

Lessons From Flexner: The Struggle of Small Radiology Residency Programs in the United States

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In the early 20th century, Abraham Flexner visited and evaluated all medical schools in the United States and Canada, an ambitious campaign aimed at raising medical school standards and eliminating the then popular model of for-profit proprietary medical education in the United States [1]. Although the level of evidence-based inquiry in American medical schools greatly improved as a result of Flexner's efforts, his findings also produced collateral changes in the culture of medicine that many scholars view as regrettable. Some claim that the very ethos of medicine was lost in Flexner's spirited quest for scientific inquiry, leaving us to this day underdeveloped in many vital areas of professionalism and patient engagement [1]. Indeed, even Flexner himself later lamented that because of his reform efforts, the practice of medicine was being so consumed by the scientific approach that it neglected the more human aspects of patient care, such as trust, compassion, and empathy [2-5].

Flexner's Impact on Small Medical Schools

This is the author's manuscript of the article published in final edited form as:

Heitkamp, D. E., Ruchman, R. B., & Rozenshtein, A. (2017). Lessons From Flexner: The Struggle of Small Radiology Residency Programs in the United States. *Journal of the American College of Radiology*, 14(5), 675–677. <https://doi.org/10.1016/j.jacr.2016.12.008>

Which schools closed as a result of the Flexner report? Within 10 years of the report's publication, 48 of the 133 schools Flexner visited were shuttered, all having been recommended for closure because they lacked the finances for improvements in areas such as laboratories and facilities, quality of professors, and prerequisite medical training [6]. Not coincidentally, many of these schools were small, were unaffiliated with universities, and served the urban or rural poor [7-9]. Of the seven medical schools that trained black physicians at the time of Flexner, five of them, crucial to providing health care services to large black urban populations, closed within 13 years of the report's publication [10]. Are the vulnerabilities that shuttered these medical schools more than 100 years ago still at work today in modern graduate medical education (GME)? If so, which radiology residency programs would be most at risk for failure today, and what are the modern pressures they face?

The ACGME and Abraham Flexner

Today it could be argued that, much like the Flexner report of more than 100 years ago, the ACGME's treatment of modern postgraduate medical education once again threatens small and nonuniversity programs. Only today, the motives behind ACGME policy and accreditation standards are not so transparent [11]. No longer is there widespread urgency to sweep clean the medical education system of subpar schools and prevent incompetent physicians from endangering public health.

Surely in this age of evidence-based medicine, with practice-based learning and improvement serving as one of the ACGME's six core competencies of medical education, the ACGME itself would be careful to use scientific evidence to inform its policy. But indeed, this is not the case. Sweeping new changes have occurred to GME, such as the implementation of duty-hour restrictions and the introduction of the milestones initiative, without pilot studies to provide evidence that these new policies actually improve educational outcomes, treat programs fairly, or avoid placing such undue financial burden on programs that they struggle to provide services [12-14]. If ACGME policy development does not abide by simple principles such as these, how does the organization determine policy and scope? At what point

does it slow the pace of generating new policy and stop to assess the price programs currently pay for compliance, particularly programs with limited resources?

Today, just as in Flexner's time, there are many resource-limited programs that serve vitally important underserved communities, often in densely populated urban centers or rural areas with limited access to health care [9]. The importance of maintaining training institutions in these settings cannot be overstated, as they often function as safety-net hospitals for the uninsured. The urban and rural poor, considered by some to be unintended victims of medical school closure after the Flexner report [10], are once again vulnerable to losing access to key components of their health care.

The ACGME's unfunded and largely unproven mandates threaten many of the small and nonuniversity radiology programs that help provide imaging services to the underserved [15]. The potential loss of GME programs at critical-access teaching hospitals may eventually lead to measurable decreases in their ability to provide advanced imaging services to their patients [16]. With time, loss of radiology training programs that serve the urban and rural poor may even erode resident interest in locating to these underserved areas for practice. Studies from many specialties have shown that up to half of trainees, including those in radiology, stay to practice near the locations of their training [17-19].

