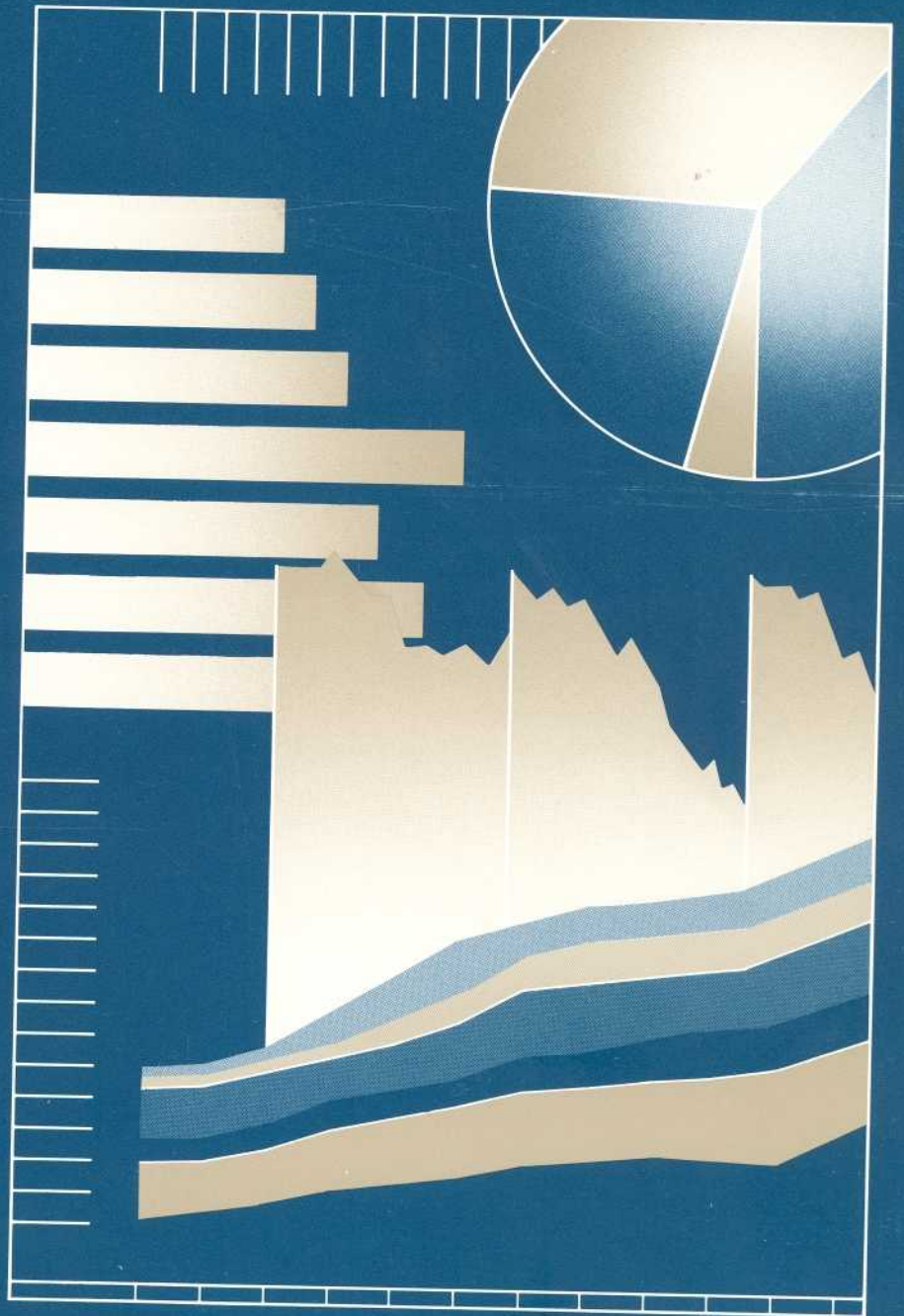


NCI

J.H

FACT BOOK

National
Cancer
Institute



1987

U.S. DEPARTMENT
OF HEALTH AND
HUMAN SERVICES

Public Health
Service

National
Institutes of
Health

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For Administrative Use

1987

U.S. DEPARTMENT
OF HEALTH AND
HUMAN SERVICES

Public Health
Service

National
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Health

The information set forth in this publication is compiled and amended annually by the financial management staff of the National Cancer Institute and is intended primarily for use by members of the Institute, principal advisory groups to the Institute and others involved in the administration and management of the National Cancer Program. Questions regarding any of the information contained herein may be directed to the Financial Manager, National Cancer Institute, 9000 Rockville Pike, Bethesda, Maryland 20892.

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Year 2000 Goals and Objectives

The National Cancer Institute has established a goal to reduce the United States cancer mortality rate by 50 percent by the year 2000. The ability to meet this goal is based on the knowledge that: (1) smoking is directly responsible for some 30 percent of all cancer deaths; (2) that diet and nutrition may be related to 35 percent or more of cancer deaths; (3) that screening for breast and cervical cancer has been proven effective in reducing mortality; (4) that widespread application of state-of-the-art cancer treatment could reduce the mortality rate for some sites as much as 25 percent; and (5) that gains in treatment methodology, reflected as improvement in the five-year survival rate for cancer, can reasonably be expected to continue over the next ten to fifteen years. This goal is based on achieving a number of cancer prevention and control objectives which are cited below.

The following is an outline of the cancer control objectives:

Control Area	Brief Rationale	Year 2000 Objective
Prevention/ Smoking	The causal relationship between smoking and cancer has been scientifically established.	<ul style="list-style-type: none"> — Reduce the percentage of adults who smoke from 34 percent (in 1983) to 15 percent or less. — Reduce the percentage of youths who smoke by age 20 from 36 percent (in 1983) to 15 percent or less.
Prevention/ Diet	Research indicates that high-fat and low-fiber consumption may increase the risk for various cancers. In 1983 NAS reviewed research on diet and cancer and recommended a reduction in fat; more recent studies led NCI to recommend an increase in fiber. Research is underway to verify the causal relationship and to test the impact on cancer incidence.	<ul style="list-style-type: none"> — Reduce average consumption of fat from 40 percent to 30 percent or less of total calories. — Increase average consumption of fiber from 8 to 12 grams per day to 20 to 30 grams per day.
Screening/ Breast	The effectiveness of breast screening in reducing mortality has been scientifically established.	<ul style="list-style-type: none"> — Increase the percentage of women ages 50 to 70 who have annual physical breast exam and mammography from 45 percent for physical exam alone and 25 percent for mammography to 80 percent for each.
Screening/ Cervical	The effectiveness of cervical screening in reducing mortality has been scientifically established.	<ul style="list-style-type: none"> — Increase the percentage of women who have a Pap smear every 3 years to 90 percent from 79 percent (ages 20 to 39) and to 80 percent from 57 percent (ages 40 to 70).
Treatment/ Transfer of Research Results to Practice	NCI review of clinical trial and SEER data indicates that, for certain cancer sites, mortality in SEER is greater than mortality experienced in clinical trials.	<ul style="list-style-type: none"> — Increase adoption of state-of-the-art treatment, including improved treatment of micrometastases.

Significant Initiatives In 1987

Division of Cancer Biology and Diagnosis

Autocrine Motility Factor

Metastasis, the spread of a tumor from its primary site, is the major cause of death in patients with cancer. Recent research at the NCI has led to the identification of a protein produced by tumor cells, which appears to play an important role in the invasive process by stimulating the migration of tumor cells. This protein, termed autocrine motility factor (AMF), has been purified and partially characterized, and appears to be distinct from other cancer growth factors.

Further research will be directed toward learning more about the mechanisms that trigger the production of AMF and the pathways through which it stimulates cell movement. This information will be used to develop new strategies for cancer diagnosis and therapy. Agents directed against these motility factors could be used to predict cancer aggressiveness in individual patients and to inhibit the spread of cancer cells.

Colony Stimulating Factors

Colony stimulating factors (CSFs) offers one of the most exciting applications of recombinant DNA technology. CSFs are hormones involved in control of the production of blood elements in the bone marrow. During the past year, scientists have begun to unravel the effects of newly-identified CSFs on normal bone marrow. Similar to growth factors which stimulate cancer cells to proliferate, these biologicals appear to be able to regulate the division of normal bone marrow elements.

CSFs are being investigated with great interest in the expectation that they can be used to reconstitute the immune system after it has been suppressed by cancer chemotherapy or AIDS. These new hormones, used in combination with conventional therapies and bone marrow transplantation, may result in more effective treatment with reduced side effects for both cancer and AIDS.

Division of Cancer Treatment

AZT

During the past year, the drug Azidothymidine (AZT) was formally shown to prolong the survival and improve the quality of life of patients with AIDS and poor prognostic AIDS-related complex. It was approved as a prescription drug in the U.S. and in a number of other countries. AZT was found to be effective against the AIDS virus in 1985. This represents the fastest development and distribution of a new pharmaceutical agent in the modern era of drug development.

In 1987, additional AZT studies were initiated within the intramural program. It was found that AZT could improve, at least temporarily, certain features of AIDS-related dementias in adults. Preliminary results using a continuous infusion protocol have also shown very substantial improvements of neurologic dysfunction in children who are infected with HIV.

Multi-drug Resistance

A breakthrough in understanding the underlying mechanisms used by tumor cells to resist drugs, occurred when the gene responsible for multi-drug resistance in human tumor cells was isolated. This accomplishment is significant because drug resistance is the single most important obstacle to the cure of patients with advanced cancer.

New studies have shown that cancer cells, which are resistant to anticancer drugs, are more capable of flushing the drug out of the cell. These insights have given us not only a better ability to reverse drug resistance, but have also shed new light on the cancer process itself. This emerging knowledge

may ultimately lead to protection against some of chemotherapy's side effects, better selection of treatments, and prevention of cancer.

Division of Cancer Etiology

Radon and Lung Cancer Risk

NCI research activities have intensified to evaluate the possible link between indoor radon and lung cancer risk. Radon is a radioactive gas that comes from the decay of uranium found throughout the earth's crust. Because radon can concentrate in homes, especially when tightly insulated, it is possible that a significant proportion of lung cancers may be attributable to residential exposures.

NCI, in collaboration with the New Jersey Department of Health, is monitoring radon levels in the homes of 800 women who developed lung cancer and 800 controls. New Jersey is a high risk area because of its proximity to Reading Prong, a uranium-rich belt of land. A similar study in Missouri began this year with non-smoking women identified from state tumor registry files. In Stockholm, Sweden, studies were initiated because of the composition of the geologic base and the high radium content of building material. NCI studies in China are assessing lung cancer risk associated with radon and other pollutants in a stable population. Together, these studies will provide information on lung cancer risk related to indoor radon gas, as well as determine whether other exposures, such as cigarette smoking, enhance the risk.

Division of Cancer Prevention and Control

Nutrition

In collaboration with Giant Food Inc., a regional supermarket chain in the Washington-Baltimore area, NCI has begun a four-year consumer education program entitled *EAT FOR HEALTH*. The study is designed to inform consumers about nutrition, health promotion, and cancer risk reduction and to test the effectiveness of a supermarket nutrition education program. Sales data on several thousand items will be tracked in selected test and comparison stores to determine the impact of the education interventions on purchasing behavior.

NCI has approved plans to establish an intramural research laboratory for nutrition. It will provide leadership and a focal point for the highest quality cancer-oriented nutrition research. Its objective is to fill a gap between basic research and human application by consolidating a multidisciplinary scientific approach.

Prevention Highlights: Meeting the Year 2000 Objectives Fiscal Year 1987

Key Dates:

- 1970-1979—Basic research contributed new knowledge of cancer process including the finding that cancer is multi-staged and that there are at least two distinct stages—initiation and promotion.
- 1980—Establishment of a new division, forerunner of the Division of Cancer Prevention and Control.
- 1981-1982—NCI developed new strategy that focused on cancer prevention and applied research.
- 1983—Year 2000 Goals were established which are based on prevention, early detection, and widespread application of the latest treatment results.

In 1987, NCI's prevention activities included the following:

Cancer Network

- Cancer Information System (CIS) is a national toll free telephone service that provides immediate answers to cancer-related questions from cancer patients, families, the public and health professionals.
- Cancer Centers significantly contribute to progress in basic research, clinical studies, education, and cancer prevention and control.
- Community Clinical Oncology Program involves community physicians in clinical trials research on cancer treatment, prevention, and control.
- Physician Data Query (PDQ) is an on-line computer system that provides state-of-the-art information on cancer detection, diagnosis and treatment.
- Cooperative Group Outreach Program (CGOP) is designed to increase patient enrollment in clinical trials and to upgrade the skills of community physicians and other health professionals.
- Surveillance, Epidemiology, and End Results (SEER) Program consists of population-based cancer registries that permit the monitoring of cancer incidence, mortality and survival, and is a key tool for assessing the progress against cancer.

Prevention Trials

- Since 1982 chemoprevention studies (studies that seek to identify agents which may inhibit cancer from developing or recurring) have initially reviewed over 600 agents. Thirteen of these agents, which include vitamins, minerals, and other natural and synthetic substances have been tested in clinical trials in humans.
- Two current trials are studying diet modification as a means of preventing recurring breast cancer and colon cancer. A pilot study demonstrated the feasibility of conducting a large-scale chemoprevention effort overseas with Chinese tin miners who are at extremely high risk of lung cancer.

Agency Coordination

Formal mechanisms for the exchange of information and coordination among the NCI and other health and environmental agencies include:

- NCI staff representation on the National Toxicology Program Executive Committee of the National Institute of Environmental Health Sciences whose mission is the study of the toxicity of chemical and physical agents present in the environment.
- The Director of the NCI chairs the Subcommittee on Research Needs of The Committee to Coordinate Environmental Health and Related Programs (CCEHRP) which addresses matters seeking to measure scientific risk assessment and management.

Smoking

- The Smoking, Tobacco and Cancer Program (STCP) supports 60 large scale prevention and cessation clinical trials targeted toward women, heavy smokers, minority and ethnic populations, adolescents and smokeless tobacco users.
- A major consensus conference of over 200 smoking control researchers and experts was held to examine the state-of-the-art of tobacco-use prevention and cessation techniques. Recommendations will guide future program plans of STCP.
- Epidemiologists have completed several new projects focused on clarifying the cancer risks associated with various smokeless tobaccos, including snuff, chewing tobacco and exposure to passive smoking.

Nutrition

- The NCI/Giant Food Inc. Supermarket Study is underway. This study will evaluate the effects of shelf labeling, in-store information and advertising on shopping practices and dietary behavior. The impact of identifying low-fat and high fiber food will be measured.
- An intramural research laboratory of nutrition is being planned. This laboratory will provide leadership in basic research, clinical nutrition, epidemiology, and human metabolism.

Occupational Cancer

- The results of a large scale study of industrial workers exposed to formaldehyde showed a slight excess mortality from lung cancer. Relationships to other forms of cancer are also being evaluated. A number of worksite intervention programs are underway to reduce cancer incidence and mortality in people at high risk for cancer.

Screening and Early Detection

- Primary care physicians are integrating cancer prevention and control interventions into their usual office practice in two studies. These activities include smoking cessation and diet modification counseling, and screening for cancers of the breast, cervix, colon, rectum, and prostate.
- A program has been initiated to develop strategies for achieving a significant reduction in cancer morbidity and mortality through early detection. Promising methods of surveillance, research, and intervention have been identified for support and evaluation. Collaborative programs have been developed with major national medical organizations to identify and address research gaps and to increase the use of the state-of-the-art early detection methodologies within the practicing medical community.

Information and Public Awareness

- To obtain broad-based community input concerning national progress against cancer, NCI and its National Cancer Advisory Board are conducting a series of regional public participation hearings across the country.
- Through the Partners in Prevention (PIP) network, Cancer Prevention Awareness Program, NCI is stimulating community based programs in smoking, nutrition, and early detection. Currently about 2,000 representatives of national, regional and local organizations are members of the network.

**Prevention Funding
A Comparison
FY 1979 vs FY 1987**

(Dollars in Millions)

	FY 1979		FY 1987		79/87 Percent Change
	Amount	Percent of Total NCI	Amount	Percent of Total NCI	
Research Activities					
Cancer Prevention [Prevention and Control]	\$252.1 [\$16.0]	27.6% [1.8%]	\$414.5 [40.0]	29.5% [2.9%]	64.4% [150.0%]
Detection and Diagnosis	55.9	6.1%	103.7	7.4%	85.5%
Treatment	297.5	32.5%	437.3	31.2%	47.0%
Cancer Biology	127.5	13.9%	271.6	19.4%	113.0%
Total, Research	773.0	80.2%	1,227.1	87.5%	67.4%
Total, NCI	914.0	100.0%	1,402.8	100.0%	53.5%

Prevention Activities:

Epidemiology	\$44.1	4.8%	\$77.2	5.5%	75.1%
Chemical and Physical Carcinogenesis*	82.3	9.0%	140.6	10.0%	70.8%
Biological Carcinogenesis	110.5	12.1%	134.8	9.6%	22.0%
Smoking	12.8	1.4%	37.3	2.7%	191.4%
Nutrition ¹	25.3	2.8%	52.7	3.8%	108.3%

* The National Toxicology Program (NTP) transferred to the National Institutes of Environmental Health Sciences (NIEHS) in FY 1982 at a level of \$47.9 million and 95 positions.

¹ Includes \$35 million from the research budget as well as nutrition related research in tumor biology, epidemiology, carcinogenesis and other programs.

Directory of Personnel

	Direct-in Dialing
<i>Director</i>	
Dr. Vincent T. DeVita, Jr.*	<i>Building 31</i> 11-A-48..... 496-5615
<i>Manager, Equal Employment Opportunity</i>	
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Dr. Elliott Stonehill.....	<i>Building 31</i> 11-A-27..... 496-1148
<i>Assistant Director For Program Operations and Planning</i>	
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<i>Planning Officer</i>	
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<i>Legislative Analyst/Congressional Liaison</i>	
Dr. Mary Knipmeyer	<i>Building 31</i> 10-A-32..... 496-5217
<i>Associate Director for Prevention</i>	
Dr. Peter Greenwald*	<i>Building 31</i> 10-A-52..... 496-6616
<i>Associate Director for Cancer Communications</i>	
Mr. J. Paul Van Nevel	<i>Building 31</i> 10-A-29..... 496-6631
<i>Chief, Information Resources Branch</i>	
Ms. Nancy Brun	<i>Building 31</i> 10-A-30..... 496-4394
<i>Chief, Reports and Inquiries Branch</i>	
Ms. Eleanor Nealon	<i>Building 31</i> 10-A-29..... 496-6631
<i>Chief, Information Projects Branch</i>	
Ms. Rose Mary Romano.....	<i>Building 31</i> 4-B-43..... 496-6793
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Dr. Ihor J. Masnyk, Acting.....	<i>Building 31</i> 4-B-55..... 496-4761
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Ms. Susan P. Hubbard.....	<i>Building 82</i> 102..... 496-9096
<i>Chief, Computer Communications Branch</i>	
Mr. Nicholas V. Martin.....	<i>Building 82</i> 219..... 496-8880
<i>Chief, Publications Branch</i>	
Mr. Robin Atkiss.....	<i>Building 82</i> 235..... 496-1997
<i>Chief, International Cancer Research DataBank Branch</i>	
Dr. Dianne Tingley.....	<i>Building 82</i> 113..... 496-7403

*NCI Executive Committee Members

Directory of Personnel

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Ms. Marianne Wagner	3-A-19.....	496-3337
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Mr. Leo F. Buscher, Jr.	8-A-18.....	496-7753
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<i>Director, Division of Extramural Activities</i>		<i>Building 31</i>
Mrs. Barbara Bynum*	10-A-03..... 496-5147
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Mr. Stephen M. Hazen	10-A-10..... 496-5915
<i>Director, Division of Cancer Prevention and Control</i>		<i>Building 31</i>
Dr. Peter Greenwald*	10-A-52..... 496-6616
<i>Administrative Officer</i>		<i>Building 31</i>
Mr. Nicholas Olimpio	10-A-50..... 496-9606

*NCI Executive Committee Members

National Cancer Institute Leadership

Director's Biography

Vincent T. DeVita, Jr., M.D.

