACGME programs do not meet ACGME standards for supervision, curriculum, or evaluation.

Fellowship Funding

How did the disparities in fellowship accreditation and working conditions occur? The difference in fellowship accreditation status originates in how the fellowships are funded. Graduate medical education is funded through Medicare by supplemental payments to hospitals that train residents. Hospitals then pay a portion of that money to the programs sponsoring the ACGME-accredited residents and fellows. The number of positions per hospital is capped by Medicare. Medicare payments (most recently calculated at $9.5 billion in 2009) are divided into direct graduate medical education payments (most recently tabulated at $3 billion per year) that pay for resident salaries, benefits, and the teaching time of faculty, and indirect graduate medical education payments (about $6.5 billion per year), which are paid to teaching hospitals in excess of the direct payments to cover the increased costs inherent to training programs [6]. These factors include increased length of stay, additional tests performed, and the care of sicker patients. States also provide Medicaid payments to academic medical centers to support graduate medical education [7].

Fellowship funding was traditionally seen as the responsibility of the department sponsoring the fellowship. Musculoskeletal imaging as a subspecialty fellowship training program received ACGME recognition in 1996. When the Balanced Budget Act of 1997 was passed, reimbursement to hospitals for residents was capped [8]. Many institutions found themselves over their established cap and they considered residency education funding a higher priority than fellowship education. Hospital administrators argued that the sponsorship of fellowship programs was more of an inherent benefit to individual departments than to the hospital itself. The benefit of fellows to the faculty was seen as being inherently greater than the cost to faculty of compensating the fellows because fellows allowed faculty to have a lighter workload and allowed faculty to expand their research. Therefore, the attitude developed that the funding of fellows should be the responsibility of faculty. Because there was at that time little hope of garnering Medicare dollars to pay for fellowship education, the incentive to undergo the rigorous process of ACGME accreditation was reduced. In addition, some fellowship programs were either highly subspecialized or lacking in resources and thus not able to comply with ACGME standards for clinical exposure.

Recently, more than ever, stresses on fellowship education are arising with the proposed Medicare cut in indirect medical education payments to graduate medical programs, the demand for accountability for Medicare support, and the linkage of incentive payments to an outcomes-based evaluation system [8]. In the proposed Federal Budget for 2013, the Obama administration has proposed to reduce Medicare's indirect medical education payments by $9.7 billion over 10 years starting in 2014 and has proposed that the Secretary of Health and Human Services assess graduate medical education programs' performance in teaching residents the skills to promote high quality health care. Half of indirect medical education will be

directed into "incentive payments" that graduate medical education programs could earn by meeting performance standards [9]. With the economic downturn, some states that have traditionally funded graduate medical education are also now reducing their Medicaid payments to academic medical centers to support graduate medical education [7]. These factors create pressure on hospitals to decrease the number of ACGME-accredited fellowship positions, shifting the burden for the funding of even ACGME-accredited fellowships to radiology departments. In addition, radiology departments are experiencing marked losses in revenue secondary to Medicare and private insurance cuts to reimbursement, which subsequently reduce the money and time available for fellowship education.

Residency Restructuring

The restructuring of residencies to accommodate the ABR changes in the board examinations and timing of the certifying examination is expected to have an effect on fellowship training. The ABR is calling on programs to allow residents to "select and participate in rotations…that will reflect their desired areas of concentration as they enter practice" [3]. Concentrated subspecialty educational experiences are being structured within residencies across the country, ranging from 12 weeks to 1 year. These electives are popularly referred to as "minifellowships" to the consternation of fellowship directors everywhere. Residents have expressed that they expect to have an experience equal to an abbreviated fellowship as they rotate through these electives, whereas fellowship directors may see these electives as prolonged resident rotations. Either way, the integration of residents within the traditionally fellow-dominated domain will by necessity require fellowship programs to adapt to and accommodate residents' increased educational expectations while seeking to maintain the integrity of their fellows' educational experience. The need to accommodate more senior residents expecting to be taught at the fellowship level may yield the added benefit of providing more educational structure to fellows as well.

Meanwhile, in non–ACGME-accredited fellowship programs, there is no requirement for didactics at the fellowship level and there is no requirement for a fellowship-level curriculum. The learning experience, although in most cases of high quality, can be variable and highly unstructured. Learning material can be largely case-based and driven by local attending physician expertise, referral patterns, and case volume. The fellowships may in some cases be based more on the apprenticeship model rather than on the educational residency model. By necessity, because radiology departments are pressured to increase clinical volume and decrease report turnaround time, more emphasis may be placed on service aspects of the fellowship using fellows as faculty extenders. Hospital-based non-ACGME-accredited programs may start to feel increased pressure to conform to ACGME standards as teaching hospitals vying for Medicare dollars come under increased scrutiny by state regulatory boards and insurance companies.

