NIH Starts Review of Training Programs

New figures indicate that traditional training grants may not be the best route to producing physician-researchers

For the past several years, leaders of academic medicine have been worried about the apparent decline in the numbers of young physicians who are opting for careers in biomedical research. The physician-investigator has been mourned as a vanishing species by deans and department chairmen who often link the problem, as they see it, to diminishing funds for training grants from the National Institutes of Health (NIH).

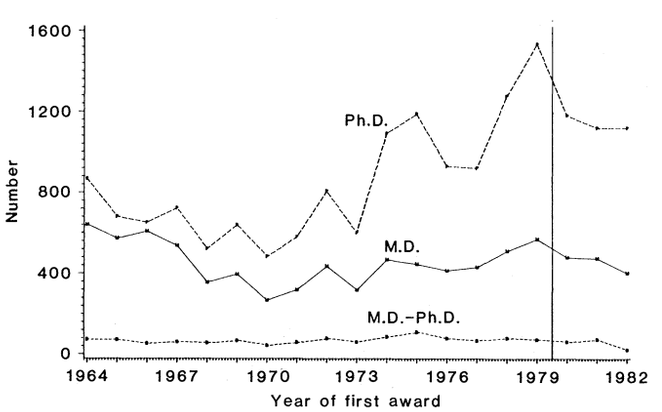
However, at a recent meeting of the NIH director's advisory committee, this bit of conventional wisdom came in for sharp reappraisal in the face of new data that indicate (i) that training grants may not be the key to luring doctors into research and (ii) that the perceived vanishing species problem may be exaggerated. Discussion at the day-long meeting on 14 December, which had the aura of the tutorial about it, also revealed that no one is quite sure what the problem really is and that lots of pertinent data about the nation's pool of biomedical researchers simply are not available.

The NIH fosters the education of young researchers—both M.D.'s and Ph.D.'s—through an array of training programs which, at the risk of oversimplification, can be divided into training grants and fellowships. The popular training grant program operates through the allocation of funds directly to medical schools where members of a department jointly use the money for trainees who may be getting their first significant exposure to laboratory research. Several scientists may share responsibility for training a number of young physicians. By contrast, fellowships are awarded to individual applicants who must submit a research proposal to be carried out under the oversight of a single mentor. Training grants have long been regarded as the first crucial step along the educational ladder for the physician-investigator.

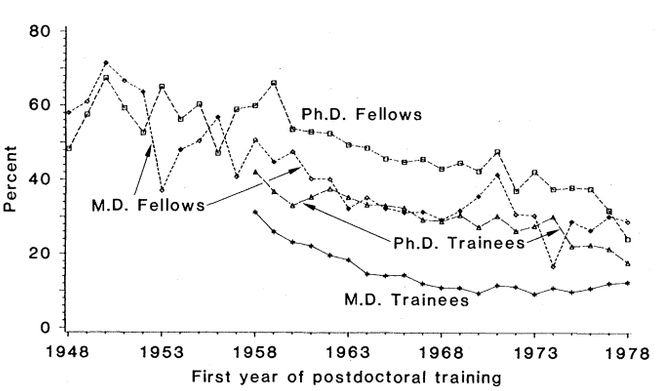
In fact, in its just-released report on personnel needs and training for research,* which formed part of the basis of the NIH advisory meeting, an Institute of Medicine/National Academy of Sciences committee says, "The Committee has expressed concern about the lack of interest in research careers on the part of young physicians." It goes on to recommend that the number of physicians receiving research training be increased from the current level of about 1900 to 2200 a year and says, "The training grant is the most appropriate mechanism for post-doctoral training of physicians, most of whom have no prior research experience. At least 85 percent of the clinical science training positions should be on training grants, the remainder on fellowships."

NIH director James B. Wyngaarden, who previously served on that committee, believes the problem is that there may not be enough M.D. scientists in the pipeline. "We may pay a penalty down the road if we don't continue to produce physician-scientists," he says. However, recently compiled data have reinforced his sense that as a mechanism, "training grants have become progressively less effective as a way of fostering M.D. researchers in an age of increasing scientific complexity."

The new NIH figures show how successful various groups of applicants are at getting their first individual research grant from the institutes. By comparison to Ph.D.'s, first-time M.D. applicants fare poorly indeed, especially those whose previous experience in research has been on a training grant. Admittedly, this is only one of several possible end points by which to measure the career development of physicians as researchers but NIH officials think it a useful gauge. "The bottom line," says Wyngaarden, "is that the figures show that when it comes to producing physician-investigators, training grants don't work that well now. Maybe they never have." As a result, he believes that NIH should give serious consideration to new policies that would emphasize other mechanisms—particularly fellowships and a new career development program initiated this year. In addition, he reports that NIH may tighten up its guidelines for the



First-time grant recipients by degree, fiscal year 1964 to 1982.



Percentage of NIH-supported postdoctorals becoming NIH grant recipients.

*"Personnel Needs and Training for Biomedical and Behavioral Research," 1983 Report. Available free from the committee at the Institute of Medicine/National Academy of Sciences, 2101 Constitution Avenue, NW, Washington, D.C. 20418. (This is one of a series of these reports which were first mandated by Congress in 1974.)

present training grant program to place renewed emphasis on real laboratory research.

