

The Vietnam War and Medical Research: Untold Legacy of the U.S. Doctor Draft and the NIH "Yellow Berets"

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Abstract

Purpose

From the outbreak of the Korean War in 1950 through the end of the Vietnam War in 1973, many American physicians were inducted into military service through the Doctor Draft. Some fulfilled their obligations by conducting clinical research in the National Institutes of Health (NIH) Associate Training Program (ATP) and later labeled themselves "Yellow Berets." The authors examined the history of the ATP and its influence on NIH associates' future careers.

Method

Via interviews with former associates and archival research, the authors explored the training and collaboration in the ATP

during 1953–1973. Using databases, they compared later academic positions of associates with those of nonassociate peers who also entered academia and identified associates with prestigious awards or honorary society memberships.

Results

The physician-scientists trained in the selective ATP were highly qualified individuals who received training and networking opportunities not available to others. They were approximately 1.5 times as likely as nonassociates to become a full professor, twice as likely to become chair of a department, and three times as likely to become a dean.

Associates were also more likely to hold positions at top-ranked medical schools, to fill leadership roles in the NIH, and to win prestigious awards and honorary society memberships.

Conclusions

The cadre of physician-scientists trained in the ATP during the Doctor Draft rose through the academic ranks to leadership roles and continued their productive scientific collaborations. Their legacy continues to have implications for medical research today, particularly for training programs in clinical research.

With the outbreak of war in Korea in 1950, the U.S. Congress approved an amendment to the Selective Service Act of 1948 to expand the federal government's authority to draft physicians. This legislation, generally known as the Doctor Draft, affected the career development of many male medical school graduates for more than two decades, until the end of the Vietnam

War. The Doctor Draft required all physicians and dentists aged 51 and younger to register and authorized the president to make special "calls" for certain medical, dental, and allied health specialists. An unexpected consequence of the Doctor Draft was the rise of physician-scientists in the United States as the National Institutes of Health (NIH) provided a few thousand talented young doctors with the opportunity to pursue medical research as a means of fulfilling their military obligations and to be trained as clinical investigators rather than solely as skilled practitioners.¹ The NIH envisioned creating a cadre of physician-scientists who would make important contributions to fundamental medical research and bring new scientific discoveries to the bedside.²

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were not exempt from the draft; instead, once they were drafted by the Army, the Navy, or the Air Force, they were assigned to the NIH.¹ Although clinical associates' official duty was to provide care to patients in the Clinical Center, they were allowed to pursue their own medical research interests under the supervision of NIH intramural scientists.³ With this novel addition of a substantial research component to subspecialty training, the NIH soon became the premier place to train physician-scientists.

Escalation during the Vietnam War

Although all doctors were subject to draft calls, less than 10% of new medical school graduates served in the military during the Vietnam War.⁴ Most of those drafted served in the reserves or the PHS, which included training programs such as the ATP. In the late 1960s, however, the Defense Department's medical workforce needs increased considerably as the number of U.S. military personnel in Vietnam escalated from 16,000 in 1964 to more than 543,000 in 1968.⁵ In 1967, Congress responded by imposing restrictions on exemptions available to physicians seeking deferments, which led

about 6,000 of the 9,000 doctors graduating from medical school each year to be drafted by the Department of Defense.⁶

Selective Service director Lewis Hershey used the conscription policies to create a comprehensive workforce policy he called "channeling," where men were directed through "pressurized guidance" into desirable civilian and military pursuits considered to be in the national interest.⁴ "From the individual's viewpoint," commented Hershey, "he is standing in a room which has been made uncomfortably warm. Several doors are open, but they all lead to various forms of recognized, patriotic service to the nation."⁵

More than 700 doctors, dentists, and other health care professionals could satisfy their military obligation each year through service in the PHS

Commissioned Corps.⁶ The NIH used the channeling policy to recruit highly sought-after medical school graduates eager to pursue careers in academic medicine. As U.S. involvement in the war escalated, more physicians sought to fulfill their military obligations through work at the NIH, and the number of applicants and the size of the ATP grew.⁷ In 1965, the year that the first U.S. ground troops landed in Saigon, 153 physicians reported to the ATP to fulfill their military obligation. The following year, the number of new associates jumped to 178, and by 1970, it increased to 206. In 1973, the year a peace settlement in Paris led to a ceasefire in Vietnam, the number of new associates peaked at 229 (Figure 1).⁷

