

Alleviating the Shortage of Physicians

An accelerated M.D. program for Ph.D.'s in the biological, physical, and engineering sciences is under way.

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The shortage of medical manpower in the United States has been characterized as "the most serious in any major occupational group" (1).

It has been estimated that 50,000 more physicians are needed than are available (2). Among other corrective measures, The Carnegie Commission on Higher Education has recommended a 50 percent increase over the next decade in enrollments in schools of medicine.

At the University of Miami School of Medicine, a program has been designed which will result in a more rapid increase in the output of physicians while implementations of long-range plans are under way. The program is based on the belief that many men and women with a degree of Doctor of Philosophy in a biological science and some with a degree in a physical or engineering science have already fulfilled most of the requirements of the first 2 years of medical school training. A preclinical program of a few months' duration, tailored to individual needs, should bring these exceptionally qualified candidates into our third-year curriculum, enabling them to obtain degrees of Doctor of Medicine within a total period of from 18 to 24 months.

If all 4-year schools of medicine introduced similar programs, several hundred additional physicians could be graduated over the next 2 to 3 years. The cost would be low. And most important, there would be better use of some of our best national talent.

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Background

The history of medical education in the United States is generally divided into pre- and post-Flexnerian eras. Non-uniformity was replaced by standardization, within the natural sciences, with recognition also of the humanities. While not intended, the gains were priced in a pattern of conformity which was close to stereotypy of both medical school and premedical training.

Since the Flexner report (3), and especially over the past 20 years, there have been other reforms, individually less dramatic, but collectively striking. The need for physicians in World War II resulted in an "accelerated program" for medical students. And growing concern on the part of both faculty and students for more flexibility has led most schools of medicine to design multiple options in preparation for professional careers. There is now broader social as well as technological emphasis. Most schools of medicine have accordingly undertaken major changes in their curricula. These need no reiteration other than to recall the concepts of "core material" and "negotiable time," principles embodied in our own curriculum and readily adaptable to the proposed program.

Sputnik I led to national expansion of advanced education in natural sciences of all forms. For medical schools this thrust was reflected by a decline in the "quality" and in the number of medical school applicants. Both quality and quantity later returned to the previous standards as the pool of undergraduates enlarged. Nevertheless, responses to federal encouragements of the late 1950's and early 1960's are now measured in larger numbers of young grad-

uates with exceptional educations in the sciences and fewer opportunities for their direct use. Recent trends in higher education, cutbacks in federal space programs, the establishment of new priorities for social sciences, and reductions in technologic training programs make it difficult for qualified young scientists to find or retain positions in their chosen fields. Careers in universities are also less secure than they were. Furthermore, the increasing social consciousness of young scientists has attracted them to careers which are directly concerned with the needs of their fellowman. Accordingly, more Ph.D.'s are now applying for admission to medical schools, and larger numbers of undergraduate students who would have pursued a graduate education are seeking entrance; there is more than a 20 percent increase in medical school applicants for 1971. Yet the Ph.D. with proven accomplishments in basic sciences in their most rigorous forms finds himself in competition for entrance into the *first* year classes of most medical schools—a redundancy, with waste of time and manpower.

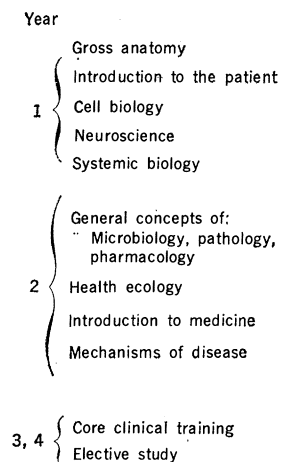
Proposed Program

Twenty Ph.D.'s with outstanding academic records have been accepted into a special 2-year M.D. program at the University of Miami School of Medicine starting in July 1971.

These 20 Ph.D.'s, 17 men and 3 women, were chosen from the 130 applications received prior to the deadline for acceptances. Their major graduate disciplines are distributed as follows: anatomy (1), biochemistry (2), biology (1), chemistry (1), genetics (1), metallurgy (1), microbiology (3), molecular biology (1), pharmacology (2), physiology (5), and physics (2). Their present occupations range from graduate students just completing their Ph.D., to postdoctoral fellows, to college and university faculty. They range in age from 25 to 35 and come from 11 states across the United States. Four candidates, having minimum biological background, represent a special challenge, but their academic records have convinced the committee that the challenge can be met.

