# A Healthy NIH Intramural Program: Structural Change or Administrative Remedies?: Summary and Recommendations (1988)

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# A Healthy NIH Intramural Program
## Structural Change or Administrative Remedies?

## SUMMARY AND RECOMMENDATIONS

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NOTICE: The project that is the subject of this report was approved by the Governing Board of the National Research Council, whose members are drawn from the councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The members of the committee responsible for the report were chosen for their special competencies and with regard for appropriate balance.

This report has been reviewed by a group other than the authors according to procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

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2101 Constitution Avenue, N.W.
Washington, D.C. 20418

(202) 334-3300

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## COMMITTEE TO STUDY STRATEGIES TO STRENGTHEN THE SCIENTIFIC EXCELLENCE OF THE NATIONAL INSTITUTES OF HEALTH INTRAMURAL RESEARCH PROGRAM

HAROLD T. SHAPIRO, (Chairman), President, Princeton University, Princeton, New Jersey.

MICHAEL S. BROWN,* Professor of Genetics, University of Texas Health Science Center, Dallas, Texas.

JOHN T. DUNLOP,* Lamont University Professor, Emeritus, Harvard University, Cambridge, Massachusetts.

GERALD D. FISCHBACH, Chairman of Anatomy and Neurobiology, Washington University, St. Louis, Missouri.

MARIAN E. KOSHLAND, Professor and Chair, Department of Microbiology and Immunology, University of California, Berkeley, California.

CHARLOTTE V. KUH, Executive Director, Educational Testing Service, Princeton, New Jersey.

ROBERT I. LEVY,* President and Chief Executive Officer, Sandoz Research Institute, East Hanover, New Jersey.

WALTER E. MASSEY, Vice President for Research and for Argonne National Laboratory, The University of Chicago, Chicago, Illinois.

ROBERT G. PETERSDORF,* President, Association of American Medical Colleges, Washington, D.C.

PAUL GRANT ROGERS,* Partner, Hogan & Hartson, Washington, D.C.

BENNO C. SCHMIDT,* Managing Partner, J.H. Whitney & Company, New York, New York.

LLOYD H. SMITH,* Associate Dean and Professor of Medicine, University of California at San Francisco, San Francisco, California.

ELMER B. STAATS, Former U.S. Comptroller General, Washington, D.C.

P. ROY VAGELOS,* Chairman and Chief Executive Officer, Merck and Company, Rahway, New Jersey.

---

*Member, Institute of Medicine

## STUDY STAFF

RUTH ELLEN BULGER, Director, Division of Health Sciences Policy
MICHAEL L. MILLMAN, Study Director
JESSICA TOWNSEND, Associate Study Director
CARLOTTA C. MOLITOR, Research Associate
WALLACE K. WATERFALL, Editor, Institute of Medicine

## CONSULTANTS

ALAN L. DEAN
MICHAEL FINN
HELEN HOFER GEE
HAROLD SEIDMAN
ROBERT A. WALKINGTON

## CONTENTS OF THE FULL REPORT

SUMMARY AND RECOMMENDATIONS.....1

INTRODUCTION.....11

The Charge to the Committee.....11
The Committee's Interpretation of Their Charge.....11
Scope of the Study.....12
Conduct of the Study.....13
Origins of the Study.....13
Structure and Funding of NIH and Its Intramural Program.....16

CHAPTER 1. MISSION AND PURPOSES OF THE NIH INTRAMURAL PROGRAM....23

Role as a Government Laboratory.....24
The Environment.....24
Research Training.....25
Basic and Clinical Research.....26
The Application and Communication of Research.....27
Long-Term Research.....28
The Intramural Program in Relation to the Extramural Program.....28
Conclusion.....29

CHAPTER 2. SCIENTIFIC EXCELLENCE OF NIH INTRAMURAL PROGRAM.....33

Important Discoveries by Scientists in the NIH Intramural Program.....33
Bibliometric Analysis of Publications in Scientific Journals.....35
Peer Judgment of Scientific Contribution.....38
New Young Talent.....39
Administrative Measures to Strengthen the Current Program.....40
Conclusion.....44