Vincent T. DeVita, Jr., M.D., has served as Director of the National Cancer Institute since July 9, 1980. He joined NCI initially in 1963 as a Clinical Associate in the Laboratory of Chemical Pharmacology, left in 1965 to complete advanced training in medicine at Yale-New Haven Medical Center, and returned to the National Cancer Institute in 1966.

He has served NCI consecutively as a Senior Investigator in the Solid Tumor Service, Head of the Solid Tumor Service, Chief of the Medicine Branch, and Director of the Division of Cancer Treatment from 1974 until being appointed NCI's Director. Since 1975 he also has served as NCI Clinical Director.

Dr. DeVita is frequently cited for his managerial accomplishments. While Director of the Division of Cancer Treatment he reorganized the program for drug development and clinical trials. As NCI's Director he has instituted a corporate management structure, overhauled NCI's contracting process, implemented a consistent, rigorous process of review by non-NCI scientists of the intramural research program, and strengthened the advisory structure for NCI's operating divisions.

Born in Bronx, New York, March 7, 1935, Dr. DeVita earned his Bachelor of Science degree from the College of William and Mary in 1957. He was awarded his M.D. degree with distinction from the George Washington University School of Medicine in 1961, where he became Associate Professor of Medicine from 1971 to 1975 and has held the appointment of Professor of Medicine since 1975.

Dr. DeVita has been awarded a number of honors. In 1972, for example, he received the Albert and Mary Lasker Medical Research Award for contributing to the cure of Hodgkin's disease. In 1980, he was awarded the Griffuel Prize by the Association for the Development of Research on Cancer, again for his important contributions to cancer chemotherapy, particularly for developing curative multiple drug therapy for Hodgkin's disease and diffuse large cell lymphoma. He has Honorary Doctor of Science degrees from the College of William and Mary, the George Washington University, and New York Medical College. He also was awarded the Alumni Achievement Award from the George Washington University in 1983.

In 1985, Dr. DeVita was elected to the Institute of Medicine of the National Academy of Sciences and was presented the Pierluigi Nervi Award for Cancer Research in Italy, the Medal of Honor from the American Cancer Society, and the Barbara Bohlen Pfeifer Award from the American-Italian Foundation for Cancer Research. His latest awards include the Tenth Richard and Hinda Rosenthal Award (American Association for Cancer Research, Inc.) and the Stanley G. Kay Memorial Award (D.C. American Cancer Society).

Dr. DeVita serves on the editorial boards of numerous scientific journals and is the author or coauthor of more than 300 scientific articles. In addition, he is one of the editors and authors of *Cancer: Principles and Practice of Oncology*, a comprehensive textbook on cancer medicine.

He is past-president and board member of the American Society of Clinical Oncology, has served on the board of directors of the American Association for Cancer Research and as a consultant to the International Union Against Cancer. As NCI Director, Dr. DeVita administers a staff of approximately 2,000 and a federally-funded budget of more than \$1.40 billion.

President's Cancer Panel

Armand Hammer, M.D. *Chairman 1990*
Occidental International Corporation
Washington, D.C. 20006

William P. Longmire, Jr., M.D. (1988)
Veteran's Administration
Los Angeles, California 90073

John A. Montgomery, Ph.D. (1989)
Southern Research Institute
Birmingham, Alabama 35255

Executive Secretary
Elliott Stonehill, Ph.D.

National Cancer Advisory Board

Appointees	Expiration of Appointment	Appointees	Expiration of Appointment	Appointees	Expiration of Appointment
Dr. David Korn, <i>Chairman</i> <i>Stanford University</i> <i>Stanford, California</i>	1990	Dr. John R. Durant <i>Fox Chase Cancer Center</i> <i>Philadelphia, Pennsylvania</i>	1992	Mrs. Irene Sue Pollin <i>Psychiatric Social Worker-</i> <i>Private Practice</i> <i>Chevy Chase, Maryland</i>	1992
Mr. Richard A. Bloch <i>Kansas City, Missouri</i>	1988	Dr. Gertrude B. Elion <i>Burroughs Wellcome Company</i> <i>Research Triangle Park, North</i> <i>Carolina</i>	1990	Mrs. Barbara I. Shook <i>Barbara Ingalls Shook</i> <i>Foundation</i> <i>Birmingham, Alabama</i>	1988
Dr. Roswell K. Boutwell <i>University of Wisconsin</i> <i>Madison, Wisconsin</i>	1990	Dr. Bernard Fisher <i>University of Pittsburgh</i> <i>Pittsburgh, Pennsylvania</i>	1992	Dr. Louise C. Strong <i>M.D. Anderson Hospital and</i> <i>Tumor Institute</i> <i>Houston, Texas</i>	1990
Dr. Victor Braren <i>Vanderbilt University School</i> <i>of Medicine</i> <i>Nashville, Tennessee</i>	1988	Dr. Phillip Frost <i>Key Pharmaceuticals</i> <i>Miami, Florida</i>	1992	Dr. Louis W. Sullivan <i>Morehouse School of Medicine</i> <i>Atlanta, Georgia</i>	1992
Mrs. Nancy G. Brinker <i>Susan G. Komen Foundation</i> <i>Dallas Texas</i>	1992	Dr. Geza J. Jako <i>Institute for Research in</i> <i>Laser Surgery</i> <i>Melrose, Massachusetts</i>	1988	Dr. Howard M. Temin <i>University of Wisconsin</i> <i>Madison, Wisconsin</i>	1988
Mrs. Helen G. Brown <i>Jonsson Comprehensive Cancer</i> <i>Center</i> <i>Los Angeles, California</i>	1990	Dr. Enrico Mihich <i>Roswell Park Memorial</i> <i>Hospital</i> <i>Buffalo, New York</i>	1990		
Dr. Ed L. Calhoon <i>Beaver, Oklahoma</i>	1988				

Executive Secretary

Mrs. Barbara S. Bynum
National Cancer Institute, NIH
Bethesda, Maryland

Ex Officio Members

The Honorable Otis R. Bowen, M.D.
Secretary for Health and Human
Services

The Honorable William E. Brock
Secretary of Labor
Washington, DC

Dr. Vincent T. DeVita, Jr.
National Institutes of Health, PHS
Bethesda, Maryland

Dr. William R. Graham
Office of Science and Technology
Policy
Washington, D.C.

Dr. John Gronvall
Veterans Administration
Washington, DC

The Honorable William E. Mayer
Department of Defense
Washington, DC

Dr. J. Donald Millar
National Institute for Occupational
Safety and Health
Atlanta, Georgia

Dr. David P. Rall
National Institute of Environmental
Health Sciences
Research Triangle Park, North
Carolina

Mr. Terrance Scanlon
Consumer Product Safety Commission
Washington, DC

Mr. Lee Thomas
Environmental Protection Agency
Washington, DC

Dr. James B. Wyngaarden
National Institutes of Health
Bethesda, Maryland

Dr. Frank E. Young
Food and Drug Administration
Rockville, Maryland

Alternates to Ex Officio Members

Dr. Beverly J. Berger
Office of Science and Technology
Policy
Washington, D.C.

Dr. Dorothy A. Canter
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Health Sciences
Bethesda, Maryland

Dr. Mary Ann Danello
Food and Drug Administration
Rockville, Maryland

Dr. Richard J. Greene
Veterans Administration
Washington, D.C.

Dr. Richard A. Lemen
National Institute for Occupational
Safety and Health
Cincinnati, Ohio

Dr. Peter W. Preuss
Environmental Protection Agency
Washington, DC

Dr. Andrew Ulsamer
Consumer Product Safety Commission
Bethesda, Maryland

Dr. Ralph E. Yodaiken
Department of Labor
Washington, DC

Vice Admiral James A. Zimble
Office of Chief of Naval Operations
Washington, DC

Division Boards of Scientific Counselors

Division of Cancer Biology and Diagnosis	Arnold J. Levine, Ph.D., <i>Chairperson</i>	1990	Kathryn V. Holmes, Ph.D.	1990
			Nancy E. Kleckner, Ph.D.	1987
	Stephen B. Baylin, M.D.	1989	Richard G. Lynch, M.D.	1991
	George I. Bell, Ph.D.	1989	Joseph S. McGuire, Jr., M.D.	1988
	Susan E. Cullen, Ph.D.	1990	Richard S. Metzgar, Ph.D.	1990
	Vittorio Defendi, M.D.	1990	Harold L. Moses, M.D.	1991
	Barbara A. Hamkalo, Ph.D.	1987	Sandra L. White, Ph.D.	1989
	Leon A. Heppel, M.D., Ph.D.	1991		
Division of Cancer Treatment	John E. Niederhuber, M.D., <i>Chairperson</i>	1990	Susan B. Horwitz, Ph.D.	1990
			William M. Hryniuk, M.D.	1991
			Robert C. Jackson, Ph.D.	1988
	Charles M. Balch, M.D.	1991	John H. Kersey, M.D.	1988
	Yung-chi Cheng, Ph.D.	1990	John Mendelsohn, M.D.	1990
	James D. Cox, M.D.	1991	Charles E. Putman, M.D.	1989
	Lawrence H. Einhorn, M.D.	1989	Ralph A. Reisfeld, Ph.D.	1988
	Emil Frei, III, M.D.	1990	Geraldine Schechter, M.D.	1989
	Mark T. Groudine, M.D., Ph.D.	1990	Robert T. Schimke, M.D.	1989
	William R. Hendee, Ph.D.	1990	H. Rodney Withers, M.D., D.Sc.	1989
Division of Cancer Etiology	Hilary Koprowski, M.D., <i>Chairperson</i>	1990	Dietrich Hoffmann, Ph.D.	1988
			William T. London, M.D.	1989
			Peter N. Magee, M.D.	1988
	Anna D. Barker, Ph.D.	1990	Maureen T. O'Berg, Ph.D.	1988
	William F. Benedict, M.D.	1989	Roy Shore, Ph.D.	1988
	Janet S. Butel, Ph.D.	1989	Moyses Szklo, Ph.D.	1990
	George W. Casarett, Ph.D.	1990	George F. Vande Woude	1989
	Allan H. Conney, Ph.D.	1991	Noel S. Weiss, M.D.	1989
	Pelayo Correa, M.D.	1991	Alice S. Whittemore, Ph.D.	1990
	Myron Essex, Ph.D.	1991	Mimi C. Yu, Ph.D.	1988
Lawrence Fischer, Ph.D.	1990			
Division of Cancer Prevention and Control	Paul F. Engstrom, M.D., <i>Chairperson</i>	1989	James F. Holland, M.D.	1991
			Donald C. Iverson, Ph.D.	1990
	Edward Bresnick, Ph.D.	1991	Mary-Claire King, Ph.D.	1989
	Philip T. Cole, M.D.	1990	William C. Levin, M.D.	1988
	William A. Darity, Ph.D.	1990	Robert J. McKenna, M.D.	1989
	Johanna T. Dwyer, D.Sc.	1989	Frank L. Meyskens, Jr., M.D.	1990
	Virginia L. Ernster, Ph.D.	1990	David J. Sencer, M.D.	1988
	Lloyd K. Everson, M.D.	1990	John E. Ultmann, M.D.	1988
	James L. Gaylor, Ph.D.	1991	Kenneth E. Warner, Ph.D.	1989
	Donald M. Hayes, M.D.	1989		

Frederick Cancer Research Facility (FCRF) Committees

FCRF Advisory Committee	Werner H. Kirsten, M.D., <i>Chairperson</i>	1988
	J. Thomas August, M.D.	1991
	Carlo M. Croce, M.D.	1988
	Terri Grodzicker, Ph.D.	1988
	Barton F. Haynes, M.D.	1989
	Nancy H. Hopkins, Ph.D.	1988
	Tony Hunter, Ph.D.	1988
	Alexandra M. Levine, M.D.	1991
	Dante G. Scarpelli, Ph.D.	1988
	Paul C. Zamecnik, M.D.	1988
Ad Hoc BSC Representatives	Stephen B. Baylin, M.D. (DCBD)	1989
	Dietrich Hoffman, Ph.D. (DCE)	1988
	Geraldine Schechter, M.D. (DCT)	1989
Ex Officio Member of NCAB	Enrico Mihich, M.D.	1990

Executive Committee Members

Dr. Vincent T. DeVita, Jr.
Director

Dr. Maryann Roper
Acting Deputy Director

Mr. Philip Amoruso
Associate Director for Administrative Management

Dr. Richard Adamson
Director, Division of Cancer Etiology

Mrs. Barbara Bynum
Director, Division of Extramural Activities

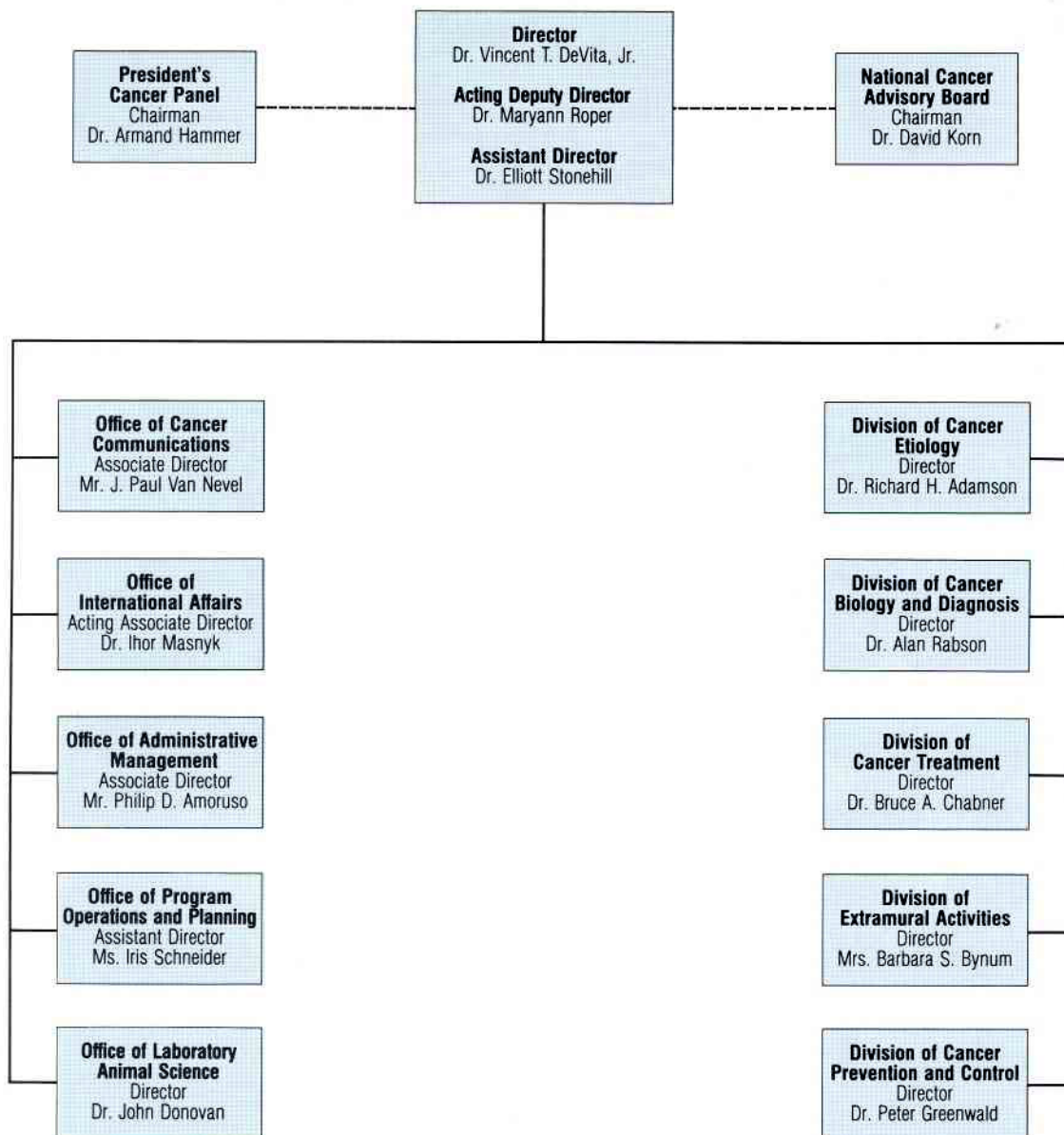
Dr. Bruce Chabner
Director, Division of Cancer Treatment