The "Yellow Berets"

The term "Yellow Berets" was used in a derogatory manner during the Vietnam War to contrast draft dodgers with the elite Green Berets—the U.S. Army Special Forces—in a period beset by ongoing strife and civilian antiwar protests. Its origin is not clear, but it was used in a 1966 Bob Seger song, "Ballad of the Yellow Beret".⁸

Fearless cowards of the USA
Bravely here at home they stay
They watch their friends get shipped away
The draft dodgers of the Yellow Beret.

"To our amusement we PHS officers were called 'Yellow Berets' by the officers from the naval hospital across Rockville

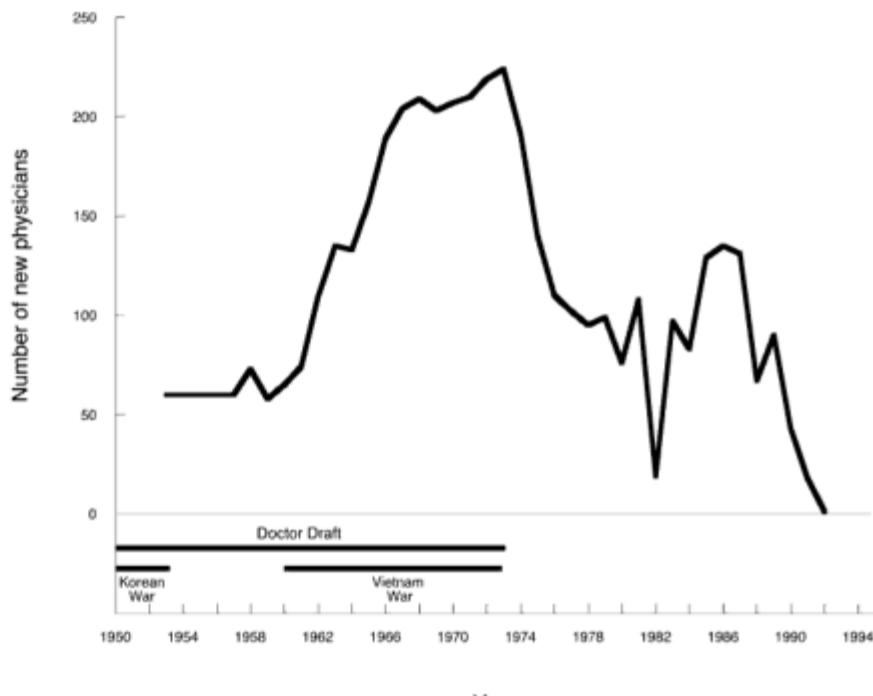


Figure 1 The number of new physicians accepted into the NIH Associate Training Program from its inception in 1953 to its end in 1992, with the period of the U.S. Doctor Draft and the U.S. involvement in the Korean and Vietnam wars noted.

Pike," recalled William Eaton, who was an NIH investigator in 1968.⁹ Although the associates did not use the term themselves during the war, when many adopted it years later, it took on an ironic connotation. Bernard M. Babior, a research scientist who trained at the NIH, used the term wryly in a poem he wrote to the NIH scientist Earl Stadtman in 1990¹⁰:

Whereas my draft board said to me, "1A,"
I from ascetic Boston made my way
Bethesdawards, to Stadtman's realm secure
To soldier for a while in the Yellow Beret.

Examining the influence of the "Yellow Berets"

After completing their military obligations in the ATP, many NIH associates returned to U.S. medical schools and helped form academic faculties that developed clinical research training programs. "All of the professors wanted to have their best students come here," recalled Joseph E. Rall,¹⁰ who was director of intramural research at an NIH institute during the Doctor Draft, "because they knew that they would be here for two or three years and then probably come back to their university."