CHAPTER 3. SIZING UP ADMINISTRATIVE PROBLEMS.....47

Personnel.....48
Compensation.....49
Beginning Researchers.....50
Mid-Level Researchers.....53
Senior Researchers.....59
Support Staff.....63
Summary of Compensation Findings.....64
The Personnel System.....65
Barriers to a Productive Work Environment.....68
Coping with a Changing Environment.....72
Summary of Administrative Problems.....73
Endnotes.....75
Tables.....83

CHAPTER 4. SOLVING ADMINISTRATIVE PROBLEMS.....135

The Policy Background.....136
Models for Organizational Reform.....137
Addressing Problems that Exist under the Present Organization.....142
Improving the NIH Managerial Environment.....149
Conclusions and Recommendations.....150

APPENDIXES

A ORGANIZATIONS AND INDIVIDUALS PROVIDING TESTIMONY REGARDING THE NIH INTRAMURAL PROGRAM.....159

B NIH VISIT ON MAY 25, 1988.....163

C SUMMARY OF ACHIEVEMENTS OF NIH INTRAMURAL PROGRAMS....165

D BIBLIOMETRIC ANALYSIS.....173

## FIGURES

Figure I-1 NIH Organizational Chart.....17

Figure 3-1 U.S. and Foreign Fellows, 1983 and 1988.....51

Figure 3-2 Attrition Rates 1983-1987 for Tenured M.D.s and Ph.D.s.....55

Figure 3-3 Salaries for M.D.s and Ph.D.s, 1987, NIH vs Academic Centers,.....60

Figure 4-1 NBS Personnel Management Demonstration Project.....128

## TABLES

Table I-1 NIH Obligations by Institute 1977-1987.....21

Table 2-1 Percent Papers Among Most Highly Cited 10 Percent.....37

Table 2-2 Ratio Intramural to Academic Average Citations Per Paper.....37

Table 3-1a Personnel Systems Under Which NIH Tenured Scientists Are Employed.....83

Table 3-1b Salary Rates for Permanent NIH Scientists Under the General Schedule and Senior Executive Service.....86

Table 3-2 NIH Fellows by Title and Degree as of End of Fiscal Years 1983-1988.....87

Table 3-3 Non-Tenured Intramural Employment.....88

Table 3-4 Time Line for Trainees at NIH.....90

Table 3-5 NIH Medical Staff Fellowship Program Statistics, 1977-1988.....91

Table 3-6a Rates of Conversion of NIH Staff Fellows to Permanent GS and CO Appointments.....92

Table 3-6b Conversions of NIH Fellows to Full-Time Permanent Appointments in General Schedule (GS/GM), Commissioned Corps (CO) Positions. Fiscal Years 1983-1987.....93

Table 3-7 Grades Within Senior Investigator Category.....94

Table 3-8 Selected Employment Data for Current Full-Time Permanent NIH Tenured Scientists in Intramural Positions by Grade, 1983-1988.....95

Table 3-9 Selected Employment Data for Full-Time Permanent NIH Tenured Scientists Who Left NIH Intramural Positions by Grade, Fiscal Years 1983-1987.....101

Table 3-10 Attrition of NIH Full-Time Permanent Tenured Scientists (M.D.s and Ph.D.s) in Intramural Positions by Grade, Fiscal Years 1983-1987.....106

Table 3-11 Appointments of Scientists to NIH Intramural Positions by Grade and Degree. Fiscal Years 1983-1987.....111

Table 3-12 Appointment of Scientists to NIH Intramural Programs. Distribution by Grade. 1983-1987.....112

Table 3-13 Comparative Salaries of Research Scientists.....113

Table 3-14 Change in Average Annual Salaries Reported by Doctorates at NIH in 1981 by Type of Employer in 1987.....114

Table 3-15 Comparison of Physician Compensation: NIH and American Medical Schools.....115

Table 3-16 Comparison of Ph.D. Pay: NIH and American Medical Schools.....116

Table 3-17 Allied Health Specialists Salary Comparison— Washington, D.C. Area. January 1988.....117

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# SUMMARY AND RECOMMENDATIONS

This study was prompted by a the concern, on the part of some, that the National Institutes of Health (NIH) intramural research program, for many years a distinguished component of the nation's effort in biomedical science, is experiencing difficulties in attracting and retaining outstanding basic scientists and clinical investigators. This concern becomes focused from time to time on the loss of particular senior investigators, but more important to the future vigor of the program is its continuing capacity for renewal at all ranks.