Admission. A special admissions committee of three clinicians and three basic scientists (4) selected the students. In June 1971 each student will take the part 1 test of the National Boards of Examiners, not for licensure credit, but

Miami 4-Year M.D. Curriculum



A Basic B.S./M.D. Program

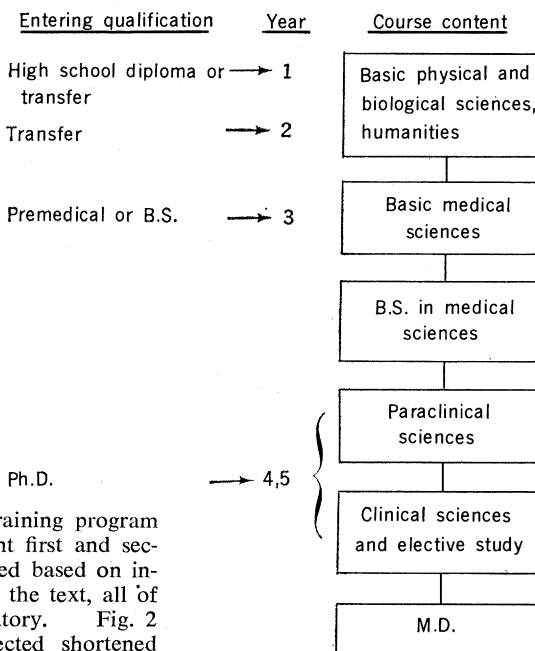


Fig. 1 (left). In the proposed retraining program for Ph.D.'s, portions of our present first and second year curriculum will be selected based on individual needs and, as indicated in the text, all of the clinical training will be mandatory. Fig. 2 (right). An outline of our projected shortened M.D. program. The first 2 years, in some cases 3 years, are also suitable for those progressing to a Ph.D. in a biological science.

to validate the waivers of courses in which the basic science departments of the School of Medicine judge the candidate already to be proficient. The results of the examination will also aid in the design of curriculum tailored to individual needs. Remedial course work will start in July, and deficiencies in biochemistry, biological structure, and physiology should, in large part, be overcome before the beginning of the regular school year in September.

Curriculum. Our present regular curriculum is diagrammed in Fig. 1. The special program is projected for 2 years, this being the maximum time that any trainee should require. It consists of basic and clinical sections. Basic sciences will be emphasized in the period July to November 1971 and will be divided into an initial 10 weeks for remedial courses in biochemistry, biological structure, and physiology, followed by the regular second-year core course, 11 weeks in duration, in microbiology, pathology, pharmacology, and introduction to medicine. At the end of this 21-week period, part 1 of the National Board Examinations will be taken to measure accomplishments in those subjects for which a waiver had not been given. Depending on his performance, the trainee will then be admitted directly into core clinical training or will take additional work in the basic sciences, in a flexible period of up to 24

weeks' duration. Part 1 of the National Boards will be taken for licensure credit in June 1972.

The core clinical training, identical to the present third-year curriculum, will occupy 48 weeks, as follows: 12 weeks of medicine, 12 weeks of surgery, 6 weeks of pediatrics, 6 weeks of obstetrics and gynecology, 6 weeks of psychiatry, 4 weeks of neurology, and 2 weeks of anesthesiology. Students will therefore complete the overall program between November 1972 and June 1973, and will be required to take part 2 of the National Boards in June 1973.

Each student, upon successful completion of his basic science and clinical requirements, will have various options made available to him. He can make up any additional deficiencies which might be required for licensure in certain states; he can enter the regular elective program, or he can be awarded his M.D. degree and proceed immediately into an internship of his choice in this medical center or in other centers with which affiliations have been developed (Fig. 2)

This option would require the acceptance of interns into house staff programs at any time of the year. Participating institutions in this medical center will budget intern positions more randomly throughout the year. Regular commencement exercises are held here in January and June of each year. The

award of the M.D. degree could take place at one of these times, or could occur at any time during the year.

Comment

The program described above is intended to be retained indefinitely, although the present imbalance in numbers of individuals with advanced degrees in sciences, relative to current national needs, will change. By our proposal, we do not imply any judgment on the extent of the claimed imbalance (5). Whatever its extent, in addition, there will always be candidates, highly trained, who seek a new career.

In various forms, some accelerated programs of a character different from the one proposed here are already established elsewhere (6), and the concept is endorsed by the Carnegie Commission (1).

Planning has been under way for 3 years in the University of Miami School of Medicine, to shorten the time required for the total premedical and medical training (Fig. 2) (7). Our overall planning includes a period of core training, suitable for either an M.D. or Ph.D. route. The Ph.D. to M.D. program described here is a part of the more comprehensive plan.

Summary

A curriculum is described whereby qualified Ph.D.'s can become M.D.'s within a period of 18 to 24 months. It is feasible and logical not only for us, but for other schools of medicine. It is our belief that adequate safeguards have been included to preserve high quality in education while responding to the need not only for more physicians, but also for improved utilization of some of our best-trained manpower.