The former NIH associates, the "Yellow Berets," are said to have had a defining

influence on academic medicine in the years following their NIH training. A previous survey found that, in 1998, 23.6% of the professors of medicine at Harvard Medical School and 21% at Johns Hopkins University School of Medicine were former NIH associates.² Our goal for this study is to demonstrate, using both qualitative (archival research and oral history) and quantitative (data matching) methods, that a substantial portion of the young physicians who fulfilled their military obligations through service in the NIH ATP during the Doctor Draft went on to assume leadership roles within U.S. academic medicine as a result of the high-level training and networking opportunities available to them at the NIH. The ATP during this period, we will demonstrate, was the most important source of physician-scientists for a generation.

Method

Qualitative analysis

As part of a John J. Pisano Travel Grant awarded by the Office of NIH History in 2001, one of the authors (S.K.) interviewed selected associates who entered the ATP during the period of the Doctor Draft (1950–1973) about their experiences and the training they

received in the ATP, as well as how the opportunities they had to collaborate and network led to their later positions and successes. These unstructured oral interviews were tape-recorded by S.K., transcribed by NIH staff, and reviewed for accuracy by the interviewees. The transcripts are archived at the Office of NIH History. Another author (B.S.P.) conducted research on the origins of the ATP when he was an associate historian in the Office of NIH History (2004–2007). He used a wide range of archival sources, including materials available from the U.S. National Archives and Records Administration, the Office of the Director at the NIH, and the Foundation for Advanced Education in the Sciences.

Quantitative analysis

In 1997, NIH staff created a database of individuals who entered the ATP, using the index cards prepared for each physician at the time of entry. These cards included the physician's medical school and year of internship. (For examples, please see Supplemental Digital Figure 1, <http://links.lww.com/ACADMED/A43>.) During database creation, efforts were made to reduce transcription errors and improve the accuracy of information abstracted from the original cards. Records on associates in the early years of the ATP are incomplete, so we focused our analysis on the associates who entered the program from 1955 through 1973.

We used these database records to match NIH associates who graduated from U.S. medical schools from 1955 through 1973 to names listed in the Association of American Medical Colleges (AAMC) Faculty Roster database as of December 21, 2007. The Faculty Roster is the only national database with appointment data on individual full-time faculty members since 1966.¹¹ We defined as “nonassociates” those medical school faculty who graduated during the same time period as the associates but did not participate in the ATP. Using the Faculty Roster database, we compared the associates and nonassociates on their highest academic positions achieved at U.S. medical schools. Because PHS Commissioned Corps positions seemed to be reserved for draft-eligible men,¹² we completed the analysis with and without women.

We also examined active faculty appointments in 2007 by the research intensity of medical schools, as measured by 2003 fiscal year expenditures for federal research grants and contracts reported to the Liaison Committee on Medical Education. Finally, in July 2007, using online databases, we performed a name-by-name matching process to document membership in two honorary biomedical research societies—the National Academy of Sciences¹³ and the Institute of Medicine¹⁴—as well as to identify recipients of the President's National Medal of Science¹⁵ and Nobel laureates.¹⁶ We used the online NIH almanac to screen high-ranking positions at the NIH in a similar fashion.¹⁷

The University of Washington institutional review board approved this study.

Results

Qualitative findings on training and networking opportunities in the ATP

Our historical research showed that the men, and the few women, selected as NIH associates were top-quality physicians from the outset. In the ATP's early years, promising graduates of medical schools on the East Coast were recruited via the “old boys' network,”¹⁸ but the competition became increasingly fierce as the application procedure was formalized and opened to the public. In 1963, for instance, only 53 of the 1,464 physician applicants (3.62%) were selected to be associates.¹⁹ Donald Frederickson,²⁰ one of the first associates in 1953 and, later, NIH director, commented on the competition: “The best, the absolute cream, all applied. The art of picking, out of a whole group of qualified people, those who might become successful scientists was extremely difficult.”

The ATP helped foster an academic and congenial atmosphere within the NIH that was unusual for a government agency. A 1965 report to President Lyndon B. Johnson characterized the NIH scientist as having “probably more ‘academic freedom’ than his university counterpart”—with the freedom to choose his research topics, freedom to devote all his time to research, and freedom from the need to secure funds.²¹ The decidedly nonbureaucratic environment led to a high degree of

independence granted to associates and a unique sense of collaboration within the ATP. “There was an incredible number of great immunologists around so it was like [being] a kid in a candy store,” recalled Anthony Fauci,²² an NIH associate who entered the ATP in 1968 and went on to become director of the NIH Institute of Allergy and Infectious Diseases. “I learned this from this person and that from that person and that's how I taught myself immunology.”