The Struggle of Small Programs

Some educators believe that to maintain accreditation, small programs must work harder than large programs to demonstrate the quality of their training. Faculty members in small programs must each carry a greater share of the teaching load, including both formal conferences and informal teaching at the workstation. Smaller programs tend to have fewer faculty members trained in narrow subspecialty areas that are important to today's resident curriculum, such as cardiac imaging, fetal imaging, and pediatric radiology. Perhaps most important, small programs also tend to have fewer faculty members available to handle the vital role of mentoring medical students and residents within their departments.

Similarly, basic service needs can be more onerous on trainees and faculty members in programs with smaller residencies. Both overnight and weekend call coverage tends to get spread out over fewer residents and faculty members at small programs. A 2003 survey of radiology programs in the northeastern United States revealed that in very small programs (10 or fewer residents), residents averaged 82 more evening call shifts and 103 more night call shifts than trainees in large programs (31 or more residents) [20]. This increased service requirement of residents in small programs, known to correlate negatively with overall resident satisfaction, could potentially contribute to resident fatigue and harm resident recruitment.

There are, in fact, many reasons why small programs have a more difficult time recruiting the most qualified applicants. They typically cannot offer the number or variety of fourth-year electives large programs can provide. They often lag behind their larger counterparts when it comes to updated medical facilities, state-of-the-art equipment, and volume of radiology cases and procedures. Indeed, when it comes to resident education, smaller programs often struggle to provide both the breadth and depth of overall clinical experience that larger programs can offer.

The incredible compliance pressure generated by the ACGME's incessant standardization of policy for all programs, regardless of size and resources, creates an economic bias against many smaller and non-university-affiliated institutions. Uniform standardization does not take into account each program's unique needs and goals, and comparing programs on the basis of standardized metrics alone may actually produce misleading results. One hundred years after Flexner, this may be the most important lesson history teaches us.

Recognizing Value-Added Outcomes in Every Program

The time has come to recognize the plight of resource-limited programs in today's overmandated GME climate. We must acknowledge that the true value of a training program may not be reflected in simple metrics such as scholarly activity, self-assessments, and case logs but rather in strengths that are

more difficult to measure, such as patient experiences, leadership development, and facilitating transitions to independent practice. We must also recognize that holding every GME program accountable to the same list of unproven metrics ensures neither physician competency nor public safety. Standardization of policy for all programs, in and of itself, does not guarantee improved educational outcomes. To ignore the blatant economic bias that the ACGME levies against today's resource-limited training programs is to tacitly acknowledge that we have learned nothing from the enormous professional toll that medicine paid as a result of the Flexner report.

Simply put, if we truly appreciate the outstanding patient care and trainee education provided by small and nonuniversity programs, then we should strive to create diverse accreditation standards that better align with the unique strengths and goals of these programs. We should embrace inherent differences among training programs and acknowledge that uniformity should not be the holy grail of program evaluation. With the help of radiology educators and GME programs, the ACGME should seek to define and implement a broader array of outcomes-based value measures that can better promote best practices and enable programs to learn from one another.

The "checkbox" paradigm of modern GME accreditation, a system by which residency programs struggle to comply with ever-increasing mandates and measurements, ironically seems to be so onerous for some programs that it interferes with resident education itself. Its intended purpose may, in fact, lie in its ability to produce a treasure trove of data for organizations such as the ACGME [14]. This mountain of information, fantastic raw material to manufacture the appearance of public accountability, does little to guarantee the competency of newly minted physicians.

By subjecting all programs to the same extensive metrics and requirements, the ACGME creates the impression that educators and learners cannot be trusted to do things right. Mounting pressure from an ever growing list of accreditation mandates serves only to place small and nonuniversity programs more squarely in the crosshairs, just as the Flexner report did more than 100 years ago. Regrettably, for many

training institutions large and small alike, today's endless pursuit of compliance only bleeds away the time and energy that could enable true educational innovation.

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