The recruitment and retention problems are generally attributed to relatively low pay, non-competitive fringe benefits and other constraints of a government agency. The Office of Management and Budget (OMB) and NIH entered into a dialogue about whether solutions to these problems could be found within government, or whether placing the intramural program in the private sector would provide the most expeditious and comprehensive solution. Seeking advice on these questions, the Secretary of the Department of Health and Human Services (DHHS) asked the Institute of Medicine (IOM) to conduct a study of ways to ensure the continued scientific excellence of the intramural laboratories.

Solutions were to be sought among a wide range of organizational options. Upon close examination of the situation, the IOM study committee came to the following principal conclusions:

- The intramural program has made and continues to make invaluable contributions to our knowledge and understanding of basic biological processes and their dysfunction in disease.

- A high quality intramural program is a distinctive and valuable component of the nation's overall biomedical research effort.

- The quality of the program, however, varies by scientific sub-field. To improve the overall quality and maintain the excellence and credibility of the program, attention must be paid to a continuing process of quality review and how it can be used to improve the allocation of resources.

- The nature and severity of recruitment and retention problems do not call for major structural reorganization of the program. Removal from the public sector or significant structural reconfiguration were found to be either incompatible with the purposes of the program or likely to cause greater disruption than would be warranted by the

possible benefits. Privatization, in the sense of making the intramural program free-standing and self-supporting, is undesirable and impractical.

- It is desirable to increase NIH's flexibility in pay and personnel administration so that it may compete more effectively for people critical to the continued success of the various programs, and otherwise to administer more effectively its public responsibilities.

- The scientific directors of the institutes, who most directly manage the intramural program, are essential keys to their success. Therefore, finding ways to ensure the selection and retention of distinguished scientific leaders for these posts is essential.

- The federated structure of NIH has served the nation's biomedical research efforts well. However, at times this structure impairs coordinated actions across institute lines and the ability to respond with efficiency to new challenges and responsibilities. Rather than create a new pattern of authority, the committee recommends the creation of a modest discretionary fund under the control of the Director of NIH. In addition, the Director of NIH should be given the authority to make decisions on personnel, travel, and space that are currently made at higher levels of DHHS.

## Mission of the Intramural Program

As a government laboratory, the intramural program has multiple roles in support of the NIH mission of improving the health of the nation through biomedical research. The program's activities include basic research, clinical research, training scientists, communicating research findings, developing policies on biomedical research priorities, and translating research findings into more effective medical care. It has the capacity to respond to national health emergencies. The Clinical Center is one of the important features that differentiates the intramural program from other research settings.

No single element of the intramural program is literally unique. But the aggregation of elements—for example, research laboratories, a clinical center, freedom from competitive grant renewals, disease-related institutes—forms a distinctive environment. Further, the intramural program is a visible focus and rallying point for the nation's overall biomedical research effort.

The success of the extramural program notwithstanding, growth in other venues of research have left the intramural program, despite its continuing high quality, with a less dominant role in some areas of U.S.

biomedical research than it once had. The committee believes this is a sign of health in U.S. biomedical science and does not detract from the continuing need for a strong government laboratory focused on biomedical research. Moreover, the NIH intramural program has created an atmosphere that many researchers believe is unparalleled.

## Findings

### The Question of Privatization

In recent years, a wide range of government functions has been scrutinized for the potential of shifting them to the private sector. Proponents of privatization have argued that in certain circumstances it allows goods and services of the same or better quality to be delivered at lower cost. This reasoning is behind the question of privatizing the NIH intramural program.

It is important not to confuse the scope of public sector activities with the scope of government responsibilities. The government can retain responsibility for biomedical research, for example, but arrange for those activities to be carried out in the private sector—which is the way NIH currently spends about 85 percent of its budget. The committee evaluated the advantages and disadvantages of having the remaining small share of the NIH budget represented by intramural research activities administered under any of several forms of privatization.