Dr. Peter Greenwald
Director, Division of Cancer Prevention and Control

Dr. Alan Rabson
Director, Division of Cancer Biology and Diagnosis

Ms. Iris Schneider
Executive Secretary

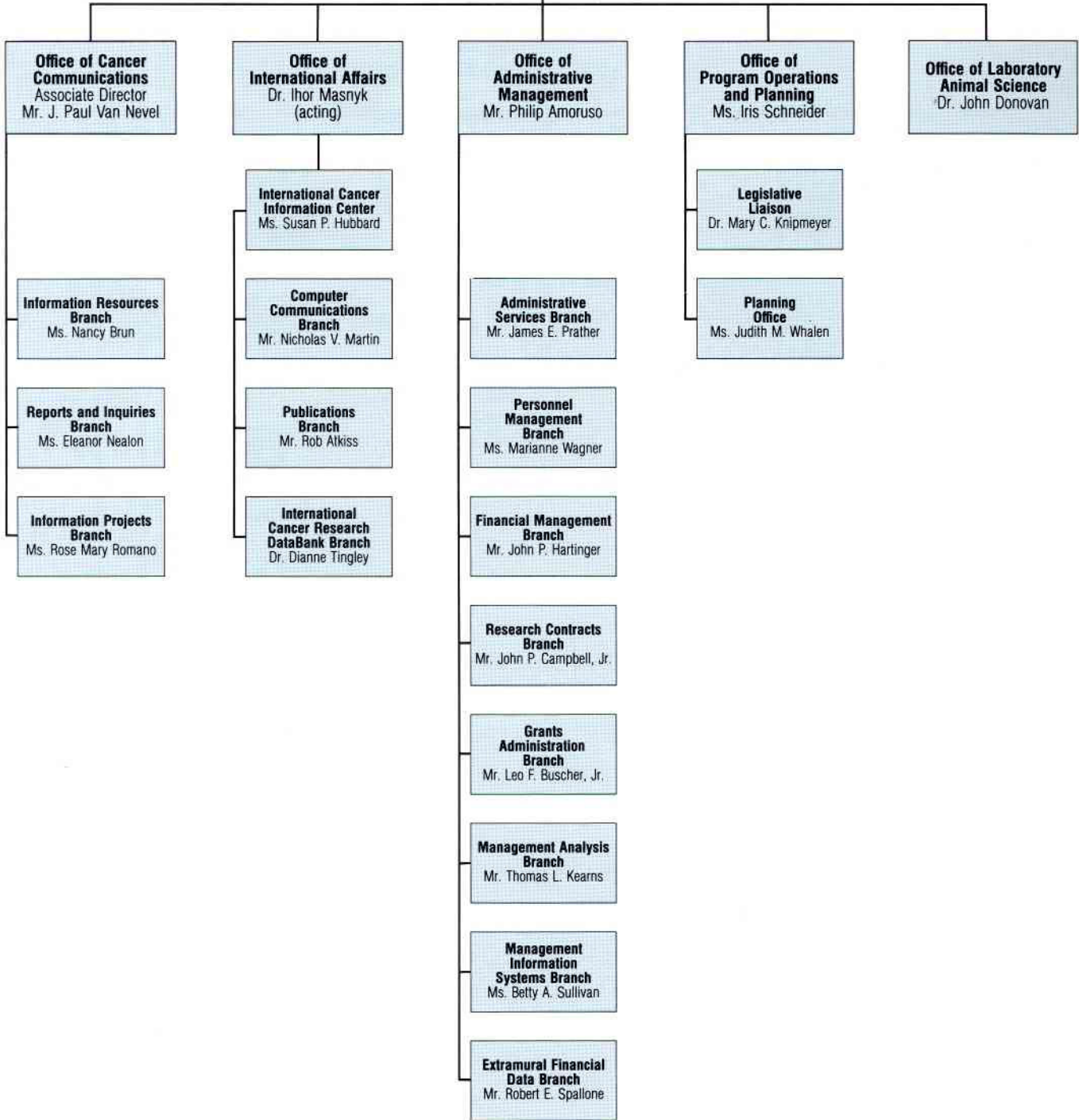
National Cancer Institute Organization

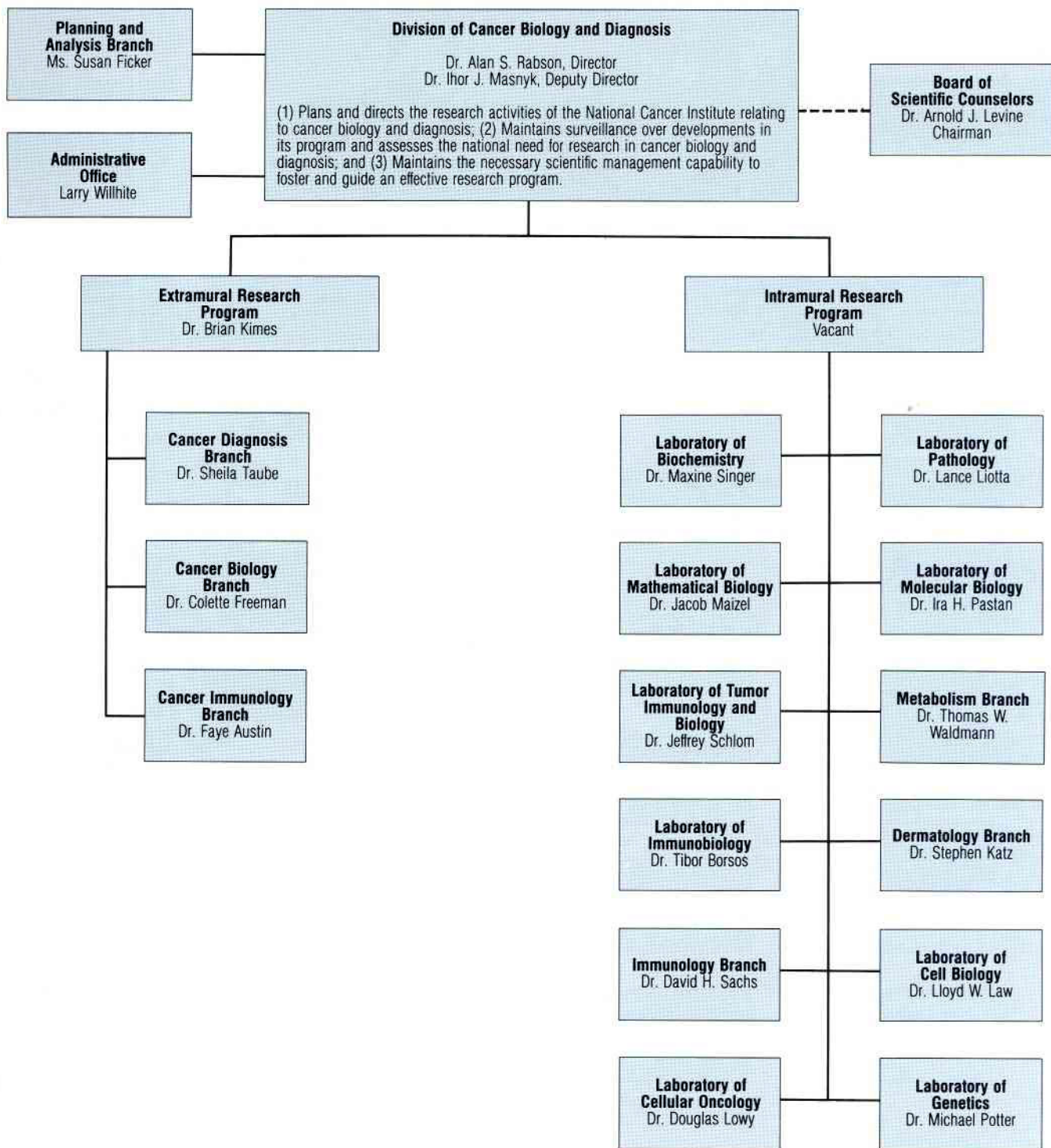


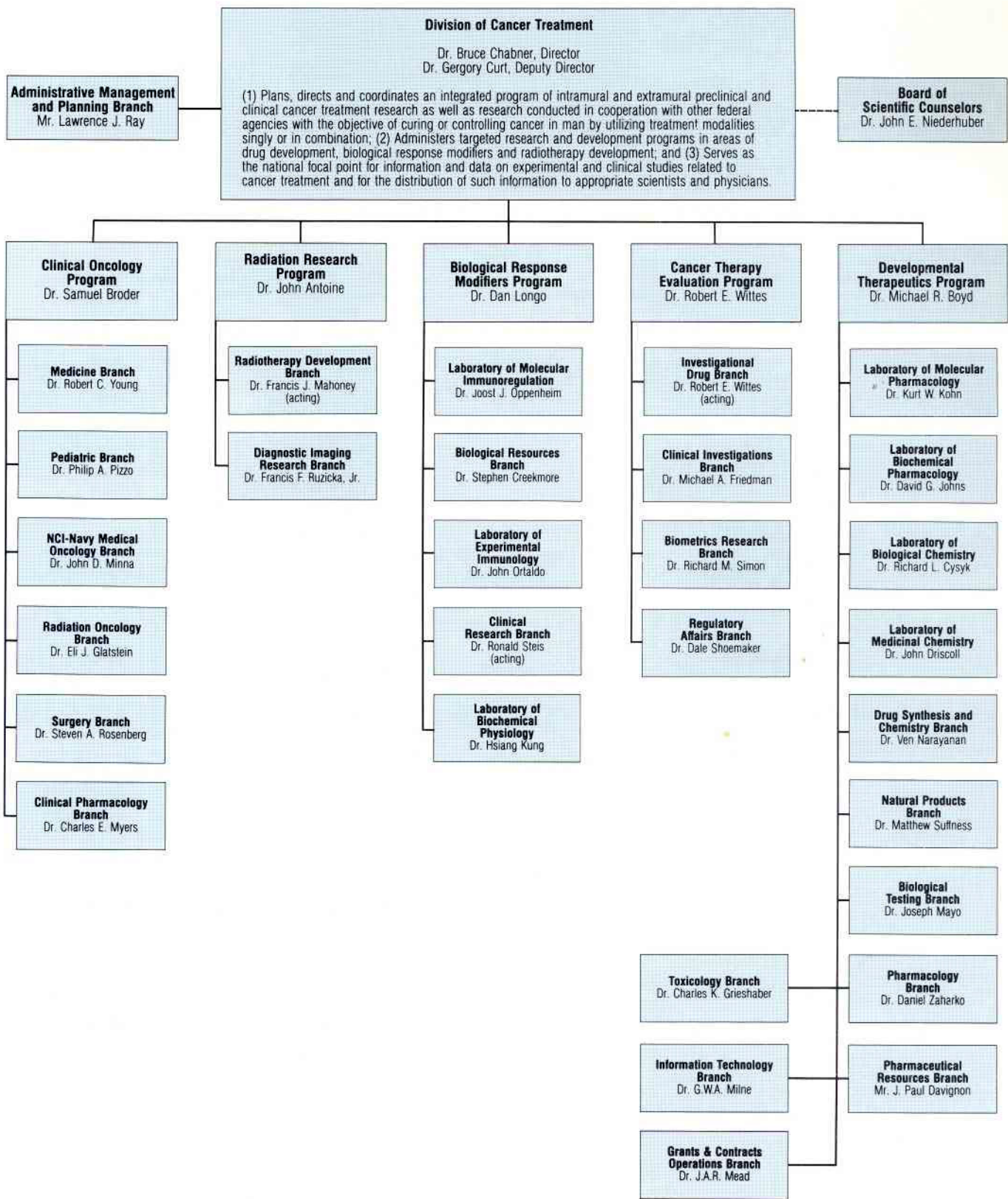
Office of the Director
 Dr. Vincent T. DeVita, Jr., Director
 Dr. Maryann Roper, Acting Deputy Director

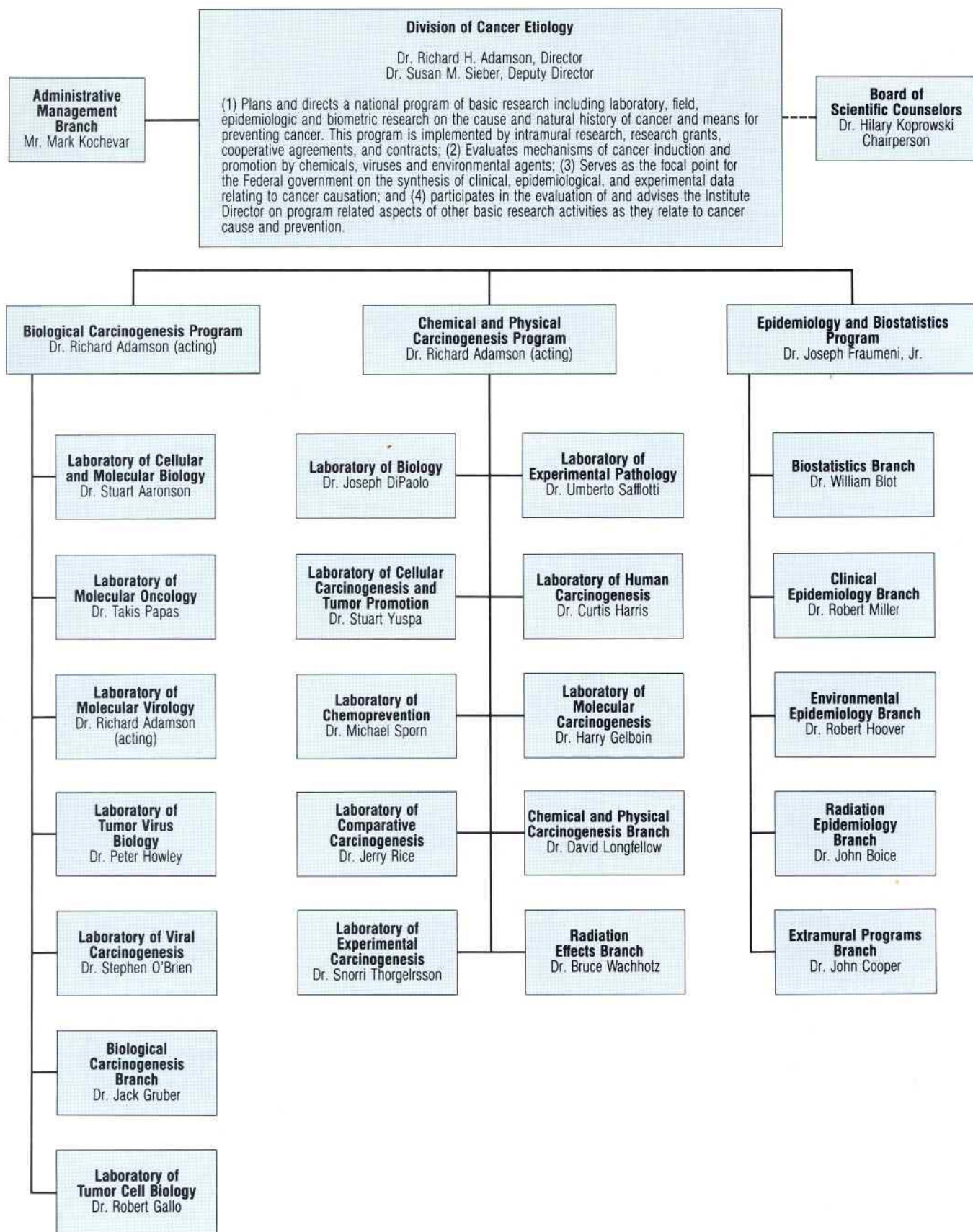
(1) Serves as the local point for the National Cancer Program; (2) Develops a National Cancer Plan and monitors implementation of the Plan; (3) Directs and coordinates the Institute's programs and activities, and (4) Develops and provides policy guidance and staff direction to the Institute's programs in areas such as program coordination, program planning, clinical care and administrative management.