Evidence presented at the advisory meeting—some of it fairly solid, some anecdotal—suggests that there is a correlation between the amount of time a young physician spends in a research setting and future career development. The new "Physician Scientist Award," which provides 5 years of support, is intended to get around what Wyngaarden calls the "toe-in-the-water" approach of a 1- or 2-year training program, particularly those which include a lot of clinical rather than laboratory work. Candidates for the physician-scientist award must have an M.D. and a sponsor who is a recognized basic researcher who will provide close supervision for at least the first 3 years. The award carries a stipend of approximately $30,000 a year, plus another $10,000 to $20,000 annually in research support. So far, some 80 M.D.'s have applied and NIH expects to give out as many as 40 awards in the first round. Eventually Wyngaarden hopes NIH will be able to support as many as 225 would-be physician-scientists at any given time as a way of ensuring a future supply of doctors in research.

The issue of physician-researchers takes on added complexity when considered in the context of biomedical research personnel as a whole. The data indicate that the absolute numbers of physicians going into research has remained relatively constant during the past decade. It is the ratio of M.D. researchers to Ph.D.'s that has shifted in favor of the latter as Ph.D.'s have proved themselves more and more successful at getting grants. One explanation lies in the changing nature of science itself. As biomedical research has evolved during the past decade, it is apparent that the technical skills and educational background that make one able to manipulate monoclonal antibodies or conceive experiments in genetic engineering are more in demand. As long as the pool of M.D. researchers, with the talent for recognizing new syndromes and advancing clinical medicine, remains at some undetermined but satisfactory level, the influx of Ph.D.'s in biomedical research may presage no loss to medicine at all.

The problem, which is not new, lies in figuring out how many M.D. and how many Ph.D. researchers really are needed, how to train them appropriately, and how to devise institutional ways to enable them to work creatively together.

—BARBARA J. CULLITON

Administration Announces Intent to Leave UNESCO

The Reagan Administration decision to withdraw at the end of 1984 from the United Nations Educational, Scientific and Cultural Organization (UNESCO) was made with many of the U.S. scientists and scientific organizations that were consulted favoring continued membership. The balance of opinion among them appears to be that, while UNESCO deserves serious criticism, the advantages of U.S. participation outweigh the disadvantages if science programs alone are considered.

Over the last six months, the State Department carried out a review of U.S. participation in UNESCO with the National Science Foundation (NSF) responsible for assessing the pros and cons of U.S. involvement in UNESCO's scientific activities. So far State has declined to make public either the overall evaluation or NSF review, but several sources outside government familiar with the latter say it reflected a consensus for staying in.

The Administration statement attributed the U.S. intention to withdraw to a conclusion that UNESCO

"—has extraneously politicized every subject it deals with;

—has exhibited hostility toward the basic institutions of a free society, especially a free market and a free press; and

—has demonstrated unrestrained budgetary expansion."

In discussing the withdrawal, U.S. officials made no detailed references to UNESCO's scientific activities. The impression is that the positive evaluation by the federal science agencies and nongovernment groups was simply overshadowed by the charges of UNESCO politicization and mismanagement. The U.S. contribution amounts to 25 percent of the UNESCO budget now running at about $200 million a year.

U.S. critics charge that UNESCO increasingly has taken an anti-Western and particularly anti-U.S. stance. They say that UNESCO policies are now closely identified with the interests of the less-developed countries (LDC's) and this has been translated into a general hostility to Western democratic institutions and attitudes.

The immediate concern in the scientific community is about the future of U.S. participation in major international scientific programs should the withdrawal be carried out. These include the Man in the Biosphere program, the International Geological Correlation Program, and the International Hydrological Program.

Among those who see serious consequences in a U.S. withdrawal is Harvard biophysicist Arthur K. Solomon who has a long involvement in UNESCO affairs and is an advocate, though not an uncritical one, of continued U.S. membership. Solomon argues that since the cooperation of governments is required, large projects depend on UNESCO. If UNESCO should suspend cooperation with the United States because of U.S. withdrawal then this country would, for example, be blocked from pursuing important research on the so-called Greenhouse Effect caused by the buildup of carbon dioxide in the atmosphere. Solomon notes also that the International Council of Scientific Unions (ICSU), the principal world organization of scientific organizations, receives a third of its budget from UNESCO and would be hit hard by funding reductions that U.S. withdrawal from UNESCO would presumably cause.

National Academy of Sciences (NAS) home secretary Walter A. Rosenblith says that the academy estimated the consequences of U.S. withdrawal and "is very clearly on the record" as favoring continued U.S. membership. He said that in such fields as the earth sciences, climate, environment, and ecology, no alternative arrangements would be satisfactory and ICSU, for example, could not serve as an adequate substitute for UNESCO.

In the formal letter informing UNESCO director general Amadou-Mahtar M'Bow of U.S. intentions to withdraw, Secretary of State Shultz wrote that "It is likely that the resources we presently devote to UNESCO will be used to support such cooperation. Any alternative programs which the U.S. develops could, in principle, serve as a basis for future cooperation between the US and UNESCO." State Department officials express optimism that the United States will be able to make alternative arrangements on most important collaborative scientific pro-