Fellowship Application Process and Match

One issue that is pervasive through all radiology fellowships outside the National Resident Matching Program, regardless of accreditation status, is lack of uniformity with regard to the fellowship application process. Interview dates have gradually crept forward from the end of a resident applicant's third year into the beginning of the third year, as early as the end of July or early August. In some cases, applicants have not had sufficient time to rotate through their chosen specialty to gain adequate exposure to make an informed decision. Many programs have a rolling admissions process, and we have first-hand knowledge of fellowship programs interviewing more candidates than there are positions available. Some applicants have interviewed for positions that have already been filled by internal candidates. Some programs have given applicants very little time to consider or accept fellowship offers. On the other hand, programs have had applicants renege on agreements only to find that applicants have "upgraded" their status by attending fellowships perceived to be stronger or in more desirable geographic locations.

In 2003 there was an attempt to remedy this problem by developing a match process for all radiology fellowships. However, the match failed because of widespread noncompliance. It was subsequently found that 28% of applicants accepted positions outside the match [10]. Some of the reasons cited included an excess of fellowship positions offered over the number of applicants, nonuniform participation among programs, and lack of uniformity in the application process. There was also a lack of awareness among programs regarding the match timeline and structure. Applicants cited the increased monetary expense and time commitment involved in a match process.

There has been much discussion and lack of agreement about instituting a uniform match process for fellowships. Some programs are concerned that the process would asymmetrically favor applicants over programs. In the past year (2011–2012), the Society of Chairs in Academic Radiology Departments (SCARD) discussed creating uniform guidelines for the fellowship application process for the fellowship year 2014–2015. At the Association of University Radiologists meeting in 2012, although a consensus could not be reached, a recommendation was made to have all fellowship programs push interview dates to February 1 of the third year of residency, with offers extended on a rolling basis after that date. Offers could be made to internal candidates before February 1, but the exact number of fellowship spots available should be openly publicized to all candidates. Although many department chairs and musculoskeletal programs were in agreement and planned to abide by the SCARD initiative in good faith, at the 11th hour, in early August 2012, the initiative collapsed as programs retreated en masse from the pledge because unanimous chair support could not be achieved. This caught many programs and applicants who had intended to adhere to the guidelines unprepared because many had not planned to apply or review applications for traditionally early subspecialties, such as musculoskeletal imaging, until November or December 2012. As of this writing, there is wholesale skepticism and lack of faith by all parties in the possibility for all to design a uniform application process that is fair to all applicants and programs. Currently, a SCARD committee composed of department chairs and program directors is revisiting the fellowship selection process and analyzing the barriers to uniform policy implementation, with the hope that a reasonable solution may be reached. It seems doubtful that any future initiative will succeed without the unanimous buy-in of all departments.

Accreditation Versus Nonaccreditation

Arguments can be made to support both sides of the accreditation debate. Those who support accreditation state that the process promotes rigorous oversight of education standards. Attending physicians must directly supervise the interpretation of all examinations and the performance of all procedures.

The contracts, working conditions, and duty hours must be strictly regulated. Fellows are considered by the ACGME as residents and are entitled to the same protections; they can address issues or complaints to the ACGME. Accredited programs must have stated goals and learning objectives, with a fellowship-level curriculum in place. Fellowship-level didactics and conferences must be scheduled. There must be documented quarterly feedback and evaluation of fellows, and fellows must be given the opportunity to evaluate their programs. All work must pertain to the fellowship, including call duty. The 80-hour work week must be enforced, and there can be no forced moonlighting or work outside the fellowship specialty. Because fellows are classified as residents, Medicare cannot be billed for fellows' independent work; therefore, fellows cannot work independently and be used to staff the department.

Those who argue against fellowship accreditation state that the accreditation process is too restrictive and curtails educational opportunities for fellows and staffing needs for the department. Some fellows value the opportunity to work independently as junior staff and gain confidence while still having access to attending physicians' supervision and expertise. Departments can tailor their call schedules to suit the needs of the department by asking fellows to perform call in areas where they are needed the most, perhaps in the emergency department covering overnight shifts or performing cross-sectional imaging or general call on weekends. Departments are free to dictate fellows' salaries. Unaccredited programs can offer salaries that are higher than ACGME-accredited programs. Conversely, programs can require fellows to self-fund their own training. Unaccredited fellows are allowed to moonlight. Nonaccredited status enables far more fellowships to provide training opportunities without having to provide all the necessary requirements of ACGME programs.

Conclusion

The time is approaching for fellowship program directors of nonaccredited programs to self-assess and to consider providing program structure that is equivalent to their ACGME-accredited counterparts. Fellowship educational programs and their hospitals face several external pressures, including reduced graduate medical education funding, increased financial pressure on hospitals, and decreased reimbursement to radiology departments, creating decreased time and money for education. There is a growing trend toward increasing regulation, with increased publicly and financially driven need to show accountable and competency-based education with proven outcomes assessment. Hospital-based programs, including non–ACGME-accredited programs, are coming under greater scrutiny to conform to higher standards of education. In addition, with increased public and governmental focus on professional competency, we may see the time when practicing radiologists of all subspecialties may need to provide certificates of added qualification. It is important at this time for fellowship programs to assess the educational components of their fellowships and focus more on structured training than on apprenticeship and departmental service. If fellowship programs do not choose to provide internal standards and create more uniformity and quality of the educational experience across each subspecialty, they may find regulation imposed on them. Only those fellowships providing the highest-quality educational experience will continue to thrive in this environment.

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