References and Notes

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NEWS AND COMMENT

Assistant Secretary for Health: This Time the Job Is on Trial

The assistant secretary for health and scientific affairs in the Department of Health, Education, and Welfare (HEW) is nominally the Administration's top health official, but the post lacks the status and powers to make the occupant federal health chief in any effective sense. Furthermore, since President Nixon took office, no sub-cabinet post has proved more embarrassing to the Administration or uncomfortable for the incumbent. So much so, in fact, that, when Merlin K. DuVal, Jr., dean of the University of Arizona medical school, was nominated last month to succeed Roger O. Egeberg in the job, the resulting comment centered more on the job than on the men.

The awkwardness for the Administration began when appointment of former HEW Secretary Robert Finch's initial choice for the health job, John H. Knowles, director of Massachusetts General Hospital, was stymied by the American Medical Association (*Science*, 11 April 1969). The matter hung fire for 6 months until Egeberg, dean of the University of Southern California medical school, agreed to step into the breach.

The bluff and genial Egeberg earned a friendly reception on Capitol Hill and was rated a capable Administration emissary on the national health circuit, but he seems to have made little impact on policy or budget decisions. Getting a hearing at the White House reportedly proved difficult for him, and it is said that one appointment was canceled at the Oval-Room door when Egeberg acknowledged that he intended to raise the question of financing.

Starting about a year ago, rumors of Egeberg's imminent departure began drifting around Washington. Last sum-

mer, after Elliot L. Richardson replaced Finch as HEW Secretary, however, Egeberg made it known he was an admirer of Richardson's abilities and was more optimistic about his own role at HEW. Then, this spring, the rumors waxed again and Egeberg admitted he was tired but was willing to stay on the job until a successor was found. Egeberg will remain at HEW as a consultant to Richardson.

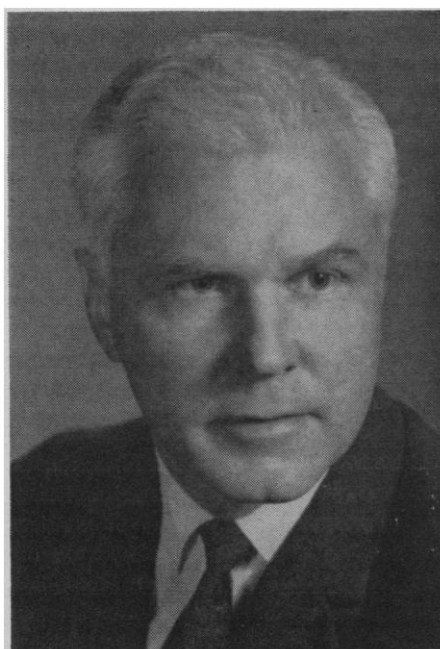
The man nominated to replace Egeberg has, since 1964, been at the University of Arizona medical school, which graduates its first class this spring. He is reputed to have been a "strong" dean at Arizona, and the adjectives commonly used to describe him include "articulate, handsome, forceful." DuVal has been active in the affairs of the Association of American

Medical Colleges and is currently chairman of the AAMC's council of deans. He also has been enthusiastically endorsed by officials of the American Medical Association at both state and national levels, and so he seems to have the undivided approval of organized medicine. He has indicated that, philosophically, he is in accord with the Administration's general position that health care should be improved primarily by strengthening the existing system. DuVal is apparently taking the HEW job with his eyes wide open. He is quoted as saying that the job is on trial, and he expects that, after 18 months or so, an assessment will be made on the future of the post.

The limitations on the health post are regarded by many as congenital. The assistant secretaryship was created in the late 1960's after several major programs in the health sector had been legislated and subordinate agencies had established power relationships with Congress and the upper echelons of the Executive. Even more significant, the two biggest federal health programs, Medicare and Medicaid, are not under the jurisdiction of the assistant secretary. And, most important, major policy questions in the health field, such as decisions on national health insurance, the new cancer program, and medical manpower programs, are being settled in the Secretary's office and the White House.

Creation of a subcabinet post for health was a response to the multiplication of health and biomedical research programs and the rapid increase in budgets during the 1960's. The total budget for health services and research was about \$1.4 billion in 1963 and will be an estimated \$16 billion in 1972. About two-thirds of that \$16 billion would go into the financing of health services programs, notably Medicare and Medicaid, but growth has also been rapid in the sectors which the assistant secretary administers, such as biomedical research, medical manpower training, and programs of specialized medical services.

Until the 1960's, the federal health



Merlin K. DuVal