The committee analysis of the proposal to privatize the intramural program focused on privatization as a means of revitalizing the program rather than as a way of diminishing government responsibility and expenditures. Some forms of privatization were found to be clearly unattainable for the intramural program because, given the nature of its product, principally basic and clinical research, it cannot generate enough revenues through user fees or the sale of services to support its activities. Other forms of privatization, such as creating a private free-standing research institute, either would not be more effective than the current organization or would destroy an important element of the program, such as the relationship between intramural and extramural research. The committee concluded that none of the common forms of privatization would be as likely to sustain the vitality of the research effort as would a more modest restructuring of certain aspects of the current organization. Some changes, however, are absolutely necessary if the program is to continue to be an important component of the nation's biomedical research effort.

### Administrative Problems

As a government agency, NIH operates within a number of administrative constraints, some of which hinder managers' efforts to make the most effective use of public resources. The committee reviewed aspects of the

compensation and personnel system, travel authorizations, procurement procedures, and the development and management of new and renovated space.

The topic that has received the most attention is the issue of lower pay for NIH scientists compared with those in universities or other biomedical research centers. The committee finds that there is merit in the claim that an unfavorable pay disparity exists and is growing. It is, however, possible to overstate the magnitude of this problem. Careful examination of data (making appropriate job comparisons), compel a more tempered argument than has commonly been made to support the case that NIH needs relief from salary restrictions. For example, the average medical school chairman of internal medicine—the most common NIH specialty—receives a base pay 70 percent above the top federal salary. However, for Ph.D.s below the Senior Executive Service level, NIH salaries are competitive. The impact of the pay differential is especially felt in attempts to retain and hire physician scientists and the highest level basic scientists, who may command salaries far above the federal pay ceiling. The impact is also felt in some personnel categories, such as nursing and allied health, for whom federal salaries often lag behind local pay scales. The problem stems at least as much from lack of flexibility to adjust compensation in response to changing market conditions, as from relatively low pay across the board. Therefore, the committee finds that there are circumstances in which salary restrictions should be lifted to enable NIH to compete for personnel in high demand and those individuals who are crucial to the well-being of the intramural program.

There is evidence that many good scientists are willing to forego higher earnings to enjoy the distinctive research environment at NIH, which for some is especially conducive to research productivity and creativity. But some of the factors that contribute to this environment are increasingly subject to counterproductive administrative controls. Notable among these are travel, support personnel, equipment, and space procurement. The combination of increasingly burdensome and unnecessary constraints along with lower salaries and less flexible administrative policies creates justified concern about NIH's ability to continue its past successes in building the staff necessary to sustain the quality and vitality of the intramural program.

## Quality of the Intramural Program

The committee believes that unless the quality of research in the intramural program is excellent, the investment of the government is not justified. The problems of measuring quality of scientific institutions are well known. The committee used several indicators of quality, such as citation analysis and a review of notable achievements. It also examined quality assurance mechanisms. These indicators suggest that no serious decline in quality has occurred in one of our nation's most important centers of biomedical research.

One can identify many investigators who are among the most respected in their fields. However, not all work in the intramural program meets the same high standards. This variability perhaps is to be expected in any research organization of the size and scope of the intramural program. The committee was unable to determine the extent to which notable scientists mask a cadre of less productive scientists. Nevertheless, it is the committee's judgment that further improvements in the quality of the program are essential and attainable.

There has been long-standing concern in the biomedical community that the review process for the intramural research program lacks the rigor of the competitive peer review process of the extramural program. Although in recent years NIH has taken action to improve this process, inadequacies remain in the appointment process and the degree to which recommendations of the Board of Scientific Counselors are given serious consideration. The committee believes it is particularly important that accountability to a disinterested body, external to the intramural program and institutes, has oversight responsibility to ensure the integrity of the review process. The committee does not recommend that the intramural program adopt the procedures by which the extramural competitive grants are evaluated. But, a more credible and independent peer review system—suitable for the environment—is essential to sustain the future vitality of the intramural program. This is a key step in ensuring the most effective use of the resources invested in the program.