The design of the Clinical Center on the NIH campus also provided a unique opportunity for associates both to see patients and work in research laboratories immediately adjacent to the center. “If you wanted to get an experience in clinical medicine where you could apply bedside observation to laboratory benchwork, the [ATP] was not the only program that you could come to but it was built for that,” noted Dr. Fauci.²³ “This was built for the sole purpose of ‘bench to bedside’ and ‘bedside to bench.’” The clinical training provided exposure to a wide variety of diseases for which associates could pose questions and test their hypotheses in the laboratory.

Training medical doctors in basic sciences research was a formidable task, however. “Unlike the university-trained PhD candidate,” former NIH director James Shannon remarked (in 1957), “these individuals [MDs] have little or no training in research methodology, procedure, and theory, and so they are handicapped in proceeding effectively to advanced research.”²⁴ A group of NIH's intramural scientists seized on the opportunity to produce a new generation of physician-scientists by offering the associates after-hours science courses that were not widely available in U.S. medical schools. In 1954, they formed the Scientific Advisory Committee to decide “subjects and fields for formal courses, course level, appropriate curricula, faculty, admission requisites” for the NIH evening school.²⁵ The committee comprised several institutes' directors of intramural programs and other leading scientists, including Robert W. Berliner, Christian B. Anfinsen, Daniel Steinberg, Seymour S. Kety, Bernard Horecker, and DeWitt Stetten, Jr. As they came from academe, most of them already had professional teaching experience.

Moving a step further, the Scientific Advisory Committee proposed in 1956 to create a "two-year program for people who have their MD degree and intend to go into medical research as a career."²⁴ The NIH created a new category of research associates to designate the physicians in this program as fully committed to research activities, in contrast with the clinical associates who also had medical staff duties at the Clinical Center. In designing the program, the committee members studied other institutions' curricula—especially that of the Rockefeller Institute for Medical Research, which had started accepting graduate students in 1953—and looked into Harvard Medical School's effort to avoid too intensive and too early specialization in training for first-year medical students. They also reviewed the nation's workforce for medical research—one of the NIH leadership's major concerns since the late 1940s—and considered the possibility of designating medical research as a medical specialty.²⁴

The goal of the research associate program was to turn physicians into independent medical investigators who were well grounded in modern scientific knowledge and methods. The committee members felt strongly that research associates should "learn *how* to do research more than to do research itself" and that they should be brought into close contact with accomplished scientists in specialized research fields. In particular, the committee stressed two points: "The importance of having the Research Associate[s] work on problems of [their] own choice rather than be 'servants' in the research problems of the preceptor, and the importance of providing the student[s] with some integrated and organized basic knowledge as a foundation that would permit them to do their own integrating of knowledge later."²⁴ Therefore, in their first year, research associates attended one- to two-hour formal lectures three days each week (on the basic medical sciences, organic chemistry, physical chemistry, tracer methods, and so on). In their second year, they participated in a weekly, two-hour informal seminar and a weekly evening conference. The rest of their time was spent in a laboratory with a preceptor. Clinical associates benefited from the program as well; they were

allowed to attend any of the lectures and seminars they wished.

A separate third category, the staff associate, was created in 1964 with the goal of training highly qualified candidates to fill openings in various NIH programs.

By that time, the NIH ATP was recognized as the place to get thorough training in biomedical research in the United States. "It was very difficult [at other institutions] to give people very meaningful clinical and research opportunities," recalled Samuel Broder,²⁵ an NIH associate who entered the ATP in 1972 and subsequently rose through the ranks to become director of the National Cancer Institute. "Particularly in some fields where the NIH virtually was the only place in town, the only place in the world, perhaps, that could do certain types of training programs."

