ANALYSIS IN BRIEF

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

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Growth of Ph.D. Faculty in Clinical Departments of U.S. Medical Schools, 1981-1999

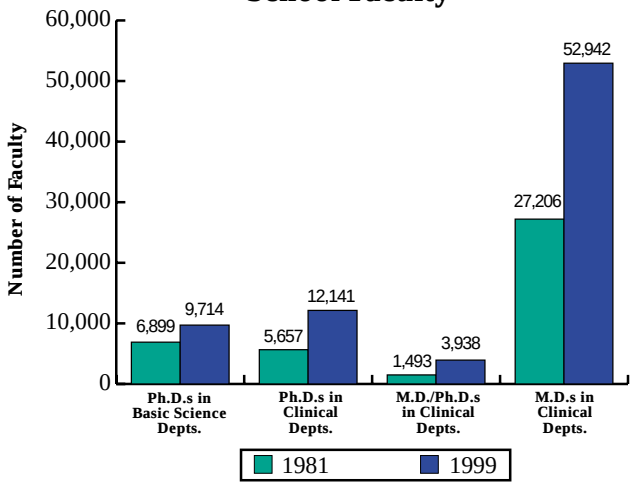
While issues concerning a shortage of physician scientists (faculty with an M.D. degree performing research) have been frequently addressed, little attention has been paid to the growth and evolving role in research of Ph.D. faculty in clinical departments, especially at the national level.

To examine those issues, AAMC staff addressed three research questions: 1) to what extent has the number of Ph.D. faculty whose primary appointment is in a clinical department increased during the 1980s and 1990s; 2) what is the relationship between this growth and department type; and 3) what is the relationship between this growth and school research intensity. The study used data from the AAMC's Faculty Roster System, which contains updated information for approximately 90 percent of all full-time faculty members at U.S. medical schools.

Between 1981 and 1999, the number of Ph.D. faculty who had primary appointments in clinical departments grew 115 percent -- from 5,657 to 12,141 -- higher than the growth rates of 41 percent and 95 percent for Ph.D.s in basic science departments and M.D.s in clinical departments, respectively, but lower than the 164 percent growth rate for M.D./Ph.D.s in clinical departments. (See Figure 1. Note the growth rate of the M.D./Ph.D.s is significant but was not the focus of this study.) Ph.D. faculty members in clinical departments now outnumber their counterparts in basic science departments.

- **The number of Ph.D. faculty in U.S. medical schools' clinical departments more than doubled between 1981 and 1999.**
- **More Ph.D. faculty members are now in medical schools' clinical departments than in basic science departments.**
- **Both departments of internal medicine and top 20 research-intensive schools have increased their share of the Ph.D.s in clinical departments.**

Figure 1: Growth of U.S. Medical School Faculty



The study grouped clinical departments into five categories: internal medicine, other medical, hospital, surgical, and psychiatry.[1] Findings indicate that the number of Ph.D. faculty in every department category increased substantially, but the relative growth was greatest in departments of internal medicine. In 1981, Ph.D. faculty in departments of internal medicine accounted for 13 percent of Ph.D. faculty in all clinical departments, while in 1999 they accounted for 20 percent. (See Figure 2.) As a result, the shares of Ph.D. faculty in all other clinical department categories decreased, especially in departments of psychiatry.

During the time period studied, the number of Ph.D. faculty across all school categories increased significantly, but the relative growth was greatest among top 20 research-intensive schools, which receive about 50 percent of NIH research grants to all U.S. medical schools. In 1981, 31 percent of total Ph.D. faculty in clinical departments were at the top 20 schools -- a figure that increased five percentage points to 36 percent by 1999. (See Figure 3.) This concentration was particularly significant for those who were in departments of internal medicine. In 1981, Ph.D. faculty in departments of internal medicine accounted for 15 percent of Ph.D. faculty in all clinical departments at the top 20 schools. By 1999, this figure increased eight percentage points to 23 percent.