A rigorous review process is necessary but not sufficient to sustain quality. Under the leadership of the institute director, the scientific director of each institute is key to the success of the intramural program, providing both intellectual and administrative leadership. Not only do scientific directors control resources, but, less tangibly, they are responsible for the spirit and morale of the institute.

The committee believes that the qualities of demonstrated scientific achievement, leadership, and administrative ability that are needed for this position are rare commodities. To attract people of sufficient stature requires that a premium be paid.

In order to get a sense of what the future might hold for the intramural program, the committee sought to evaluate the young postdoctoral and junior-level personnel with whom rest much of the future of the organization. The quality of postdoctoral fellows cannot be measured precisely, but there is a widespread perception that the program does not attract the caliber of trainees characteristic of former years. Intensified competition from universities and industry, and the end of the doctor draft which provided an incentive for young scientists to compete for a place at NIH, are the most frequent causes cited for this perception.

## Recommendations

The committee believes that it is possible to address many of the identified administrative problems without making radical changes in the structure or organizational location of NIH.

### Increased Flexibility in Personnel Administration

Believing that the scientific leaders of NIH need greater flexibility to be successful in competitive labor markets, the committee recommends that Congress authorize NIH to develop and implement a personnel demonstration project tailored to overcome the deficiencies of the current system.

The project should feature:

- a simplified hiring classification and pay administration authority similar to a demonstration now being conducted by the National Institute of Standards and Technology.[1]
- an occupation-specific pay standard based on surveys of market comparability
- the ability to exceed the federal pay ceiling in justifiable circumstances
- portable retirement benefits to make transfer between non-federal employment and the NIH less disadvantageous
- employment ceilings replaced by a personnel expenditure budget.

The committee arrived at the above recommendations after examining a variety of government organizations that are used to carry out public functions. It found that no single model would effectively solve the principal administrative problems that NIH faces, and that all such changes carry associated risks that seem greater than the anticipated benefits. The committee understands that the problems of NIH are far from unique. In theory, it would be desirable to resolve certain government-wide problems by strengthening the attractions of public service. Several past and present commissions have investigated such across-the-board solutions. However, individual agencies unable to wait for help through such general reforms have turned to remedies for their own specific problems. The committee does not think it advisable to wait for civil service reform; therefore, it focuses on specific strategies designed to remedy some of the problems facing the intramural program. The committee has drawn on the experience of other commissions and existing experiments.

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[1] Formerly the National Bureau of Standards

## Endowed Chairs for Distinguished Scientists

Even with authority to increase compensation flexibility, NIH would find it advantageous to be able to appoint a very limited number of distinguished scientists to positions outside the federal civil service system. This would enable NIH to provide competitive salaries substantially higher than the federal civil service ceiling and other resources such as equipment, travel expenses, and technical support staff. A mechanism is needed by which NIH could establish privately endowed chairs with a term appointment for up to ten persons on the campus. Therefore, the committee recommends that Congress charter a foundation to permit the private support of up to ten endowed chairs for distinguished investigators. The creation of a foundation, similar to those established for other federal agencies such as Uniformed Services University of the Health Sciences (USUHS) and the National Park Service would be helpful. A few exceptional people added to the senior level would enhance the ability of NIH to attract superior researchers at all levels. Appropriate mechanisms would have to be put in place to prevent any appearance of conflict of interest on the part of these contributing to the endowment of such a chair.

## Maintaining an Administratively Efficient NIH

Recognizing that personnel and compensation administration are not the only administrative problems, the committee questioned whether problems articulated by NIH regarding full-time equivalent ceilings, travel ceilings, procurement and space are the result of its location within DHHS. All of these problems, with the exception of travel ceilings, originate outside of DHHS in laws and regulations enforced by agencies such as OMB and General Services Administration (GSA). The committee found that although these problems were exacerbated by the administrative layering in DHHS, they were not sufficiently serious to warrant removal of NIH from DHHS or the Public Health Service. Moreover, the scope of this study could not include an assessment of the impact of such actions on the other health components of DHHS or the NIH extramural program.