Quantitative findings on the effects of ATP opportunities on the careers of NIH associates

Our quantitative study of the careers of NIH associates shows the effects of the

training they received through the ATP. Of the 2,791 associates who graduated from U.S. medical schools between 1955 and 1973, we identified 1,577 (56.6%) who later entered academic medicine, according to the AAMC Faculty Roster database. We identified a total of 27,821 nonassociates—namely, all other physicians in the Faculty Roster database who graduated during the same period—who likewise entered academic medicine during their careers. We found that a greater proportion of associates achieved higher academic positions compared with nonassociates (Figure 2). Faculty members who were NIH associates were about one-and-a-half times more likely to achieve the position of full professor (ratio 1.57; 95% confidence interval [CI] 1.49–1.66), twice as likely to achieve the position of chair (ratio 2.0; 95% CI 1.78–2.24), and nearly three times as likely to achieve the position of dean (ratio 2.97; 95% CI 2.21–3.98). These results were not substantially different after excluding women from the associates ($n = 4$) and nonassociates ($n = 2,939$).

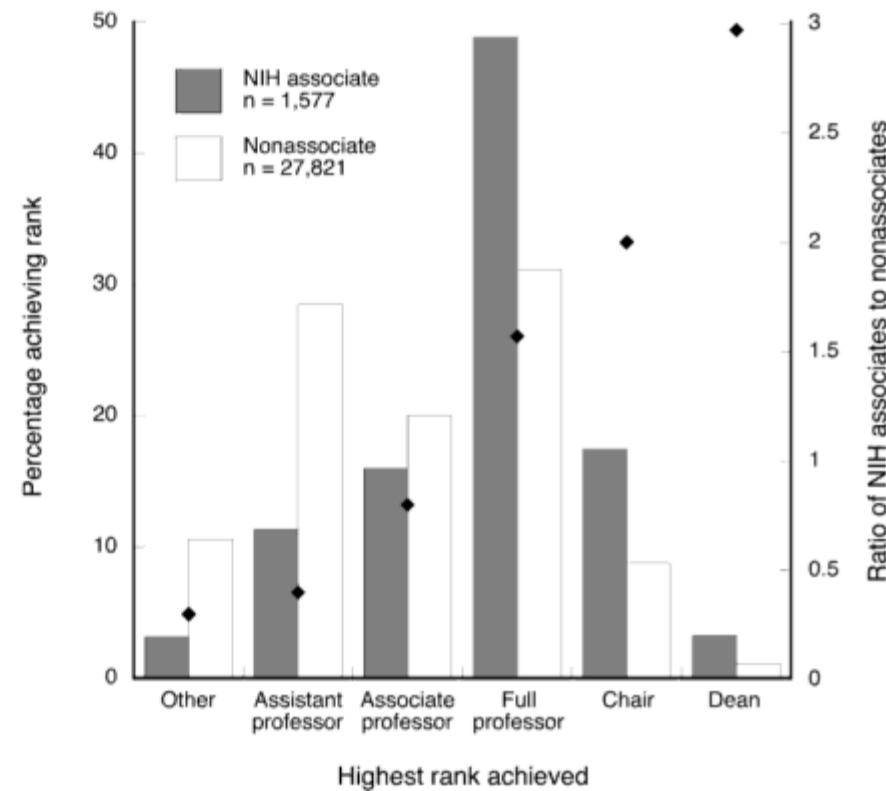


Figure 2 Comparison of the highest academic ranks achieved by NIH associates and nonassociates who graduated from U.S. medical schools between 1955 and 1973 and ever held any academic position. The results are displayed for NIH associates and nonassociates; the percentage of the total is indicated along the left y-axis, and the ratio is indicated by diamonds along the right y-axis. The overall chi-square is 577, $P < .001$.

With regard to the medical school research intensity of faculty members active in 2007, we found that the 626 NIH associates were 34% more likely than the 6,038 nonassociates to be at one of the top 10 schools (144 [23%] versus 1,034 [17%], ratio 1.34; 95% CI 1.15–1.56) and 47% more likely to be at one of the top 20 schools (268 [43%] versus 1,755 [29%], ratio 1.47; 95% CI 1.33–1.63). Again, these results were not substantially different after excluding women from the NIH associates ($n = 0$) and from nonassociates ($n = 460$).