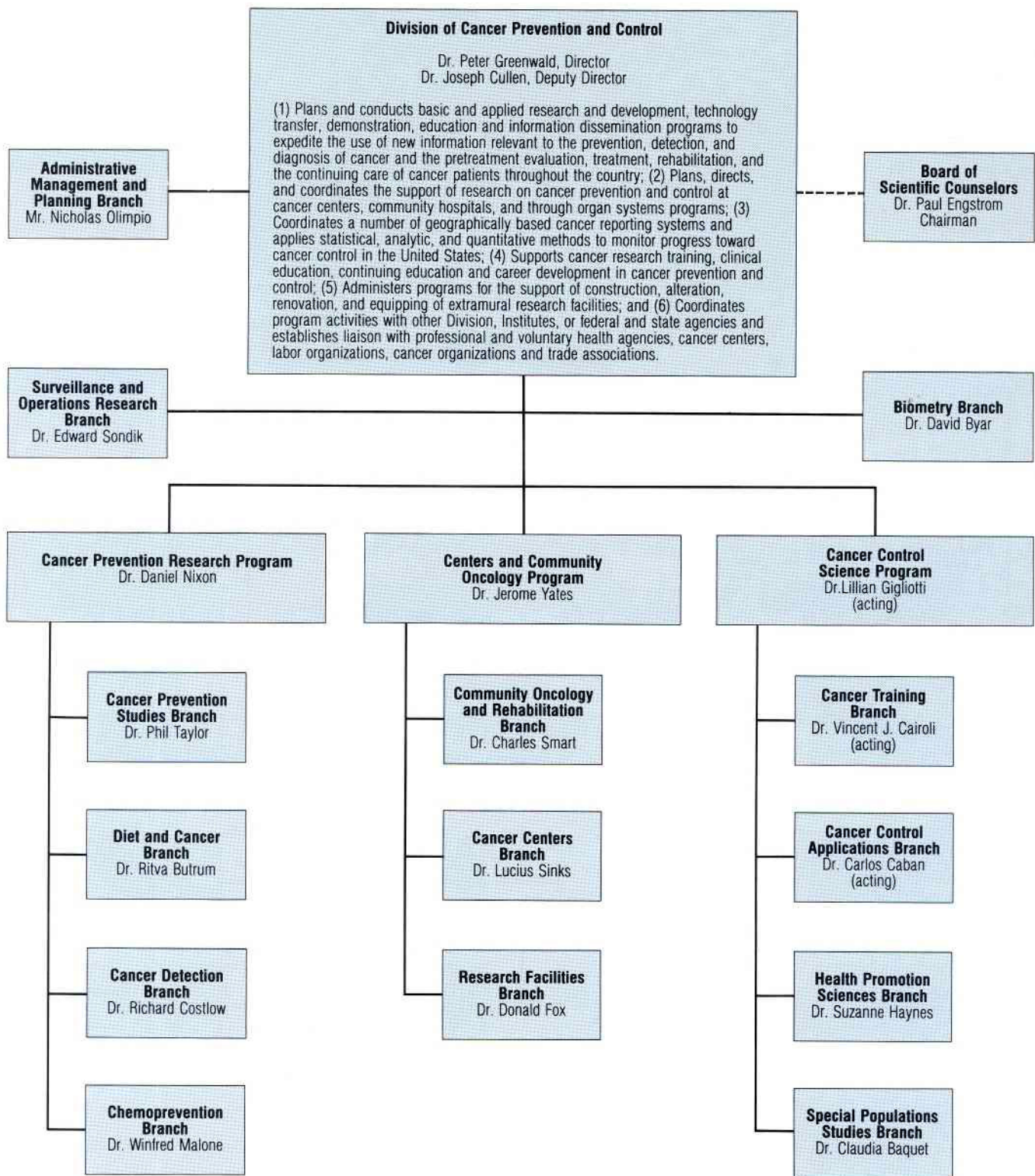
EEO Manager
 Ms. Maxine I. Richardson







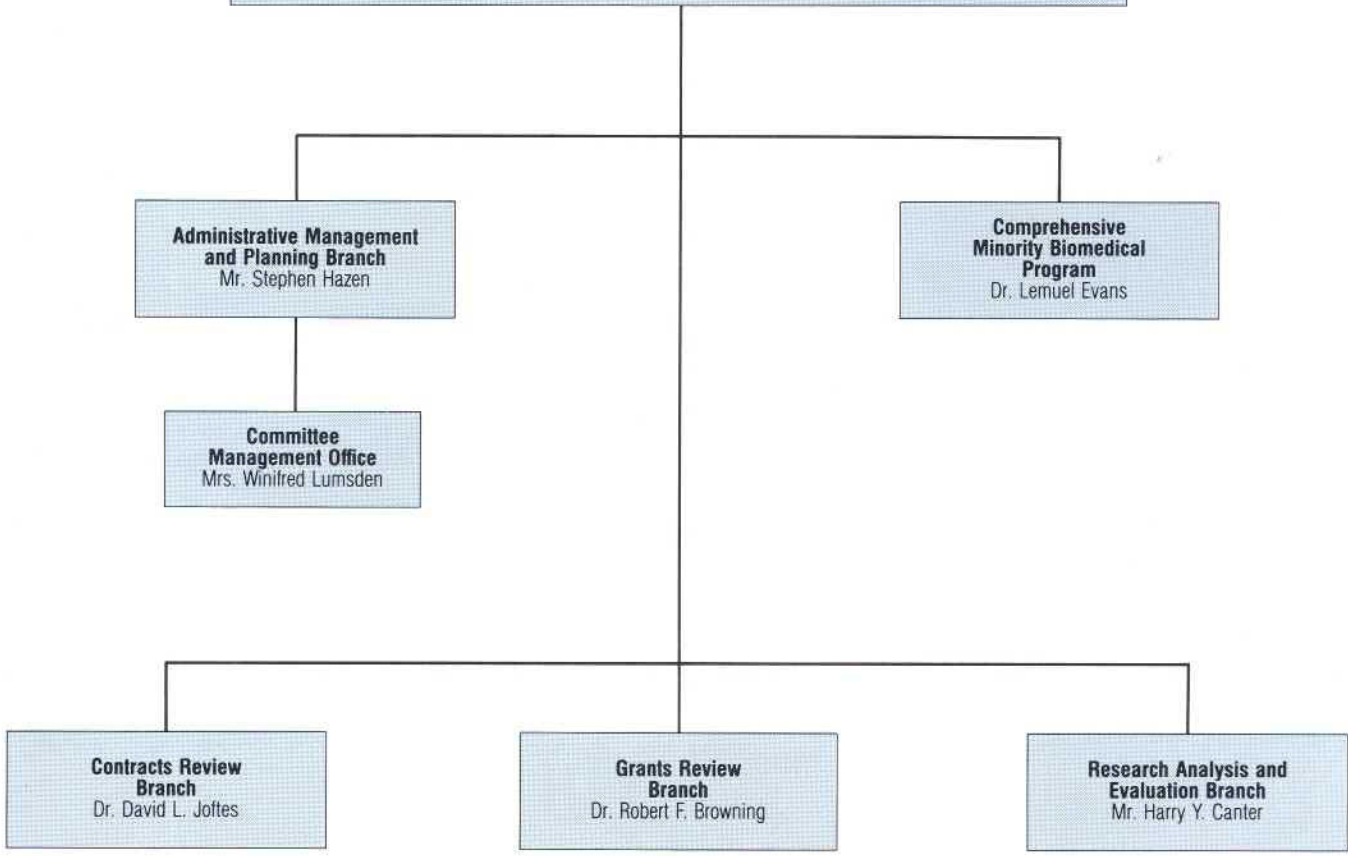




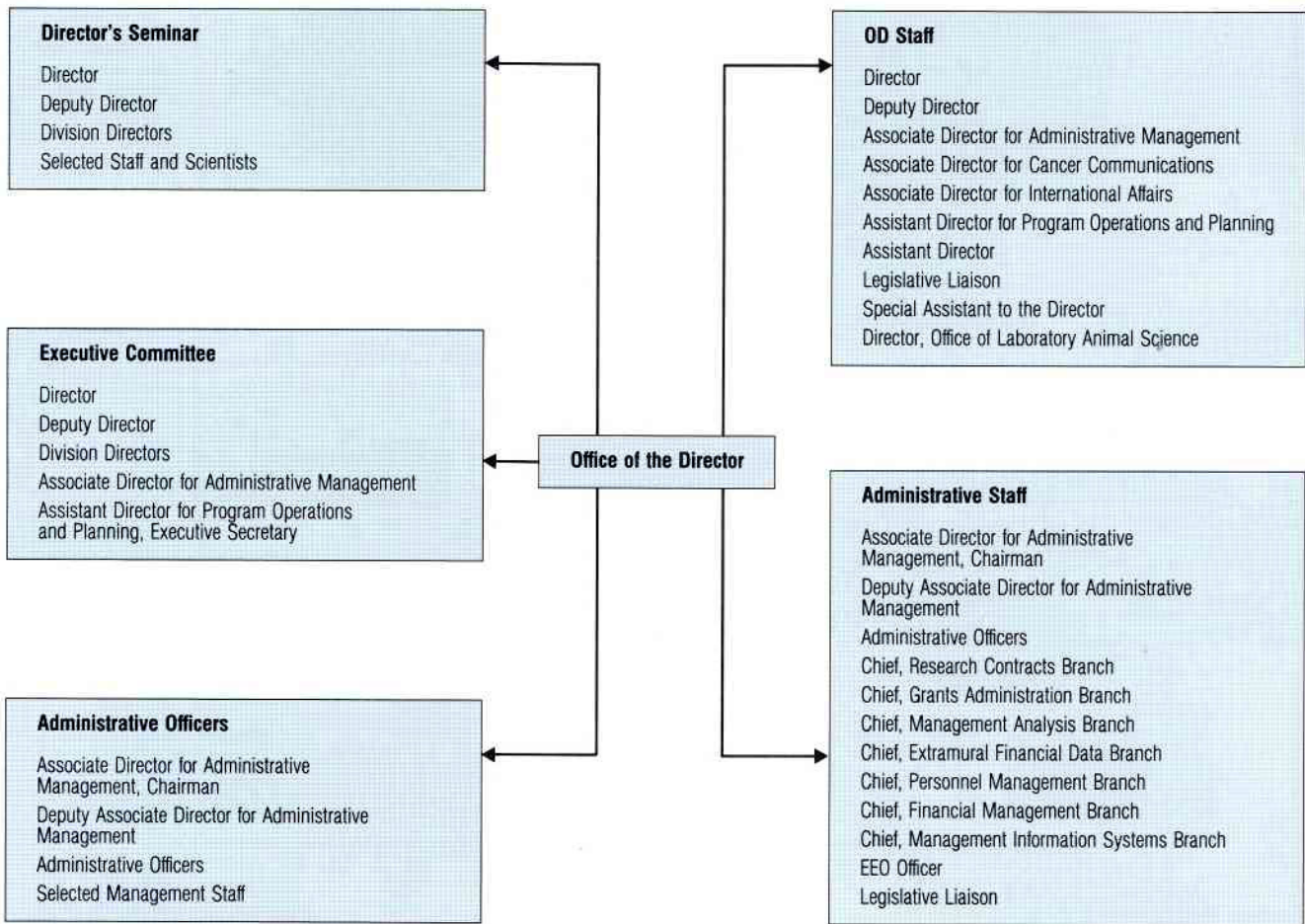
Division of Extramural Activities

Mrs. Barbara S. Bynum, Director
Dr. Paul C. Rambaut, Deputy Director

(1) Administers and directs the Institute's grant and contract review and processing activities; (2) Provides initial technical and scientific merit review of grants and contracts for the Institute; (3) Represents the Institute on overall NIH extramural and collaborative program policy committees, coordinates such policy within NCI, and develops and recommends NCI policies and procedures as related to the review of grants and contracts; (4) Coordinates the Institute's review of research grant and training programs with the National Cancer Advisory Board; (5) Coordinates the implementation of committee management policies within the Institute and provides the Institute's staff support for the National Cancer Advisory Board; (6) Coordinates program planning and evaluation in the extramural area; (7) Provides scientific reports and analyses to the Institute's grant and contract programs; and (8) Coordinates and administers the Institute's participation in minority research and training efforts.



Information Flow for Program Implementation Within the NCI



NCI Intramural Review Process

Board of Scientific Counselors

BSC Approves Site Visit Schedule	Chairman, BSC Selects Site Visit Chairman Site Visit Chairman Selects Site Visit Team	BSC Site Visit Team Reviews Material Prepared by Division	BSC Site Visit Team Inspects and Reviews Laboratory	Site Visit Team Prepares Report and presents it to BSC. After Review and Approval, BSC. Transmits Final Recommendations to the Division Director.
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NCI Divisions

Division Prepares Proposed Site Visit Schedule	Division Prepares Background Material on Laboratory to be Site Visited and Sends to Site Visit Team	Site Visit Preparation by Laboratory	Division Implements Recommendations Contained in Site Visit Report	Division Prepares Report to BSC on Actions Taken
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Research Positions at the National Cancer Institute¹

The National Cancer Institute recognizes that one of the most valuable resources to be drawn upon in the fight against cancer is the wealth of scientific talent available in the U.S. and around the world. In an effort to attract and maintain the highest quality scientific staff, two personnel

systems are used: the U.S. Civil Service System and the PHS Commissioned Corps. In addition, the Staff Fellowship Program and the NIH Visiting Program have been designed to meet special needs. Other special programs are available for those who qualify.

Position	Eligibility	Annual Salary	Mechanism of Entry
I. Civil Service			
A. Civil Service (tenured)	Appropriate advanced education, experience and knowledge needed by NCI to conduct its programs.	Minimum starting Ph D—\$38,727 Physicians—\$49,430 Maximum \$72,500	Office of Personnel Management, Contact Director or Laboratory Chief in area of interest or the NCI Personnel Office.
II. Special Appointment of Experts and Consultants			
A. Special Appointment of Experts and Consultants (non-tenured appointment which can be extended up to 4 years).	Applicants shall possess outstanding experience and ability as to justify recognition as authorities in their particular fields of activity.	Equivalent to the salary range of GS-13 and above—Maximum \$72,500	Recommendation by Division Directors. Final approval rests with the Director, NCI.
III. Medical Staff Fellows			
A. Medical Staff Fellows	Appointment for 2 or 3 years with an additional 1-year extension for an initial 2-year appointment. Graduate of accredited medical or osteopathic school and completion of internship. Completion of 2 or 3 years of clinical training beyond the M.D. degree and demonstrated outstanding ability to conduct successfully, preestablished programs in both clinical and laboratory research.	\$30,000-\$34,000	Apply to the Medical Staff Fellowship Program Office, National Institutes of Health, Clinical Center, Building 10, Room IC292, Bethesda, MD 20892
B. Medical Staff Fellows in Pharmacology (PRAT Fellows). For physicians committed to research careers in pharmacological sciences, or clinical pharmacology.	Appointment for 2 or 3 years with an additional 1-year extension for an initial 2-year appointment. Graduate of accredited medical or osteopathic school and completion of internship. Completion of 2 or 3 years of clinical training beyond the M.D. degree and demonstrated outstanding ability to conduct successfully, preestablished programs in both clinical and laboratory research.	\$30,000-\$34,000	Apply to the Medical Staff Fellowship Program Office, National Institutes of Health, Clinical Center, Building 10, Room IC292, Bethesda, MD 20892
IV. Visiting Program (limited tenure)²			
A. Visiting Fellow (maximum 3 years)	1-3 years postdoctoral experience or training.	Entrance stipend \$20,000-23,000	Contact Director or Laboratory Chief in area of interest.
B. Visiting Associate (1 year with renewals to end of project)	3+ years postdoctoral experience or training with appropriate knowledge needed by NCI.	\$23,000-42,000	Contact Director or Laboratory Chief in area of interest.
C. Visiting Scientist (duration of project)	6+ years postdoctoral experience with appropriate unusual experience and knowledge needed.	\$32,567-\$72,500	Contact Director or Laboratory Chief in area of interest.
B. Biotechnology Fellow	Physicians with little or no experience or training in fundamental research, but with an interest in biotechnology including its application to prevention and new treatment and diagnostic techniques, would be eligible.	First year Ph D \$19,000-25,000 Physicians \$27,000-29,000	Contact Division Director or Laboratory Chief in area of interest.

(continued on next page)

¹Does not necessarily indicate that positions are currently available at the National Cancer Institute.

²Under most circumstances, the various visiting programs are limited to non-citizens.

Position	Eligibility	Annual Salary	Mechanism of Entry
IV. Visiting Program (limited tenure)²			
<i>(continued)</i>			
C. Nurse Trainee	Ph.D. scientists with little or no experience or training in clinically related programs, but with an interest in clinical applications of fundamental research methodology related to biotechnology would also be eligible. Typically, these candidates will have less than three years post-doctoral experience. The Biotechnology Training Program is established for United States citizens, or resident aliens who will be eligible for U.S. citizenship within four years.	Stipends for the program will be \$1,550 per month	Contact the Division of Cancer Treatment.
D. Summer Training Program	The review and selection of candidates, as well as the day-to-day administration of the fellowships, will be the responsibility of each Division's Administrative Office. Must be bona-fide high school, college, medical school, or graduate students. Must be 16 years of age, must have a cumulative GPA of 2.75 or above, must be either a U.S. Citizen or resident alien.	Stipends will be paid at the rate of \$1,000 per month (\$2,000 total) for a period of 2 months.	Contact Division Director or Laboratory Chief in area of interest.
E. Special Volunteer Program	Volunteer service may be accepted for direct patient care, clerical assignments, technical assistance, or any other activities necessary to carry out the authorized functions of the NCI. Applicants must be at least 16 years of age.	N/A	Contact the NCI Personnel Office.
V. Staff Fellowships			
A. Staff Fellowship	Physician or other doctoral degree equivalent awarded within last 5 years and who has less than 7 years of relevant research experience, U.S. citizen or non-citizen eligible for naturalization within 4 years. Maximum 7 year appointment.	Staff Fellows Physicians \$24,000-35,491 Other Doctorates \$20,000-37,997 Senior Staff Fellows Physicians \$28,000-49,266 Other Doctorates \$24,000-42,600	Contact Director or Laboratory Chief in area of interest or the NCI Personnel Office.
VI. Civil Service Summer Employment Programs			
A. Summer Clerical Program	Must be 18 years of age or older (16 if high school graduate).	GS-1 through GS-4 Grade is based on education and/or experience.	Apply to NIH on or before March 15.
B. Summer Undergraduate Program	Students majoring in biological and/or physical sciences or related field, or applicants with appropriate experience.	GS-1 through GS-4 Grade is based on education and/or experience.	Apply to NIH by March 15.

Position	Eligibility	Annual Salary	Mechanism of Entry
C. Summer Graduate Program	College graduate, graduate student, planning to attend graduate school, faculty member, or equivalent experience and/or education.	GS-5 through GS-12 For some occupations superior scholastic work may qualify for a higher grade level.	Apply to NIH by March 15.
D. Summer Employment for Needy Youth	Educationally and economically disadvantaged youths in their formative years (must have reached 16th birthday).	Federal minimum wage.	Register with the local office of the State Employment service and apply to NIH.
E. Stay-in-School Program	Economically disadvantaged students who are attending accredited schools on a full-time or substantially full-time basis, and are in good academic standing. (Must have reached 16th birthday)	Salary is commensurate with duties assigned and student's education and/or experience.	Apply to NIH. No deadline required for applying. However, no new appointments are made between May 1 to August 30.
F. The Federal Junior Fellowship Program	Graduating high school senior in a public or private school in the Metro. Wash., D.C. area. Must be in upper 10% of graduating class, have applied for admission to an accredited college or university and need financial assistance to attend school.	GS-1 through GS-4	Nominations are submitted directly to the Office of Personnel Management by high school principals or counselors.
VII. Special Programs			
A. Guest Researcher sponsored by organization other than NIH, PHS.	Determined by sponsoring organization.	Established by sponsoring organization.	Contact Director or Laboratory Chief in area of interest; also apply to sponsoring agency, e.g., American Cancer Society, Eleanor Roosevelt Cancer Foundation, Leukemia Society of America, Inc., etc.
B. COSTEP Program (operates year-round) Maximum 120 days per 12-month period.	U.S. Citizen. Must have completed one year of study in a medical, dental or veterinary school; or a minimum of two years of baccalaureate program in a health-related field such as engineering, nursing, pharmacy, etc. May be enrolled in a master's or doctoral program in a health-related field (designated by the Assistant Secretary for Health). Physical requirements of PHS Commissioned Corps. Plans to return to college.	Pay and allowance of a Junior Assistant Health Service Officer.	Apply to COSTEP, Commissioned Personnel Operations Division, Parklawn Building, 5600 Fishers Lane, Rockville, MD 20857
C. Fogarty International Scholars in Residence Program.	International reputation, productivity, demonstrated ability in biomedical field.	\$60,000 for 1 year.	Recommendation to Fogarty Center by Institute Director or any senior tenured member of the NIH scientific staff.
VIII. Other Training Programs			
A. Cancer Prevention Fellowship Program (Three-year non-tenured Civil Service Position)	1) M.D./D.O., or accredited doctoral degree in a discipline related to cancer prevention and control research; biomedical, medical, nutritional, public health or behavioral sciences. 2) academic professional excellence supported by official transcripts and four letters of reference, and 3) United States citizenship or be a resident alien eligible for citizenship within four years.	First year for an M.D. or D.O. \$26,000-35,000 for Ph D \$18,000-31,000	Program Coordinator, CPFP, Blair Building, Room 4A01, Bethesda, Maryland 20892

Highlights of Selected Training Mechanisms

Biotechnology Training Program

Why Needed:

- To provide training in fundamental sciences and clinical disciplines for physicians and Ph.D. scientists.
- To enhance cancer clinical programs through the rapid transfer and application of new techniques and fundamental knowledge leading to state-of-the-art prevention, diagnosis and treatment of cancer.
- To maintain a significant level of support for training in those disciplines related to biotechnology.

Program Provisions:

- Training assignments in modern biotechnology will emphasize the application of recombinant DNA and hybridoma technology to cancer clinical programs; emphasis also is in the areas of nutrition, clinical pharmacology, viral oncology, and biochemical and clinical epidemiology as clinical disciplines.
- The program is supervised by the Senior Scientific Coordinating Committee (the Executive Committee is currently serving in this role).
- Each candidate will have a training plan. Candidates and training plans will be approved by the Division Director and SSCC.
- Fellowships are from six months to two years, with the potential for an extension of up to a maximum of three years.
- Fellowships are not subject to employment ceilings and there are no service/payback provisions.
- The program is limited to citizens or resident aliens eligible for citizenship.
- Candidates may apply to the NCI laboratory or branch that offers a program that best meets their training needs.

Cancer Prevention Fellowship Program

Why Needed:

- To increase the number of scientists highly qualified to conduct cancer prevention and control intervention research in order to fully realize the potential for major reductions in cancer rates. This in keeping with NCI's year 2000 goal.

Program Provisions:

- Allows for doctoral level scientists from a variety of academic disciplines to be exposed to a number of educational experiences in cancer prevention and control.
- Fellows spend the first four months of their three-year program in an academic course that covers all aspects of cancer prevention and control. For the next 20 months participants are assigned to one of the Division's operational branches where they engage in specific research projects and also receive exposure to the daily management and administration of federal research programs. For the last 12 months, Fellows are assigned to a field research project at either a cancer center, major NCI research grantee/contractor, or a public health department.
- Interested candidates may apply to Ms. Nancy Gardner, Division of Cancer Prevention and Control.

Cancer Nurse Training Program*Why Needed:*

- To offer a comprehensive perspective on current oncology practice and its implications in nursing.
- To meet the special needs of cancer patients and their families which demand a high level of nursing practices in meeting both the physical and psychological requirements of the patients.

Program Provisions:

- The program is offered as a clinical traineeship in oncology to new nursing graduates.
- Traineeships are nine months in duration emphasizing both theoretical and practical aspects of cancer nursing and including classroom instruction as well as on-the-job training.
- The program is planning on a class of at least 15 trainees beginning each September.
- The curriculum will cover philosophy of cancer nursing, pathophysiology of cancer, epidemiology, diagnosis and staging, prevention/detection, psychosocial needs of the cancer patient and family, the child with cancer, current treatment modalities, specific cancers/major sites/current research, cancer nursing research, and issues in cancer care such as ambulatory care, use of current technology, aging, ethical dilemmas, costs of care, and hospice program.
- Candidates may apply to the Nurse Recruiter, Department of Nursing and will be reviewed and selected by a Candidate Selection Committee. Final approval is by the Director, DCT.

Cancer Statistics

Number of Deaths for the Five Leading Cancer Sites By Age Group and Sex

All Ages		Under 15		15-34		35-54		55-74		75+	
Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Lung 82,385	Breast 39,470	Leukemia 401	Leukemia 284	Leukemia 723	Breast 698	Lung 9,033	Breast 8,168	Lung 53,029	Lung 22,629	Lung 20,144	Colon & Rectum 14,679
Colon & Rectum 27,989	Lung 36,180	Brain & CNS 231	Brain & CNS 196	Brain & CNS 413	Leukemia 500	Colon & Rectum 2,238	Lung 4,920	Colon & Rectum 14,924	Breast 19,872	Prostate 14,855	Breast 10,730
Prostate 25,399	Colon & Rectum 29,521	Endocrine 125	Endocrine 84	Non-Hodgkin's Lymphomas 394	Cervix 298	Pancreas 1,217	Colon & Rectum 1,989	Prostate 10,245	Colon & Rectum 12,722	Colon & Rectum 10,592	Lung 8,523
Pancreas 11,516	Pancreas 11,638	Non-Hodgkin's Lymphomas 57	Soft Tissue 48	Hodgkin's Disease 332	Brain & CNS 290	Brain & CNS 1,195	Ovary 1,680	Pancreas 6,677	Ovary 6,108	Pancreas 3,572	Pancreas 5,185
Leukemia 9,378	Ovary 11,208	Soft Tissue 48	Bone 39	Melanoma Skin 278	Hodgkin's Disease 194	Leukemia 1,148	Cervix 1,367	Stomach 4,531	Pancreas 5,669	Bladder 3,356	Ovary 3,260

Source: Vital Statistics of the United States, 1984.