Nonetheless, these restrictions are serious irritants that weaken the management capabilities of the Director of NIH. The committee believes that efforts to micromanage NIH from the Office of the Secretary or Assistant Secretary for Health are counterproductive and cause NIH to be inefficient in carrying out its mission.

Therefore, the committee recommends that the Secretary of the Department of Health and Human Services delegate to the Director of NIH the authority to make decisions on administrative matters without being subject to review by the Office of the Assistant Secretary for Health.

Assistant Secretaries for Health have not always taken responsibility for detailed administrative oversight for NIH. From the perspective of this examination of the intramural program, broad policy guidance and

interagency coordination are more valuable activities than the detailed administrative oversight that could be performed more efficiently if NIH were given greater latitude in decision making.

## Director's Discretionary Fund

The NIH is a confederation of separate entities. As such it cannot always respond well to new issues, emergencies, or research opportunities that do not clearly fall within the scope of one institute or another. In these circumstances the Director needs the resources to initiate activities across institute lines, without imposing on the independence of the institutes. Therefore, the committee recommends that Congress appropriate annually to the Director of NIH an amount no less than $25 million to be used to address emerging issues and special inter-institute research opportunities.

## Improving the Review of the Intramural Program

Several of the committee's recommendations are designed to maintain high scientific standards. Recommendations to give NIH managers the necessary flexibility to compete for personnel and provide a productive work environment are clearly intended to enhance the intellectual capital of the program. The committee believes, however, that disinterested review of the intramural research programs and assurance of implementation of reasonable recommendations also is essential to credible quality assurance.

Two recommendations address the review and resource allocation process. A panel chaired by a member of the NIH Director's Advisory Committee should be established to monitor the intramural research program review. The functions of this panel would be to oversee the integrity of the process, while taking care not to replicate the activities of the Boards of Scientific Counselors. Rather, its oversight should focus on areas that are most vulnerable to criticism, namely the selection of the reviewers and the appropriate response to recommendations.

Each of the scientific directors and their intramural programs should be reviewed as a whole every four years by an external group. The review report should be submitted to the director of the relevant institute, the NIH Deputy Director for Intramural Research, the Director of NIH, and the Director's Advisory Committee. The committee believes such a review to be necessary because of the importance of ensuring the vitality of the intramural program. The intent of the periodic review is not to limit arbitrarily the term of the scientific director, but rather to put in place a process that will ensure vigorous leadership. The responsibility of the scientific director requires having the scientific vision needed to allocate intramural resources productively, as well as function as a highly skilled manager. To recruit and retain scientists with this

extraordinary set of attributes, the committee recommends that those holding the position of scientific director receive additional compensation. This will become possible under the recommended personnel demonstration program.

## An NIH Scholars Program

A major barrier for scientific directors trying to maintain a flow of fresh ideas into their programs is difficulty in recruiting highly talented scientists at the assistant professor level who would then have an opportunity to pursue their own research initiatives. To date, most tenured scientists have been promoted from the pool of postdoctoral fellows within the intramural program. To help the scientific director overcome the tendency toward excessive inbreeding, the committee recommends that Congress authorize and appropriate funds for an NIH Scholars Program in which outstanding young investigators at the assistant professor level would be appointed on a competitive basis to an independent, non-tenured position in the intramural program.

The program would possess several features that would make it as attractive as other prestigious appointments now available in academic institutions. As many as six scholars per year could be offered appointments as independent basic or clinical researchers. Each institute could propose up to three candidates per year. To support each scholar and associated research needs, a sum of $1.5 million over the six years should be allocated. The Director should be responsible for establishing procedures for selecting scholars.

It is anticipated that some of these scientists will remain at NIH following the 6-year term, thereby increasing the pool from which NIH leadership is selected. It is also expected that some of these scholars will take positions of leadership outside NIH—furthering NIH's traditional role of seeding the extramural research community.

In sum, the committee has rejected adoption of a major new organizational structure for the intramural program. Rather, it has recommended a program of reforms that provides NIH with the tools necessary to address problems with minimal disruption to a successful enterprise.