Finally, past NIH associates account for one of every six Nobel laureates in physiology or medicine between 1985

and 2007 and make up a similar proportion of members of the National Academy of Sciences within the biomedical fields. Many of the NIH's top leaders also had their start in the ATP, including 4 directors and 10 institute directors. Table 1 identifies those NIH associates who have won prestigious awards and held top NIH positions and provides an overview of their membership in prestigious societies.

Discussion

The training that elite physician-scientists received in the unique atmosphere of the ATP during the Doctor Draft led to their continued success and influence in academic

medicine. On entering academic medicine, the NIH associates who graduated from medical school during this era were more successful than their nonassociate peers at rising through the ranks. Our analyses indicate that among those with any academic appointment, NIH associates were better represented than nonassociates in the higher echelons of academic medicine: They were about twice as likely to have been a chair of a department and about three times as likely to have been dean of a school. Among active faculty in 2007, NIH associates were also more likely than nonassociates to be at the top-ranked research-intensive medical schools. The success of the associates is also reflected by their representation among honorary societies and career achievement awards. As former associates continue to hold leadership roles both in academic medicine and the NIH, they will likely keep exerting considerable influence on both the NIH's extramural research grant program and its intramural agenda.

Table 1

Career Achievement Awards, Membership in Honorary Medical Research Societies, and High-Ranking National Institutes of Health (NIH) Positions Among NIH Associates Who Entered the Associate Training Program From 1955 Through 1973 (Including Those Who Were Not Commissioned Officers)

Award

Nobel Prize in Physiology or Medicine	9 of 50 Nobel laureates (1985–2007)	Richard Axel, J. Michael Bishop, Michael S. Brown, Alfred G. Gilman, Joseph L. Goldstein, Eric R. Kandel, Ferid Murad, Stanley B. Prusiner, Harold E. Varmus
National Medal of Science	10 of the 76 biological sciences recipients (1985–2007)	J. Michael Bishop, Michael S. Brown, Stanley N. Cohen, Anthony S. Fauci, Joseph L. Goldstein, Eric R. Kandel, Philip Leder, Paul A. Marks, Solomon H. Snyder, Harold E. Varmus

Honorary medical research society

National Academy of Sciences	64 elected as members, 44 among the 250 active U.S. members in the biomedical fields (as of July 2007)
Institute of Medicine	125 among the approximately 1,470 regular members (as of July 2007)

NIH position

Director of NIH	4 among 9 directors (1953–2007)	Donald S. Frederickson, Bernadine Healy, Harold E. Varmus, James B. Wyngaarden
Director of NIH institutes	10 among 122 institute directors (1953–2007)	Samuel Broder, Donald S. Frederickson, Robert I. Levy, Richard J. Hodes, Anthony S. Fauci, Duane Alexander, Allen M. Spiegel, Robert L. DuPont, Frederick K. Goodwin, Gerald D. Fischbach
Directors for intramural research	1 deputy director and 2 Clinical Center directors among 8 directors (1953–2007)	Michael Gottesman (deputy director), Robert S. Gordon, Jr., and John I. Gallin (Clinical Center directors)

Beyond their personal successes in academic medicine, the associates also created a network of physician-scientists, as the collaborative efforts they established during this time period continued after they returned to their respective universities. "Science is a social enterprise, and it's this kind of informal college or interactions that determine the directions [of science] and what gets done," noted Alan Schechter,²⁶ who became an associate in 1965. "The program here allowed one to plug into this informal college." Michael Gottesman,²⁷ a former associate and the current NIH deputy director for intramural research, felt that some associates "would have gone on to be successful in any case but most either wouldn't have had the opportunity or wouldn't have had the environment that fostered this kind of success."

The high degree of later accomplishment and success of the NIH associates is likely related to many factors. These include the competition among young physicians to enter the ATP during the Doctor Draft, especially during the escalation of the Vietnam War, which helped the program recruit a high caliber of physician-scientists who might not have applied during peacetime. The ATP also offered

centralized training of associates within the unique atmosphere of the NIH campus and laid the groundwork for future networking related to research funding.