Relationship of Cancer to Leading Causes of Death in the United States

Rank	Cause	Number of Deaths	Death Rate per 100,000 Population	Percent of Total Deaths
	ALL CAUSES	2,039,369	862.3	100.0
1	Diseases of Heart	765,114	323.5	37.5
2	CANCER	453,492	191.8	22.2
3	Stroke	154,327	65.3	7.6
4	Accidents	92,911	39.3	4.6
5	Bronchitis, Emphysema & Asthma	69,100	29.2	3.4
6	Pneumonia & Influenza	58,894	24.9	2.9
7	Diabetes Mellitus	35,787	15.1	1.8
8	Suicide	29,286	12.4	1.4
9	Cirrhosis of Liver	27,317	11.6	1.3
10	Arteriosclerosis	24,462	10.3	1.2
11	Nephritis & Nephrosis	20,126	8.5	1.0
12	Homicide	19,769	8.4	1.0
13	Diseases of Infancy	18,881	8.0	0.9
14	Septicemia & Pyemia	14,276	6.4	0.7
15	Congenital Abnormalities	13,039	5.5	0.6
	Other & Ill-defined	242,588	102.1	11.9

Source: National Center for Health Statistics, 1984.

Estimated New Cancer Cases and Deaths By Sex For All Sites 1987

	Estimated New Cases			Estimated Deaths		
	Total	Male	Female	Total	Male	Female
All Sites	965,000*	485,000*	480,000*	483,000	259,000	224,000
Buccal Cavity & Pharynx (ORAL)	29,800	20,200	9,600	9,400	6,350	3,050
Lip	4,300	3,800	500	175	150	25
Tongue	5,700	3,700	2,000	2,100	1,400	700
Mouth	11,700	7,000	4,700	2,825	1,800	1,025
Pharynx	8,100	5,700	2,400	4,300	3,000	1,300
Digestive Organs	224,400	114,400	110,000	119,900	62,400	57,500
Esophagus	9,700	6,800	2,900	8,800	6,400	2,400
Stomach	24,600	15,000	9,600	14,200	8,300	5,900
Small Intestine	2,500	1,300	1,200	800	400	400
Large Intestine } (COLON-RECTUM)	102,000	47,000	55,000	52,000	25,000	27,000
Rectum	43,000	23,000	20,000	8,000	4,100	3,900
Liver & Biliary Passages	14,000	7,100	6,900	10,600	5,300	5,300
Pancreas	26,200	13,000	13,200	24,300	12,300	12,000
Other & Unspecified Digestive	2,400	1,200	1,200	1,200	600	600
Respiratory System	166,100	111,600	54,500	141,250	96,000	45,250
Larynx	12,100	9,800	2,300	3,800	3,100	700
LUNG	150,000	99,000	51,000	136,000	92,000	44,000
Other & Unspecified Respiratory	4,000	2,800	1,200	1,450	900	550
Bone	2,100	1,200	900	1,400	800	600
Connective Tissue	5,300	2,900	2,400	2,800	1,300	1,500
SKIN	25,800**	13,600**	12,200**	7,800†	4,800	3,000
BREAST	130,900***	900***	130,000***	41,300	300	41,000
Genital Organs	174,000	102,600	71,400	50,150	27,650	22,500
Cervix Uteri } (UTERUS)	12,800***	—	12,800***	6,800	—	6,800
Corpus, Endometrium	35,000	—	35,000	2,900	—	2,900
Ovary	19,000	—	19,000	11,700	—	11,700
Other & Unspecified Genital, Female	4,600	—	4,600	1,100	—	1,100
Prostate	96,000	96,000	—	27,000	27,000	—
Testis	5,500	5,500	—	400	400	—
Other & Unspecified Genital, Male	1,100	1,100	—	250	250	—
Urinary Organs	67,300	46,800	20,500	20,000	12,900	7,100
Bladder	45,400	33,000	12,400	10,600	7,200	3,400
Kidney & Other Urinary	21,900	13,800	8,100	9,400	5,700	3,700
Eye	1,900	1,000	900	300	150	150
Brain & Central Nervous System	14,700	8,200	6,500	10,200	5,500	4,700
Endocrine Glands	11,700	3,500	8,200	1,800	750	1,050
Thyroid	10,600	2,900	7,700	1,100	400	700
Other Endocrine	1,100	600	500	700	350	350
Leukemias	26,400	14,800	11,600	17,800	9,800	8,000
Lymphocytic Leukemia	12,900	7,400	5,500	6,800	3,900	2,900
Granulocytic Leukemia	12,700	6,900	5,800	10,500	5,600	4,900
Monocytic Leukemia	800	500	300	500	300	200
Other Blood & Lymph Tissues	48,100	24,800	23,300	24,900	12,800	12,100
Hodgkin's Disease	7,300	4,100	3,200	1,500	900	600
Multiple Myeloma	10,900	5,500	5,400	8,000	4,100	3,900
Other Lymphomas	29,900	15,200	14,700	15,400	7,800	7,600
All Other & Unspecified Sites	36,500	18,500	18,000	34,000	17,500	16,500

NOTE: The estimates of new cancer cases are offered as a rough guide and should not be regarded as definitive. Especially note that year-to-year changes may only represent improvements in the basic data. ACS six major sites appear in boldface caps.

* Carcinoma in situ and non-melanoma skin cancers are not included in totals. Carcinoma in situ of the uterine cervix accounts for more than 45,000 new cases annually, and carcinoma in situ of the female breast accounts for more than 5,000 new cases annually. Non-melanoma skin cancer accounts for more than 500,000 new cases annually.

** Melanoma only

*** Invasive cancer only.

† Melanoma 5,600; other skin 2,000

INCIDENCE ESTIMATES ARE BASED ON RATES FROM NCI SEER PROGRAM 1981-1983

The Cost of Cancer

The annual cost of cancer is calculated in three components: the direct cost of care for patients with cancer; the cost of the productivity lost while persons are away from their work in connection with treatment or disability, so-called morbidity costs; and the value of lost productivity due to premature mortality. Detailed costs by specific cancer site are not available at the present time. However, it is possible to estimate the total cost of the disease through national figures on health care expenditures, from the results of surveys on morbidity, and from statistics on mortality.

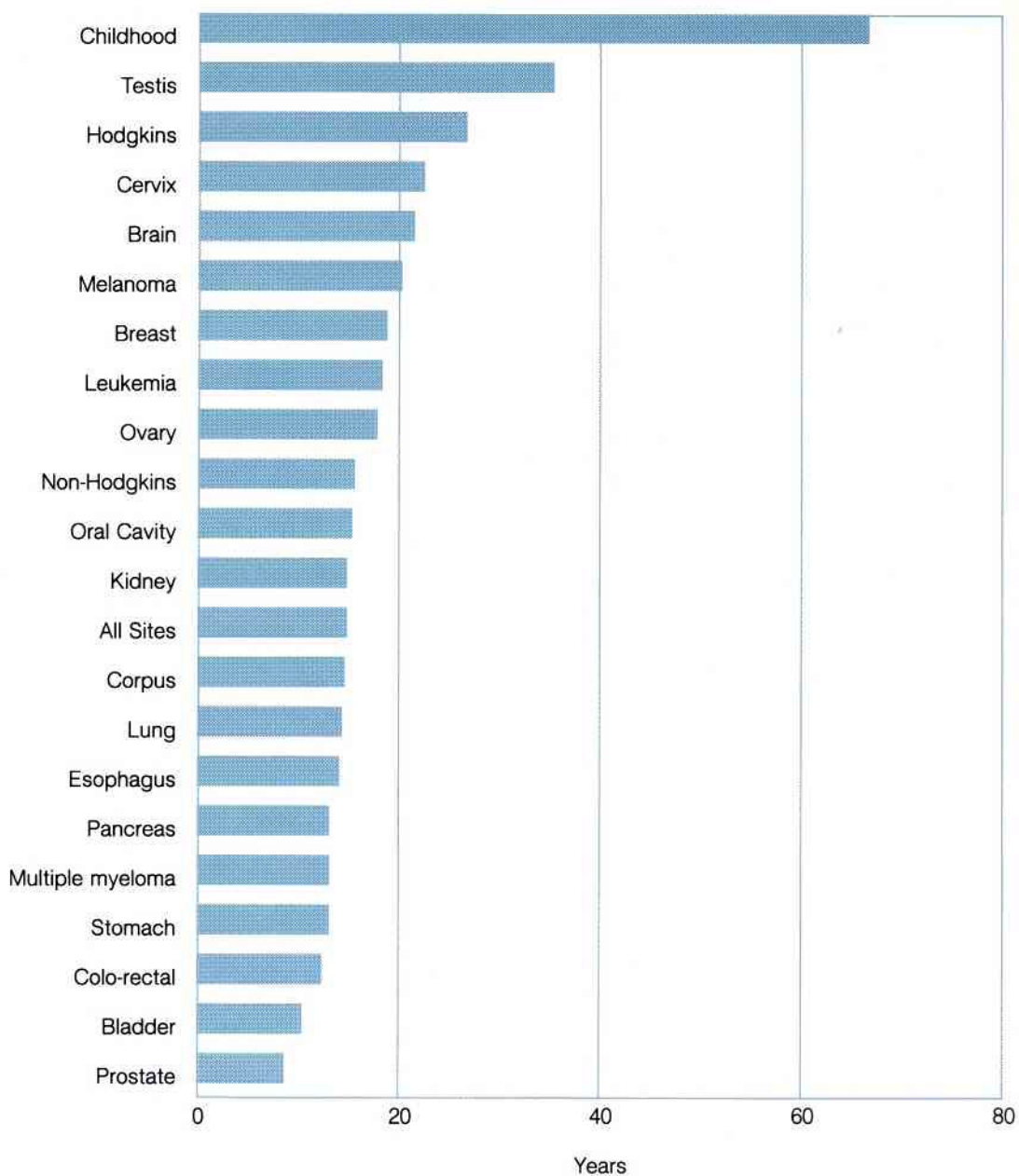
The most recent figures for the annual cost of cancer have been supplied by the National Center for Health Statistics. These figures are as follows for 1985:

All Costs in Millions	Total Cost	Direct Cost	Morbidity Cost	Mortality Cost
All Cancers	\$ 71,534	\$ 21,763	\$ 8,620	\$ 41,151
All Health Care	\$722,560	\$371,400	\$119,220	\$231,940
Percent Relationship of Cancer to Total	10%	6%	7%	18%

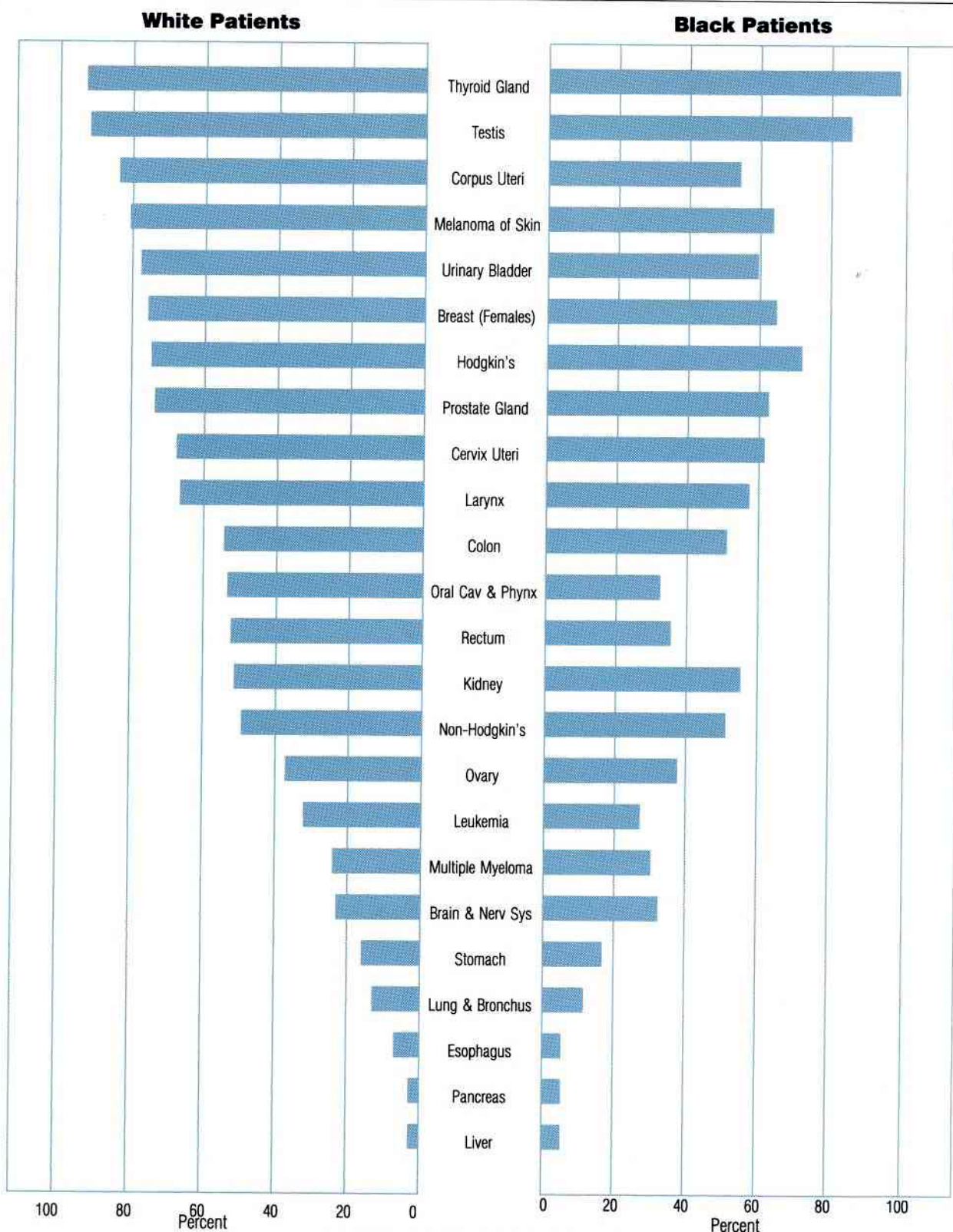
The figures show that cancer accounts for 10 percent of the total cost of disease in the United States and that its share of the total cost of premature death is about 18 percent of all causes of death. Mortality costs are computed as the loss of expected lifetime earnings of the decedent, which is relatively low for persons over age 65. Some 58 percent of all cancer deaths occur in persons 65 and over. (In these figures the future earnings were discounted at a rate of four percent to account for the time value of fiscal resources.)

The following table—Average Years of Life Lost Per Person Due to Cancer Deaths, All Races, Both Sexes, 1984—reflects site-specific information supporting the data presented on this page.

**Average Years of Life Lost
Per Person Due To Cancer Deaths,
All Races, Both Sexes
1984**



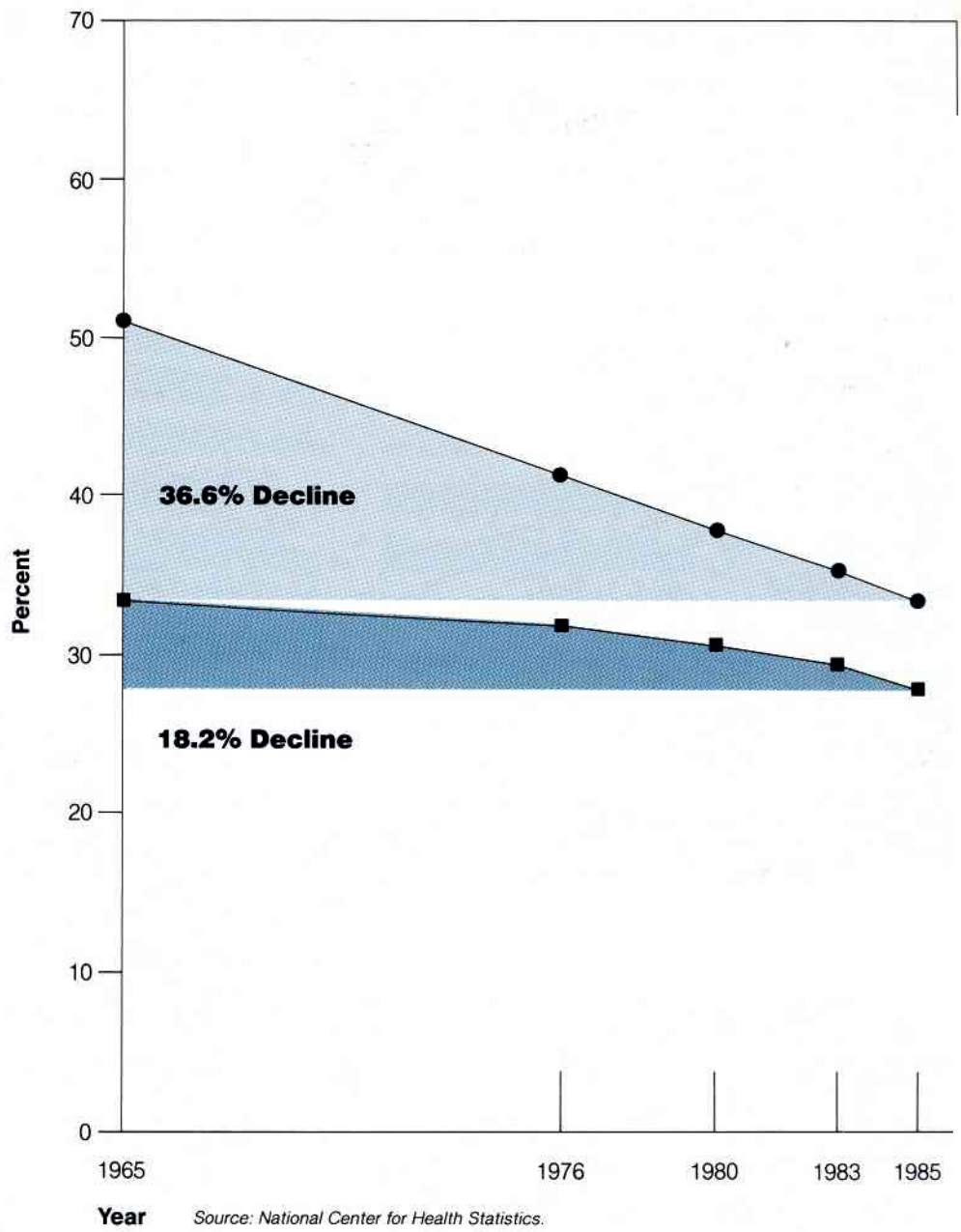
Survival Rates by Cancer Site: White versus Black Patients



Five Year Relative Survival Rates (Male and Female)
(Data from SEER 1979-1984)

Prevalence of Cigarette Smoking in the U.S.