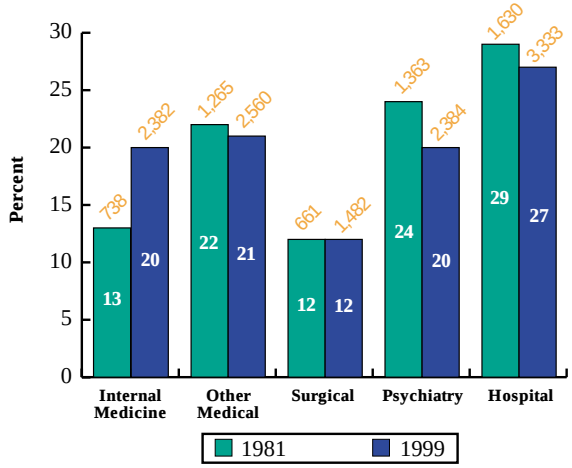
Discussion

Following rapid growth in the 1970s, the number of Ph.D. faculty in clinical departments of U.S. medical schools continued to rise in the 1980s and 1990s. A number of factors may have contributed to this growth. They include the interest of some clinical departments at research-intensive schools in developing strong basic science research programs and the need for sophisticated multidisciplinary teams of basic science and clinical investigators to pursue state-of-the-art patient-oriented research. Increasing demands on physician faculty to generate clinical income may have also created new opportunities for Ph.D. faculty to focus their research efforts in clinical departments.[2] In addition, substantial growth in the production of Ph.D.s in biomedical sciences over the past few decades has enabled medical schools to meet the demand for basic scientists in clinical departments.

The roles of Ph.D. faculty in basic science and clinical departments may be different. Compared with their Ph.D. colleagues in basic science departments, Ph.D. faculty members in clinical departments may be less likely to be principal investigators in research but rather serve as co-investigators with M.D. faculty. According to some authors, as a team, the Ph.D. researcher and M.D. researcher are interdependent.[3]

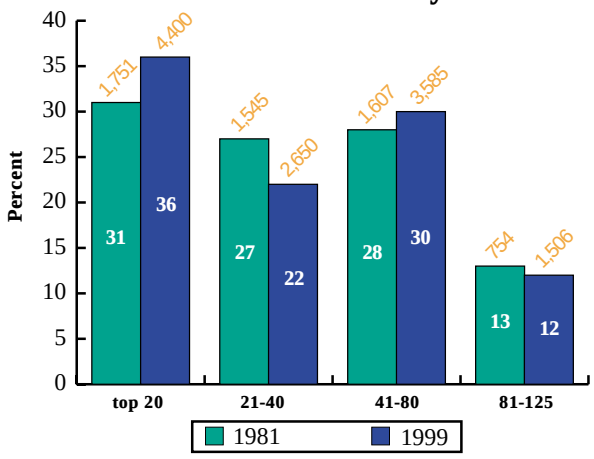
The findings show that Ph.D. faculty became increasingly concentrated in the departments of internal medicine, as well as in the clinical departments, of the top 20 schools between 1981 and 1999. The higher demand for basic scientists in these institutions may suggest that the research skills of Ph.D. faculty are more suitable to large clinical departments at research-intensive schools. It may also suggest that large clinical departments at research-intensive schools are more likely to endorse, and better able to support, the M.D.-Ph.D. team approach in clinical research.

Figure 2: Distribution of Ph.D. Faculty in Clinical Departments by Department Type



Year totals may not add up to 100 due to rounding.
Numbers in orange represent total Ph.D. faculty members by department type.

Figure 3: Distribution of Ph.D. Faculty in Clinical Departments by School Research Intensity



Year totals may not add up to 100 due to rounding.
Numbers in orange represent total clinical Ph.D. faculty members by school research intensity.

Future Directions

AAMC researchers plan to conduct further analyses of Ph.D. faculty in clinical departments in the following areas: their doctoral training, their contributions to NIH research grants, and their academic status as reflected by progress in promotions and tenure. The resulting findings may be useful for medical schools in assessing their need for research faculty in clinical departments and their approaches to clinical research in a changing environment of research opportunities and health care delivery and reimbursement.

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[1] Clinical departments were grouped as follows:
1) Internal medicine
2) Other medical: dermatology, family practice, neurology, pediatrics, and other clinical
3) Hospital: anesthesiology, pathology, physical medicine, and radiology*
4) Surgical: obstetrics/gynecology, ophthalmology, orthopedics, otolaryngology, and surgery
5) Psychiatry

* To be consistent, all pathology departments were classified as clinical departments.

[2] Herman S. S. and Singer A. M., 1986. Basic Scientists in Clinical Departments of Medical Schools, Clinical Research, 34(2): 149-58.

[3] Ahrens Jr., E. H., 1992. The Crisis in Clinical Research: Overcoming Institutional Obstacles. Oxford University Press.