Although the ATP created opportunities for many future academic medicine leaders, its selective admission process may have had unintended consequences for women and minorities. As noted earlier, women were minimally represented in the ATP during the Doctor Draft and were not accepted into the PHS because those positions seemed to be reserved for draft-eligible men¹²; we identified only seven female associates, four of whom were included in our analysis. Also, the NIH did not collect information on minorities during the Doctor Draft. Lack of support for research and effective mentoring, both important strengths of the ATP, have been noted as possible limitations on women and minorities.^{28,29} The selective admission during the Doctor Draft may have precluded women and minorities from the networking opportunities for research funding, which may have contributed to their underrepresentation in the higher echelons of academic medicine.

Limitations

Our comparison group included physicians who were not involved in the ATP but who attained academic positions. They represent only a small subset of medical school graduates during the study period. An AAMC analysis of medical school graduates from the classes of 1967 through 1974 found that approximately 15% of the graduates of these classes attained a medical school faculty appointment within nine years of graduation.³⁰ It is not clear whether such a select group of academic physicians represents a fair control group for academic and leadership success, given both the ATP's stringent selection process and its rigorous training. Another possible comparison group would be those applicants who were not accepted into the ATP, but such a list of applicants was not available.

Also, although we attempted to identify all applicants accepted into the ATP before the end of the Doctor Draft, the NIH database may not include some,

especially those accepted during the program's early years. Additionally, our matching of the list of associates to other lists may have been imperfect. We were able to match 1,577 of the 2,791 identified associates (56.6%) to names in the AAMC Faculty Roster database. We may have missed some; others may have not pursued full-time academic careers, may have turned to private enterprises, or may have stayed at the NIH. We have no easy means to identify the career paths of these other associates.

Conclusions

Some may have referred to NIH associates during and soon after the Doctor Draft as "Yellow Berets," a label that implies cowardice and avoidance of patriotic duties and that dismisses their valuable contributions. Harry Kimball,³¹ a 1964 NIH associate and former president of the American Board of Internal Medicine, felt that active duty military personnel were resentful. "We were doing our service obligation in a way which maximally enhanced our own careers. Why wouldn't they resent us?" After the war, though, many NIH associates used the term as a badge of pride with the understanding that they also had served their country. "I think the Public Health Service serves the country as well as any organization including the Department of Defense," noted Fauci.²¹ "If you look historically over a number of years, peace and war, the Public Health Service makes clearly as much contribution." In the case of the ATP, medical research proved to be an enormous part of the national effort well beyond the war.

As scientific training programs grew across the country, supported in large part by the NIH extramural grant programs, and the Doctor Draft ended in 1973, the size and popularity of the ATP dropped considerably (Figure 1). The ATP's end in 1992 was associated with a shortage of clinical investigators throughout the United States. As early as the late 1970s, NIH data had shown a steady decline in the number of MDs entering NIH-supported research training programs. The decline was likely related to numerous factors, including medical school debt burdens, increased specialization, and the financial demands of managed care. Further, with the development of fields like immunology and molecular biology, clinical and basic

science research diverged, leading to a shift in NIH funding and the bulk of biomedical research being done by specialized PhD scientists.³² An NIH panel in 1995 found that funding levels for clinical research were low primarily because MDs were not applying in sufficient numbers for NIH awards compared with PhDs.³³ The decline in NIH-sponsored MD grant holders was thought to be partly related to clinical investigators' loss of confidence in competing effectively for research funding.³⁴

Perhaps one of the greatest strengths of the ATP was its focus on the clinical aspect of scientific investigation, namely, translational research. A "dangerous decline"³⁴ in the numbers of physicians doing clinical research could have devastating consequences for bringing "basic-science breakthroughs into clinical application ('bench to bedside')."^{32,35} In response to the perceived shortage of physician-scientists, the NIH appropriated funds to support training programs in clinical research, including its Medical Scientist Training Program, which began in 1964 and offers MD-PhD training, and its Loan Repayment Program, which offers financial incentives to attract debt-burdened physicians into clinical research training and careers. In 2006, as part of the attempt to bridge the gap between basic science breakthroughs and clinical applications, the NIH began to implement a plan to create 60 Clinical and Translational Science Award centers at universities and medical centers across the country. The merits of these efforts are currently being assessed, but the legacy of the NIH ATP and its associates set high standards that continue to guide the training of physician-scientists.

Dedication: The authors would like to dedicate this study to the memory of the late Dr. Henry Fales for his support of NIH historical research.

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