● Males
■ Females



1987 Budget Data

Major Steps In Budget Formulation and Review Process

	January	February	March	April	May	June	July	August	September	October	November	December
NCI STAFF¹	NCI Director's Meeting—establish budget policy for upcoming fiscal year; review operating plans for current fiscal year Submit Congressional Justification for next fiscal year		Formulation of Preliminary Budget for two years in the future for both the By-Pass budget, which is submitted directly to the President, and the budget submitted within the Administration's guidelines Congressional testimony by Director, NCI			NCI Director's Meeting—establish specific division levels for upcoming fiscal year		Formulation of By-Pass Budget Formulation of budget within Administration guidelines		Formulation of President's Budget		
NCAB²						Review and revise Preliminary Budget for two fiscal years in future		Review By-Pass Budget Submitted Directly to President		Division presentations of program activity for fiscal year just completed		
BSC³	Review operating plans for current fiscal year and policies from NCI Director's Meeting					Review and advise on implementation of divisional programs				Annual Division Budget Review current and upcoming year		

¹Executive Committee and key administrative staff

²National Cancer Advisory Board—presidential appointees

³Board of Scientific Counselors—outside NCI peer review bodies for each of four operating divisions

**NCI Budget
Fiscal Year 1987***(Dollars in Thousands)*

A. Actual Obligations Resulting From Appropriated Funds

FY 1987 Appropriation	\$1,402,837
Less:	
Travel Reduction	(20,000)
Lapse	(27,000)
ACTUAL NCI OBLIGATIONS	\$1,402,790

B. Reimbursable Obligations:**Major Components—**

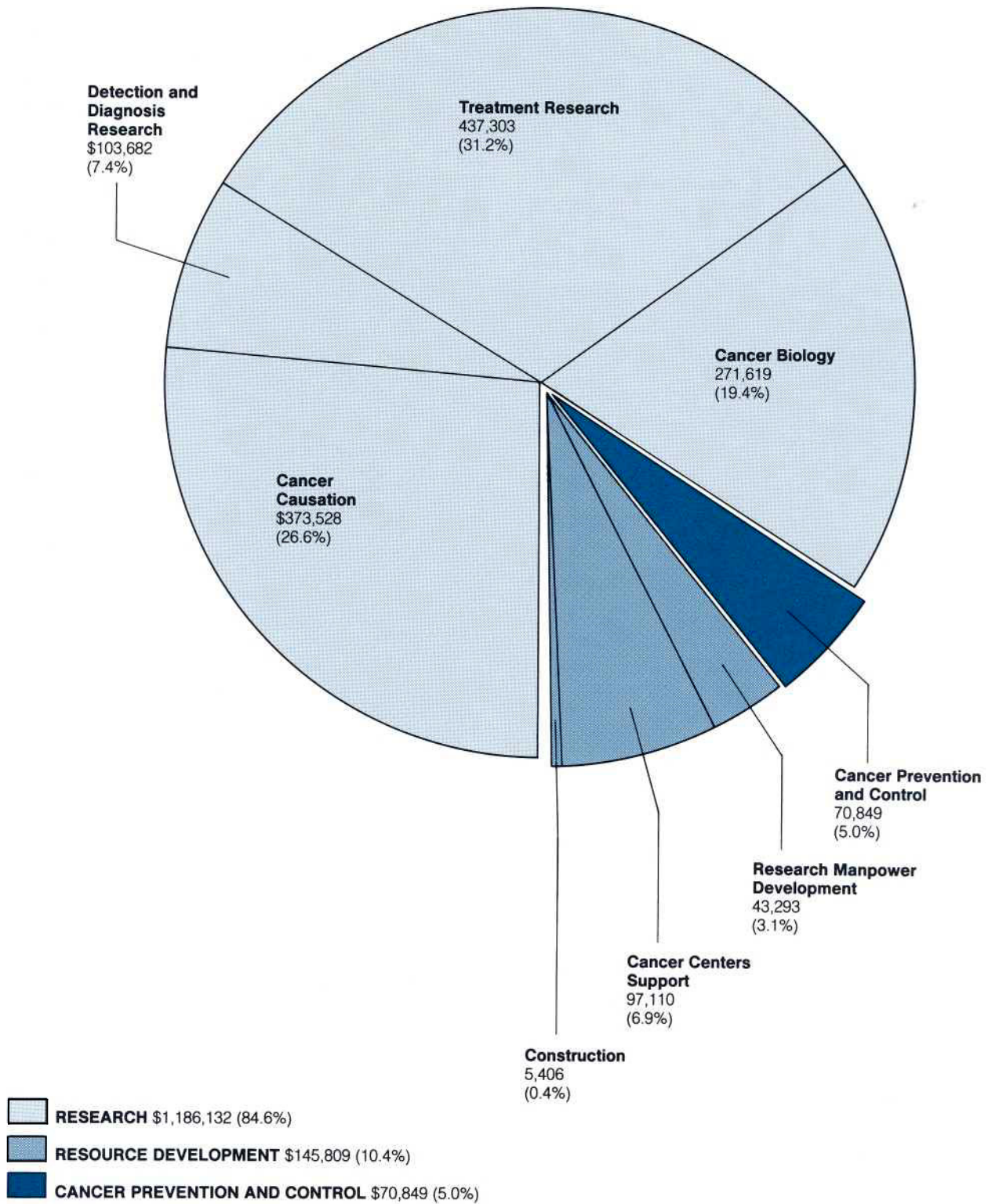
• Acquired Immune Deficiency Syndrome (AIDS):	
Office of the Director, NIH	773
National Institute of Allergy and Infectious Diseases	3,523
Department of the Army	432
• Academic Research Enhancement	
Award from Office of the Director, NIH	674
• Other Reimbursements	1,243
Reimbursements	6,645

C. Total NCI Obligations: \$1,409,435

**NCI Program Structure
Fiscal Year 1987**

(Dollars in Thousands)

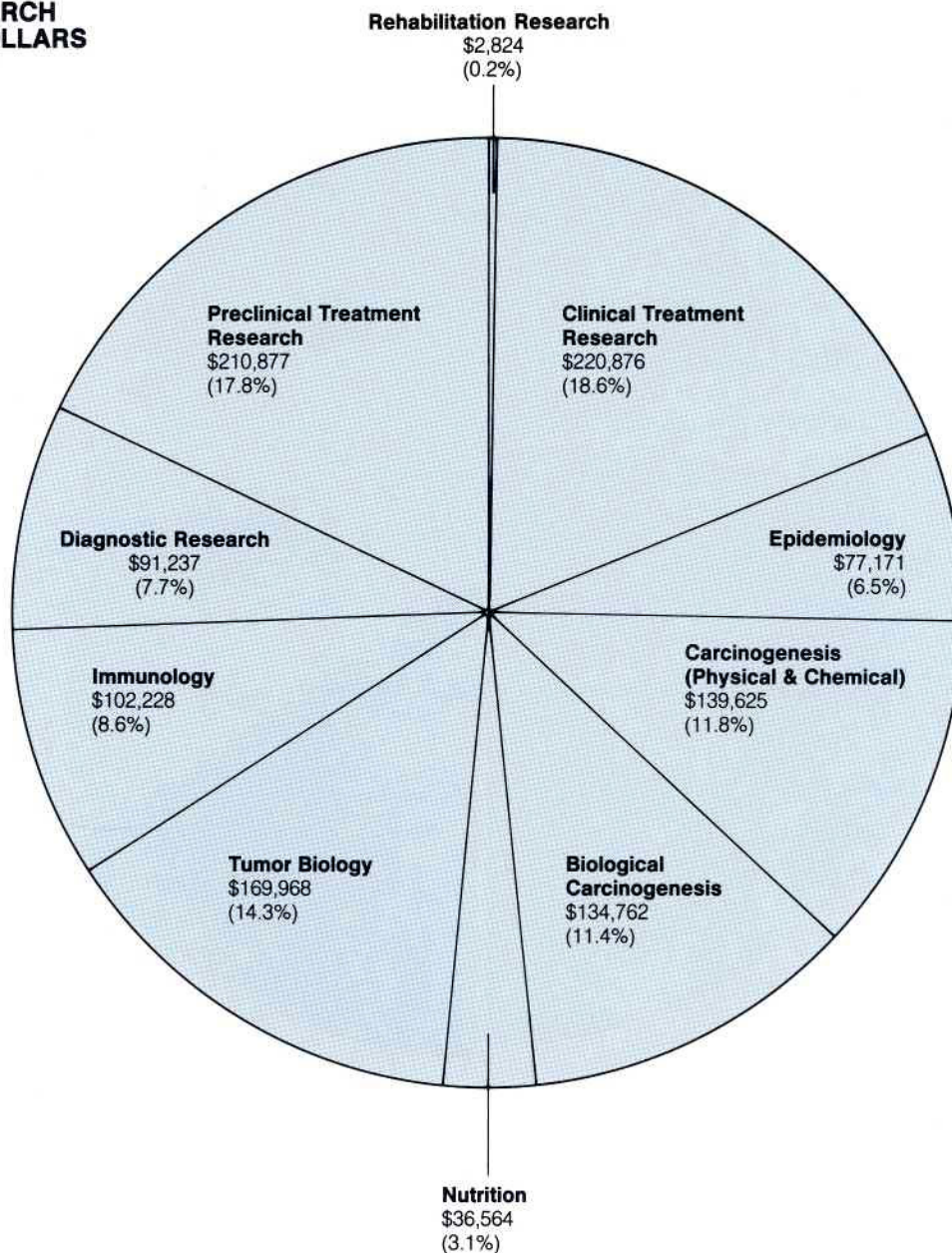
TOTAL DOLLARS
\$1,402,790



NCI Research Programs Fiscal Year 1987

(Dollars in Thousands)

**TOTAL RESEARCH
PROGRAM DOLLARS**
\$1,186,132

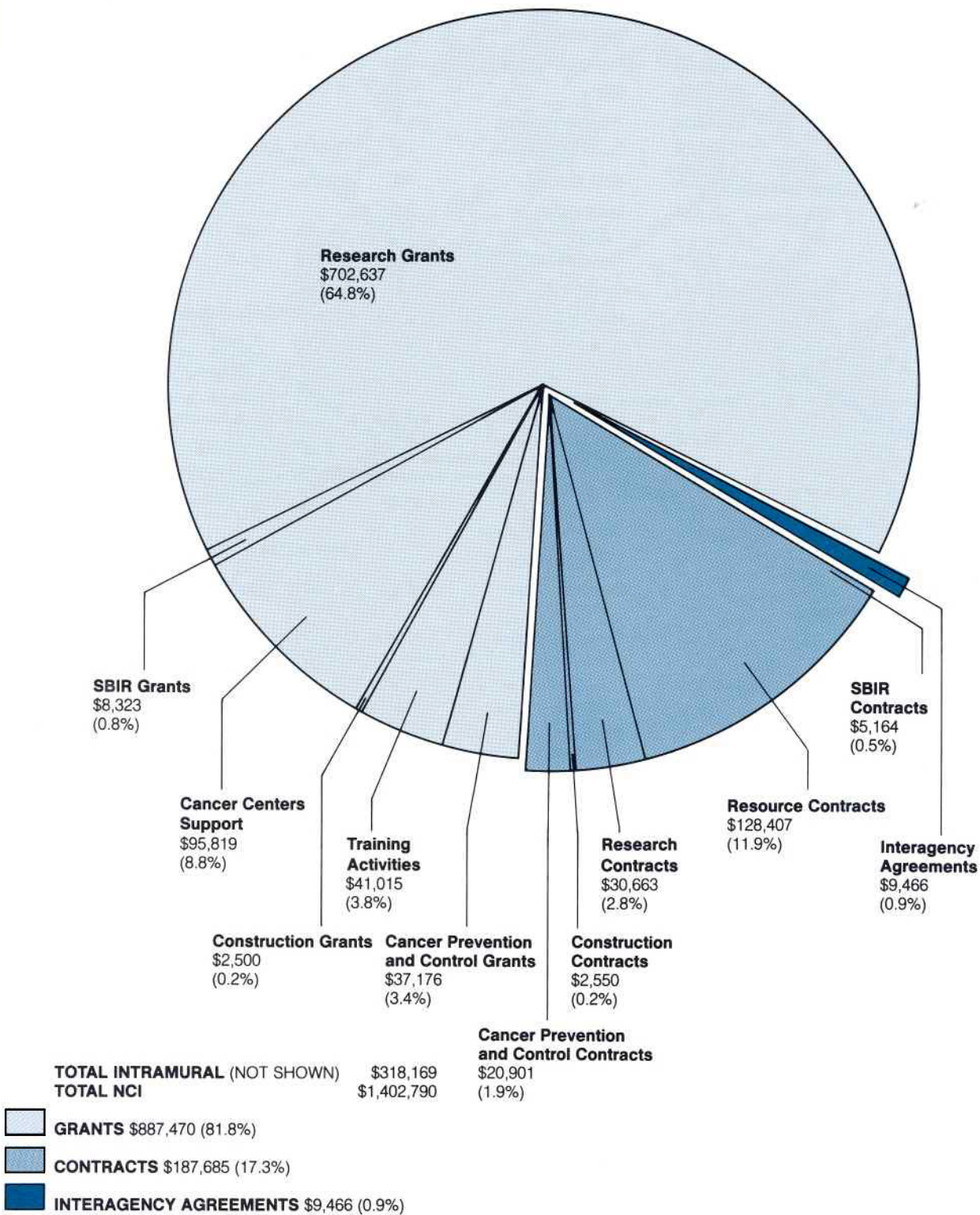


Research Programs	Dollars (Thousands)	Percent of Total
Research Programs	\$1,186,132	84.6
Resource Development		
Cancer Centers	97,110	6.9
Research Manpower Development	43,293	3.1
Construction	5,406	0.4
Cancer Prevention and Control	70,849	5.0
Total NCI	\$1,402,790	100.0

**NCI Extramural Funds
Fiscal Year 1987**

(Dollars in Thousands)

TOTAL EXTRAMURAL
\$1,084,621



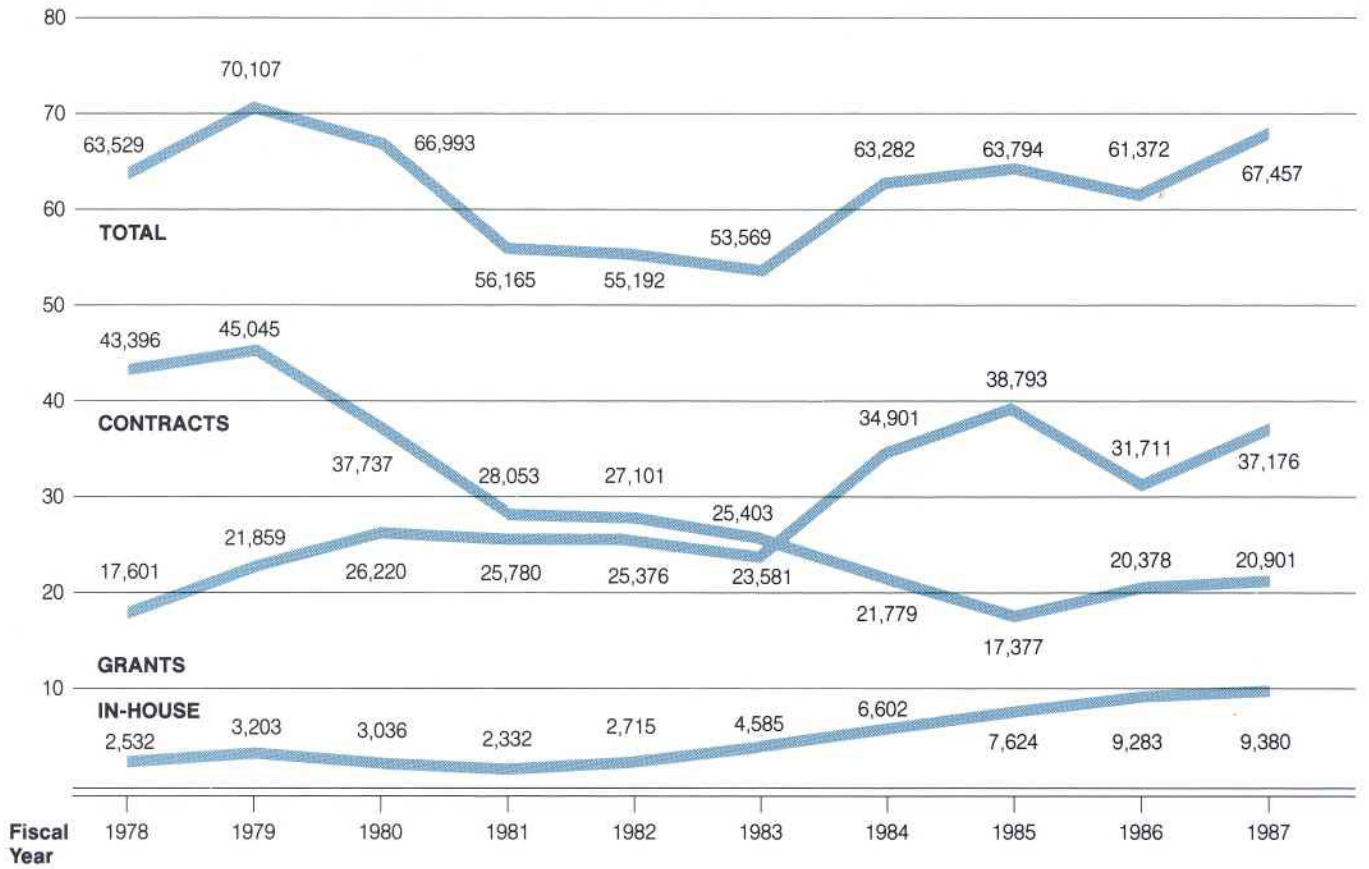
**Total NCI Dollars
by Mechanism
Fiscal Year 1987**

(Dollars in Thousands)

Amount	Mechanism	Percent of Total	Amount	Mechanism	Percent of Total
Research Project Grants			Training Program		
\$381,727	Traditional	27.2	3,968	NRSA Individual	0.3
3,965	Young Investigators	0.3	27,760	NRSA Institutional	2.0
13,304	RFA's	.9	31,728	Total	2.3
161,009	Program Projects	11.5	Research and Development Contracts		
16,508	Coop Agreements	1.2	168,536	Research and Resource Contracts	12.0
8,323	SBIR Grants	0.6	5,164	SBIR Contracts	0.4
35,123	Outstanding Investigator	2.5	173,700	Total	12.4
7,954	First Awards	0.5	Cancer Prevention and Control		
15,011	Merit Awards	1.1	37,176	Cancer Control Grants	2.6
229	Minority Supplements	0.0	20,901	Cancer Control Contracts	1.5
643,153	Total	45.8	9,380	Cancer Control Inhouse	0.7
Cancer Centers Grants			67,457	Total	4.8
95,819	Center Core Grants	6.8	Construction		
Other Research Grants			2,550	Construction Contracts	0.2
2,965	Scientific Evaluation	0.2	2,500	Construction Grants	0.2
556	Conference Grants	0.0	5,050	Total	0.4
7,660	Research Career Programs	0.6	Inhouse		
1,627	Clinical Education Program	0.1	244,747	Intramural Research	17.4
57,077	Clinical Cooperative Groups	4.1	64,042	Research Management and Support	4.6
822	National Organ Systems Program	0.1	308,789	Total	22.0
3,039	Comp. Min. Bio. Supp. Prog.	0.2	Total		
3,069	Instrumentation Grants	0.2	\$1,402,790		100.0%
279	Small Grants	0.0			
77,094	Total	5.5			

Cancer Prevention and Control Obligations by Mechanism Fiscal Years 1978–1987

(Dollars in Thousands)

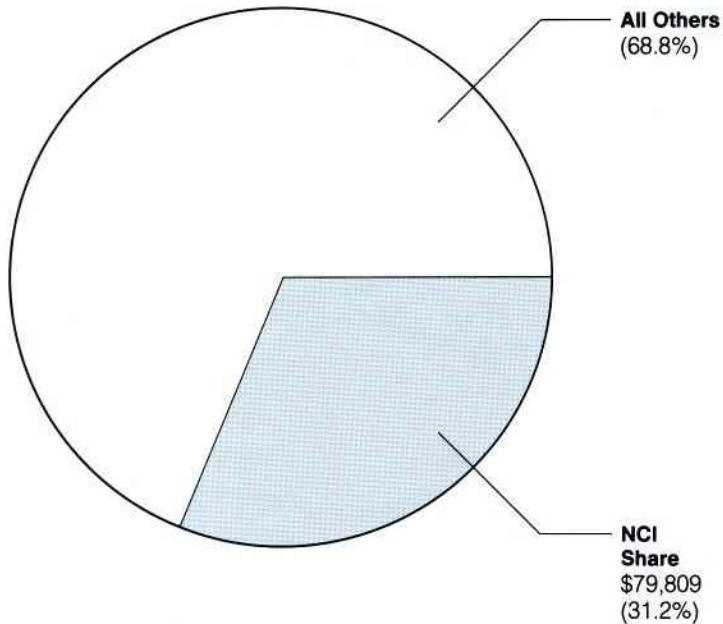


**Reimbursement to NIH
Management Fund
Fiscal Year 1987**

(Dollars in Thousands)

TOTAL NIH SERVICES
\$255,681

**DISTRIBUTION OF
NCI SERVICES \$79,809**



Standard Level User Charges (SLUC) \$2,267 (2.8%) Building usage including utilities Major renovations Guard services for rental buildings
Other Research Services \$19,135 (24.0%) Procurement Services Safety Services Engineering Services Biomedical Engineering Services Veterinary Resources Services Library Services
Division of Research Grants \$4,031 (5.1%) Initial Scientific Review of Applications Assignment of Research Grant Applications Among Institutes
Clinical Center \$50,671 (63.5%) Employee Health Services Service Functions Social Work Professional Services Consultative Services Admissions and Follow-up Anesthesiology Diagnostic X-Ray Nuclear Medicine Clinical Pathology Blood Bank Rehabilitation Service Pharmacy Service Medical Records Nursing Service Patient Nutrition Service Environmental Sanitation Control Laundry
Division of Computer Research and Technology \$3,705 (4.6%) Research & development program in which concepts & methods of computer science are applied to biomedical problems (In addition, services are rendered to the NIH community on a fee-for-service basis.)

The Management Fund provides for the financing of certain common research support services and administrative activities which are required in the operations of NIH.

**Status of Unconditional
Gift Fund
Fiscal Year 1987***(Dollars in Thousands)*

Funds Available	Regular	\$ 630
	Special	2,061
	Total	\$2,691

Activities Funded	Patient Emergency Fund	\$ 10
	Summer Training Program	172
	Conference Support	7
	Fellowships	79
	Research Equipment	59
	Official Entertainment	7
	Miscellaneous	25
	Research Support for Breast Cancer LAK, and AIDS	883
	Total	1,242

Balance	\$1,449
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AIDS

Acquired Immunodeficiency Syndrome (AIDS) Key Discoveries

The National Cancer Institute has assumed a leading role in Acquired Immunodeficiency Syndrome (AIDS) research since the disease was first recognized in 1981. Because of the research programs and administrative mechanisms already in place, investigators were able to rapidly apply existing methods in drug screening and advances in cancer virus research technology to study AIDS. Key discoveries by NCI investigators include:

- Isolation of HTLV-III (now called human immunodeficiency virus or HIV), a retrovirus, which was found to be the primary cause of AIDS.
- Development, testing and successful clinical trials of the drug azidothymidine (AZT), confirming its effectiveness as an anti-retroviral agent against AIDS.
- Identification and testing of several other promising anti-retroviral compounds including dideoxycytidine and dideoxyadenosine. Dideoxycytidine (DDC) appears to be more effective than AZT against the AIDS virus in tissue culture experiments and is already in early clinical trials in AIDS patients. Clinical trials with dideoxyadenosine will begin shortly.
- Development of a simple blood screening test which can detect the presence of antibodies to HIV, an indicator that the donor has been exposed to the virus.
- The recent isolation and purification of the reverse transcriptase from HIV. This is the viral enzyme that assembles DNA, based on the directions it “reads” from an RNA blueprint. This step is critical in allowing the AIDS virus to establish itself in causing infection. This discovery, therefore, has important implications for anti-retroviral drug development.
- Increased understanding of how the growth of the AIDS virus is controlled. In particular, scientists have learned that the *tat* gene can trigger the AIDS virus to replicate at an increased rate. Thus, manipulation of the *tat* gene could lead to control of the growth of the virus.
- Recent improvement in the screening technique through a laboratory procedure that amplifies the HIV. This provides a much more sensitive test for the AIDS virus, and may permit its detection and intervention much earlier.
- An analysis of cofactors that may influence the manifestation of clinical AIDS that showed that the single most important predictor among antibody-positive individuals is the level of the helper T-cell count. The lower the count, the higher the attack rate of clinical AIDS.
- Demonstration that the AIDS virus gains access to target tissues via the T4 cell surface molecule, and that entry of the virus occurs preferentially in activated cells. Monocytes/macrophages have also been identified as target cells for HIV infection.
- Isolation of a human virus similar to the one that naturally infects the African Green Monkey and is closely related to the HIV virus. This new virus, called HTLV-IV has led to a series of studies and unique models of infections of non-human primates and man by HTLV-related viruses. They are important for a better understanding of the biology and transmission of this family of viruses, and in establishing the origin and a vaccine for AIDS.
- Demonstration that prevention of a common, spontaneous retrovirus-induced immunosuppressive disease in rhesus monkeys (Simian Acquired Immunodeficiency, SAIDS) is now possible through vaccination.
- The use of the anticancer drug, Trimetrexate, and the finding that it is effective in treating *Pneumocystis carinii* pneumonia. This pneumonia afflicts more than 40 percent of AIDS patients and is often the immediate cause of death.

**Acquired Immunodeficiency
Syndrome (AIDS)
Funding by Functional Category
Fiscal Year 1987**

(Dollars in thousands)

1. Pathogenesis and Clinical Manifestations:		
a. Epidemiological Studies		\$ 8,088
b. Virology		7,588
c. Surveillance		277
d. Etiologic Agent and Co-factors		3,384
e. Immunologic studies		7,699
f. Simian AIDS/Animal models		1,866
g. Psychosocial factors		13
Subtotal		<u>28,915</u>
2. Therapeutics:		
a. Studies of Therapeutic Intervention		4,618
b. Drug purchase and Distribution/Drug screening		15,953
Subtotal		<u>20,571</u>
3. Vaccine Development and Evaluation		12,061
4. Public Health Control Measures:		
a. Information/Education		811
b. Prevention of Transfusion-Related AIDS		529
c. Development and Evaluation of Blood Test		727
Subtotal		<u>2,067</u>
5. Patient Care and Health Care Needs:		
a. Treatment Demonstration Projects		0
b. Bioethics and Biosafety		141
Subtotal		<u>141</u>
TOTAL		\$63,755

**Acquired Immunodeficiency
Syndrome (AIDS)
Funding by Activity
Fiscal Year 1987***(Dollars in Thousands)*

By Research Program:	Amount
Causation	\$35,773
Detection and Diagnosis	504
Treatment Research	25,231
Biology	2,247
Total, NCI	<u>63,755</u>

By Mechanism:	
Research Project Grants	6,471
Research and Development Contracts	32,542
Intramural Research	22,542
Research Management and Support	2,200
Total, NCI	<u>63,755</u>

By Division:	
Division of Cancer Biology	2,202
Division of Cancer Treatment	19,647
Division of Cancer Etiology	23,477
Frederick Cancer Research Facility	14,479
Division of Extramural Activities	450
Office of the Director	1,500
NIH Management Fund*	2,000
Total, NCI	<u>63,755</u>

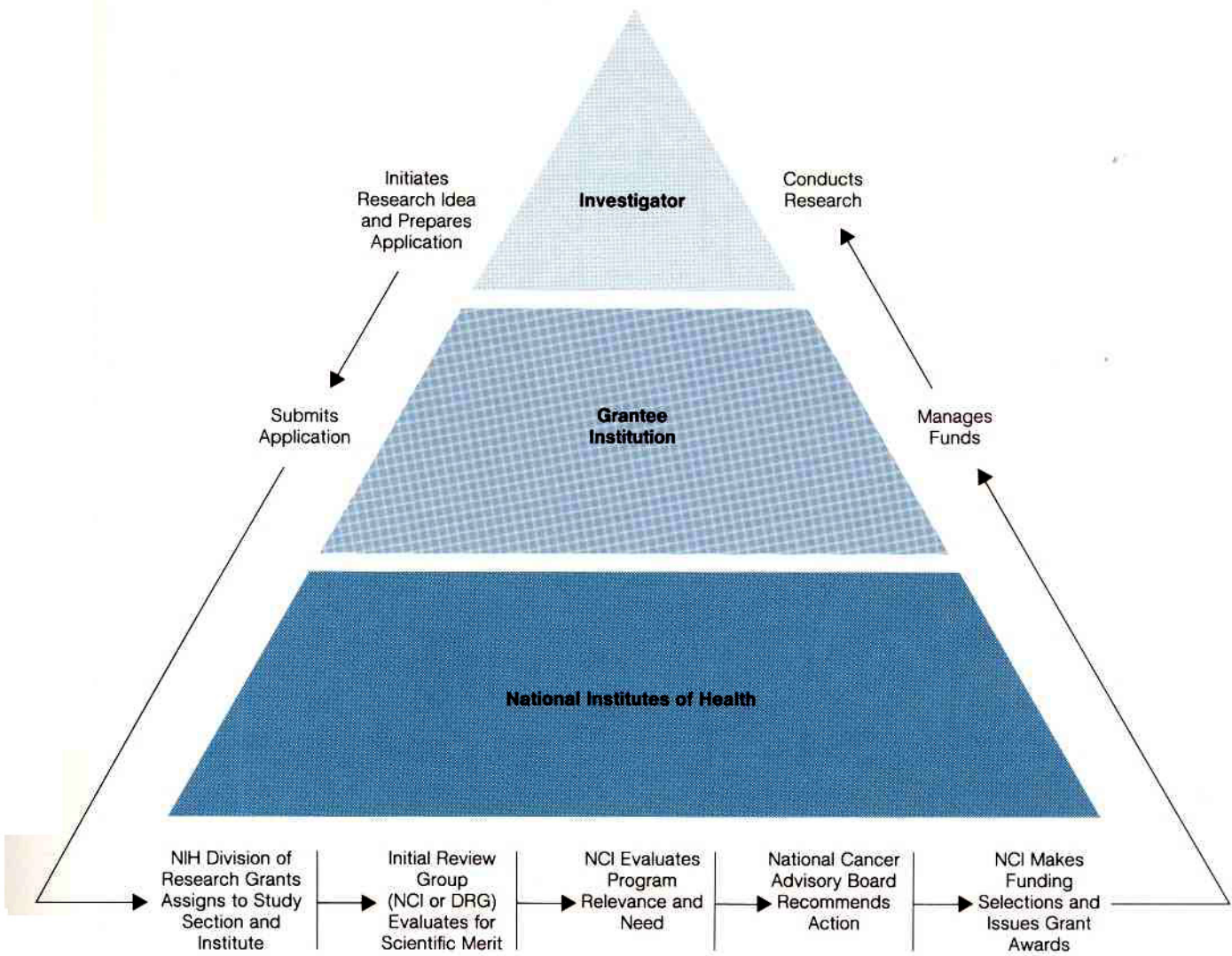
*Supports common services shared by NIH Institutes; in this case is used principally for support costs associated with NCI's activities at the NIH clinical center.

**Acquired Immunodeficiency
Syndrome (AIDS)
Funding History
Fiscal Years 1982-1987**

(Dollars in Thousands)

Fiscal Year	NCI Amount	NIH Amount	% NCI To Total
FY 1982	\$2,406	\$3,355	72%
FY 1983	9,790	21,668	45%
FY 1984	16,627	44,121	38%
FY 1985	26,874	63,737	42%
FY 1986	45,050	134,667	33%
FY 1987	63,755	260,907	24%

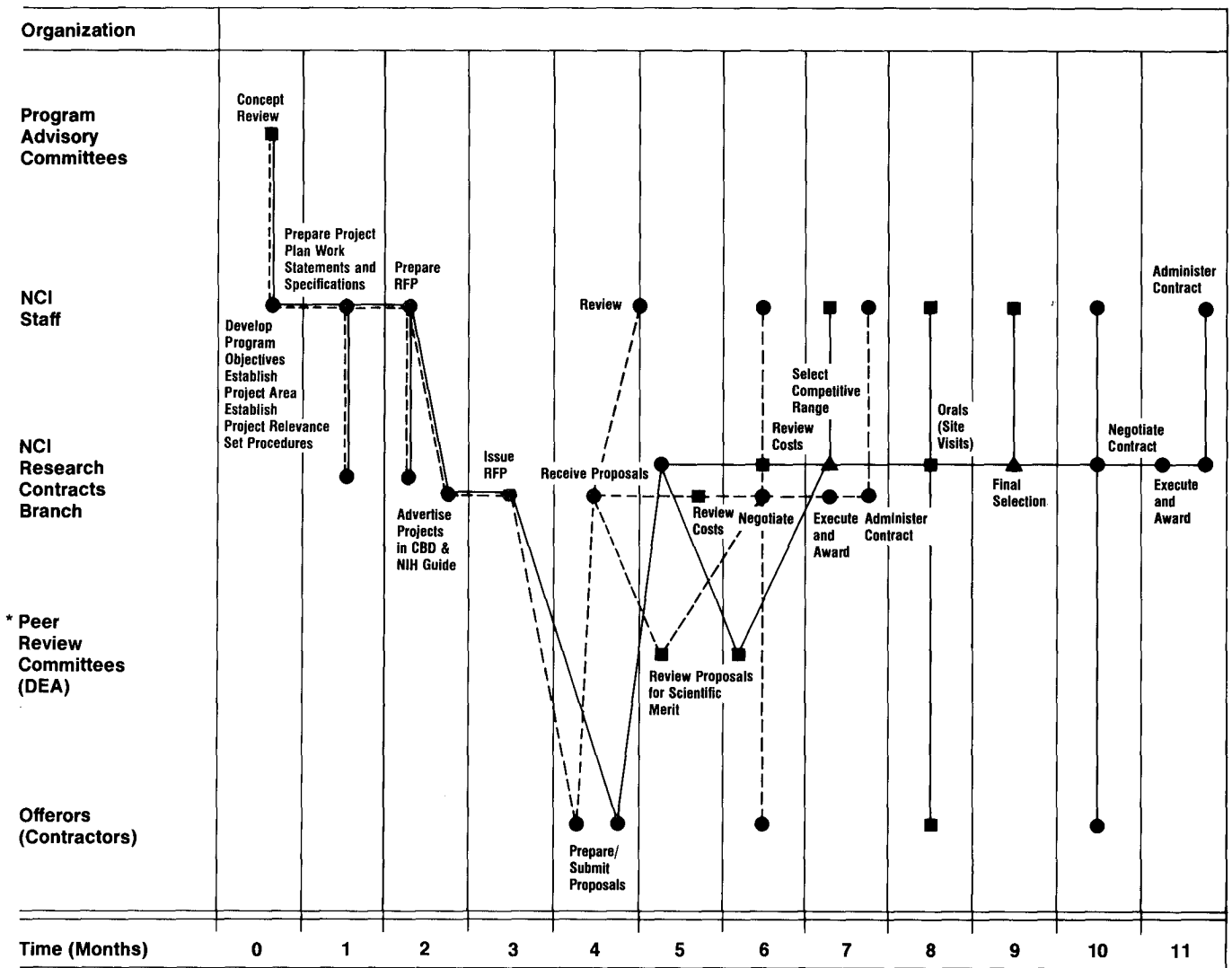
Extramural
Programs



NCI Request for Application (RFA) The Process

Major Event	Time Elapsed (Months)	Division	Office of the Director, NCI/Division of Extramural Activities	Board of Scientific Counselors	National Cancer Advisory Board (NCAB)	Division of Research Grants (DRG)/Office of Extramural Research (OER)	Applicant
Preparation and Release	1	* Present Idea	* Proper Funding Mechanism Determined * Approval of Concept by Executive Committee				
	2			* Concept Review Approval			
	3						
	4	* Develop RFA	* Review/Clearance of RFA Proposal			* Clearance by DRG, NIH * Acceptance by OER/NIH	
	5					* Publication Scheduled by OER/NIH * Published in <i>NIH Guide To Grants and Contracts</i>	* Prepare Application —Letter of Intent may be required
Review and Award	8						
	13		* Initial Review DEA, NCI			* Receipt of Applications by DRG	
	14						
	15				* NCAB Review		
	16		* Funding Decisions				
	17						* Award

NCI Contract Award Process—Under Cancer Act of 1971



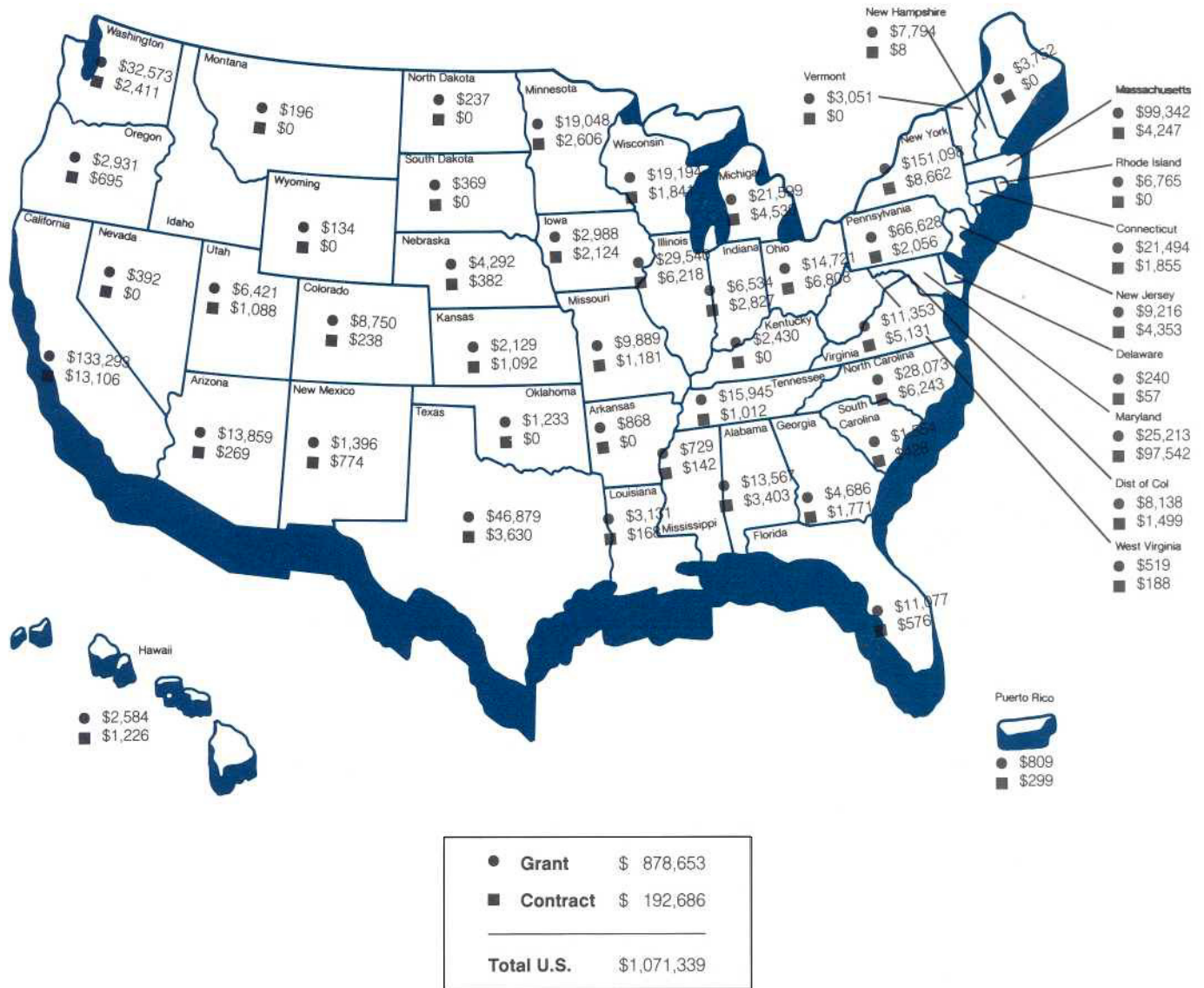
Note: Simultaneous Activities By More Than One Organization Indicate Cooperative Efforts

Legend:

- Operation
- Review
- ▲ Decision
- Normal Competitive Flow
- - - Non-Competitive Contracts
- * Ad-Hoc Committees May Be Used
- Includes Non-Government Employees

NCI Grant and Contract Awards by State Fiscal Year 1987

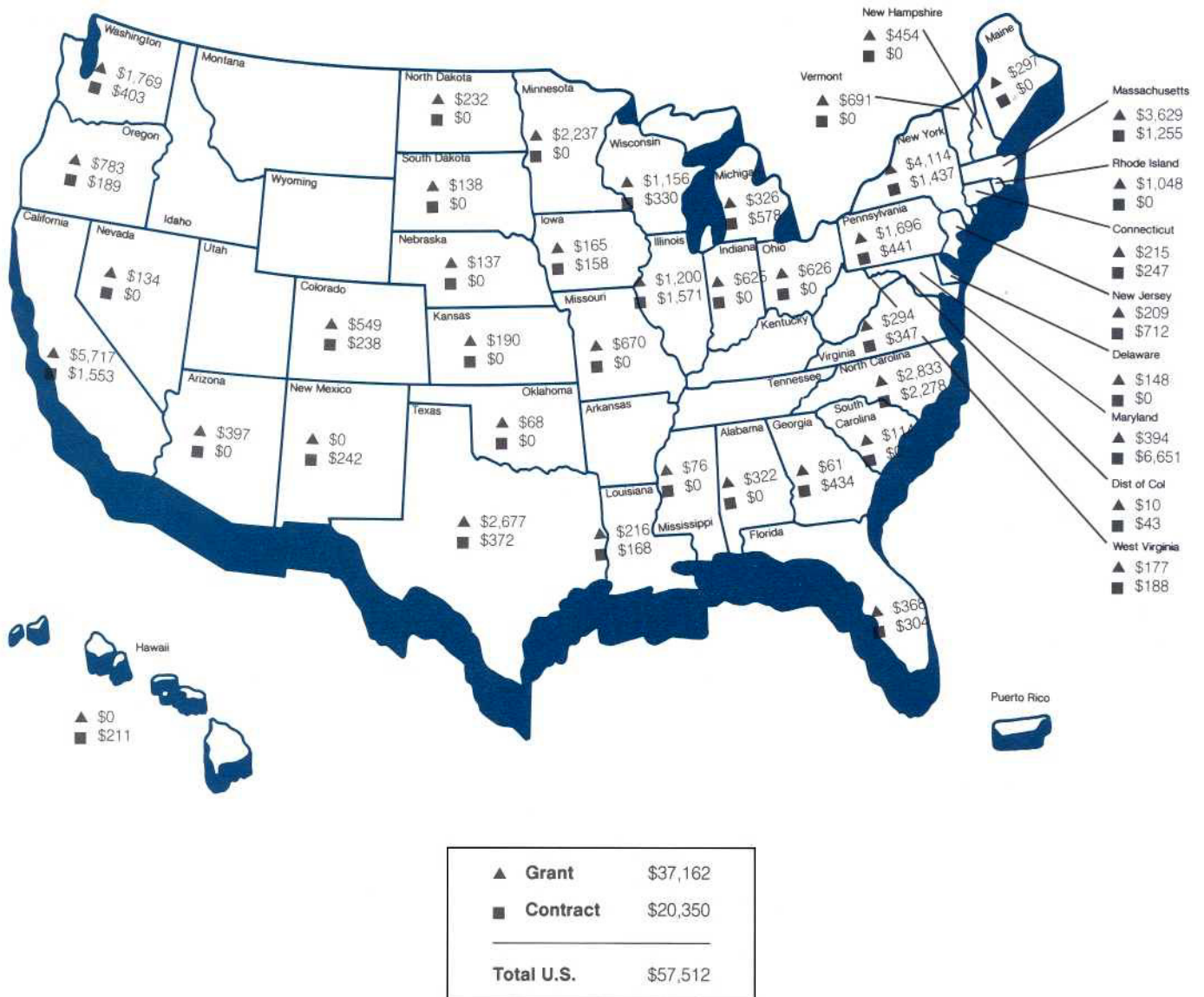
(Dollars in Thousands)



Note Contract figures exclude foreign contracts: \$4,465; Grant figures exclude foreign grants: \$5,852, and Scientific Evaluation: \$2,965.

NCI Cancer Prevention and Control Grant and Contract Awards by State Fiscal Year 1987

(Dollars in Thousands)



Note: Contract figures exclude foreign contracts: \$551; Grant figures exclude foreign grants: \$14.

**Institutions Receiving
More than \$3,000,000
in NCI Support
Fiscal Year 1987**

(Dollars in Thousands)

Institution	Grants	Contracts	Construction	Total NCI	State
University of Alabama System	\$9,628	\$508	\$0	\$10,136	Alabama
Southern Research Institute	3,001	2,895	0	5,896	Alabama
University of Arizona	12,349	269	0	12,618	Arizona
University of California	62,941	3,182	0	66,123	California
University of Southern California	16,123	862	0	16,985	California
Stanford University	15,666	28	0	15,694	California
Scripps Clinic and Research Foundation	6,508	0	0	6,508	California
Salk Institute for Biological Studies	5,156	0	0	5,156	California
La Jolla Cancer Research Foundation	4,830	0	0	4,830	California
Northern California Cancer Center	2,086	2,251	0	4,337	California
Kaiser Foundation Hospitals	2,762	1,079	0	3,841	California
SRI International	1,942	1,548	0	3,490	California
City of Hope National Medical Center	2,438	724	0	3,162	California
University of Colorado System	4,004	0	0	4,004	Colorado
Colorado State University	3,458	0	0	3,458	Colorado
Yale University	19,007	391	0	19,398	Connecticut
State University System of Florida	5,146	32	0	5,178	Florida
University of Miami	4,667	394	0	5,061	Florida
Emory University	2,649	1,105	0	3,754	Georgia
University of Hawaii System	2,149	1,002	0	3,151	Hawaii
University of Chicago	12,895	40	0	12,935	Illinois
University of Illinois	4,918	996	0	5,914	Illinois
Illinois Cancer Council	3,421	238	0	3,659	Illinois
Northwestern University	3,375	140	0	3,515	Illinois
IIT Research Institute	679	2,650	0	3,329	Illinois
Indiana University	3,254	0	0	3,254	Indiana
Purdue University	2,783	249	120	3,152	Indiana
University of Iowa	2,484	2,124	0	4,608	Iowa
Jackson Laboratory	3,310	0	0	3,310	Maine
Program Resources, Inc.	0	40,237	2,374	42,611	Maryland
Johns Hopkins University	20,355	606	0	20,961	Maryland
Bionetics Research, Inc.	0	12,740	0	12,740	Maryland
Westat, Inc.	0	8,385	0	8,385	Maryland
U.S. Department of the Army, Ft. Detrick	0	5,374	0	5,374	Maryland
Information Management Services	0	4,359	0	4,359	Maryland
University of Maryland System	2,400	957	0	3,357	Maryland
Dana-Farber Cancer Institute	22,135	233	0	22,368	Massachusetts
Harvard University	15,048	0	0	15,048	Massachusetts
Massachusetts Institute of Technology	10,005	98	0	10,103	Massachusetts
Massachusetts General Hospital	8,334	59	0	8,393	Massachusetts
Brigham and Women's Hospital	7,400	0	0	7,400	Massachusetts
University of Massachusetts	4,486	925	0	5,411	Massachusetts
Tufts University	4,467	0	0	4,467	Massachusetts
New England Medical Center Hospitals, Inc.	3,645	792	0	4,437	Massachusetts
Boston University	3,408	0	0	3,408	Massachusetts
Whitehead Institute for Biomedical Research	3,217	0	0	3,217	Massachusetts
University of Michigan	8,714	167	0	8,881	Michigan
Michigan Cancer Foundation	3,432	2,585	0	6,017	Michigan
Wayne State University	4,831	0	0	4,831	Michigan

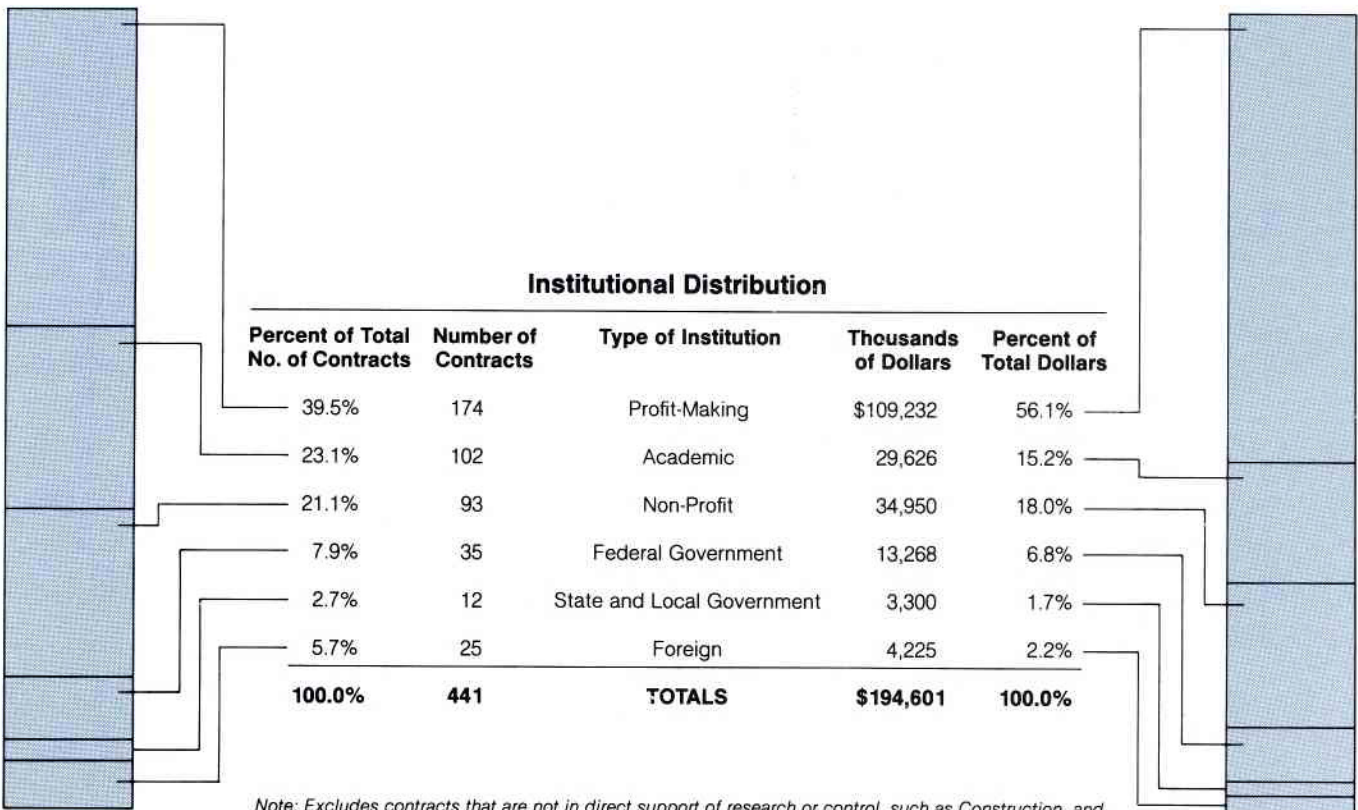
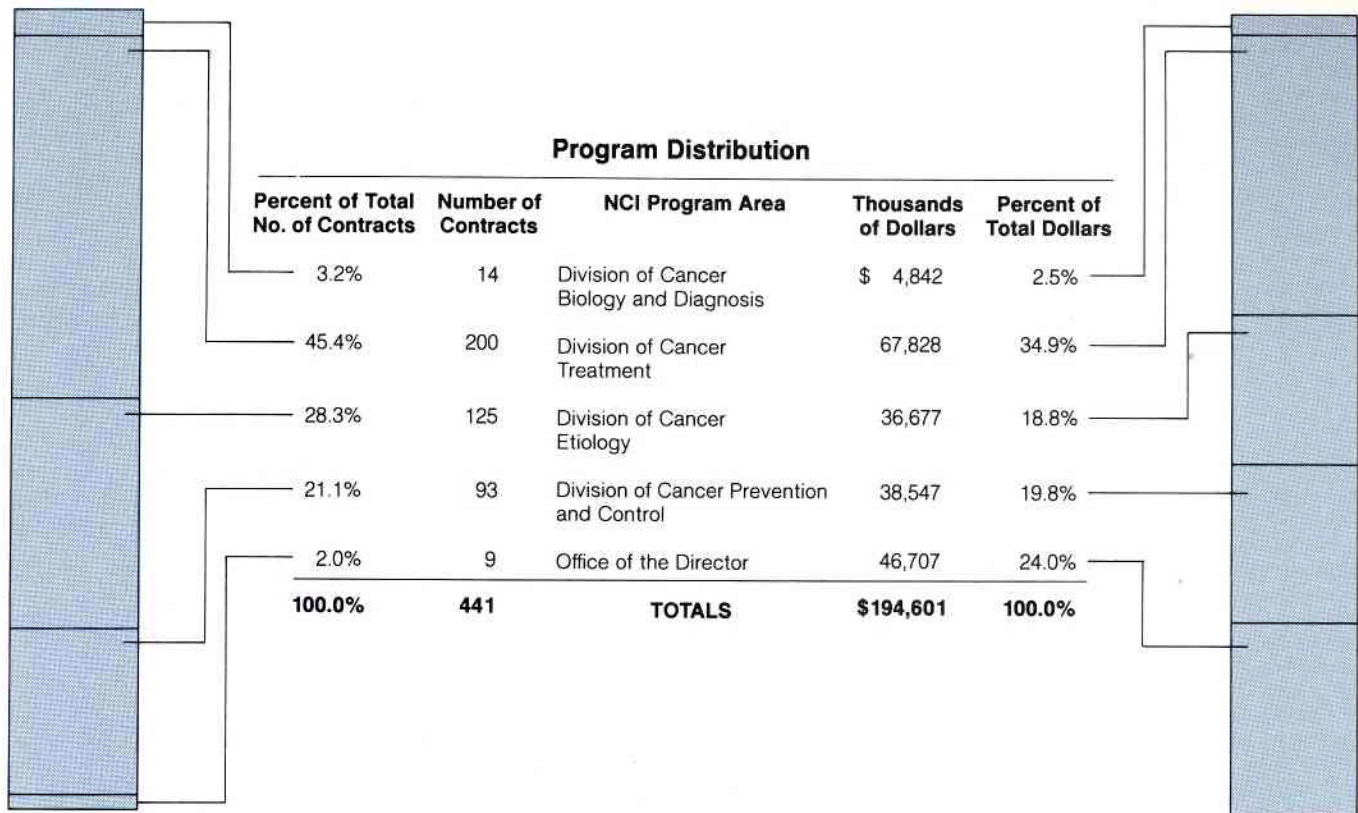
(continued on next page)

**Institutions Receiving
More than \$3,000,000
in NCI Support
Fiscal Year 1987**

(Dollars in Thousands)

Institution	Grants	Contracts	Construction	Total NCI	State
University of Minnesota	11,514	1,415	0	12,929	Minnesota
Mayo Foundation	6,814	1,190	0	8,004	Minnesota
Washington University	6,359	138	0	6,497	Missouri
University of Nebraska System	3,504	382	417	4,303	Nebraska
Dartmouth College	7,744	8	0	7,752	New Hampshire
Princeton University	3,802	0	0	3,802	New Jersey
Memorial Sloan-Kettering Cancer Center	31,851	1,553	0	33,404	New York
New York State Department of Health	17,247	553	0	17,800	New York
Columbia University	15,276	0	0	15,276	New York
University of Rochester	12,258	0	0	12,258	New York
Yeshiva University	11,436	0	0	11,436	New York
American Health Foundation	10,060	851	0	10,911	New York
New York University	9,556	0	0	9,556	New York
State University of New York	7,903	254	0	8,157	New York
Cold Spring Harbor Laboratory	7,620	0	0	7,620	New York
Cornell University	4,643	858	0	5,501	New York
Rockefeller University	4,989	0	0	4,989	New York
City University of New York	4,904	0	0	4,904	New York
Duke University	14,287	0	0	14,287	North Carolina
University of North Carolina System	10,495	584	0	11,079	North Carolina
Research Triangle Institute	162	4,427	0	4,589	North Carolina
Ohio State University	5,366	788	0	6,154	Ohio
Case Western Reserve University	4,285	0	0	4,285	Ohio
Battelle Memorial Institute	344	2,783	0	3,127	Ohio
Institute for Cancer Research	14,915	352	0	15,267	Pennsylvania
Wistar Institute of Anatomy and Biology	10,835	0	0	10,835	Pennsylvania
University of Pittsburgh	9,182	915	0	10,097	Pennsylvania
University of Pennsylvania	9,611	0	0	9,611	Pennsylvania
Pennsylvania State University	6,173	0	0	6,173	Pennsylvania
Temple University	4,228	0	0	4,228	Pennsylvania
Hahnemann University	3,022	0	0	3,022	Pennsylvania
St. Jude Children's Research Hospital	8,173	0	0	8,173	Tennessee
Vanderbilt University	4,991	0	0	4,991	Tennessee
University of Texas System	37,349	3,511	0	40,860	Texas
Baylor College of Medicine	4,066	0	0	4,066	Texas
Utah State Higher Education System	6,215	607	0	6,822	Utah
University of Virginia	3,753	0	251	4,004	Virginia
Hazleton Laboratories Corporation	0	3,674	0	3,674	Virginia
American College of Radiology	3,241	0	0	3,241	Virginia
Fred Hutchinson Cancer Research Center	20,360	1,296	1,000	22,656	Washington
University of Washington	8,101	130	0	8,231	Washington
University of Wisconsin System	16,877	1,107	0	17,984	Wisconsin
Total	\$729,017	\$127,600	\$4,162	\$860,779	
Percent of Total Awarded Above	84.7%	14.8%	0.5%	100.0%	
Total NCI Fiscal Year 1987 Obligations	\$1,402,790				
Percent of Total NCI Obligations	52.0%	9.1%	0.3%	61.6%	

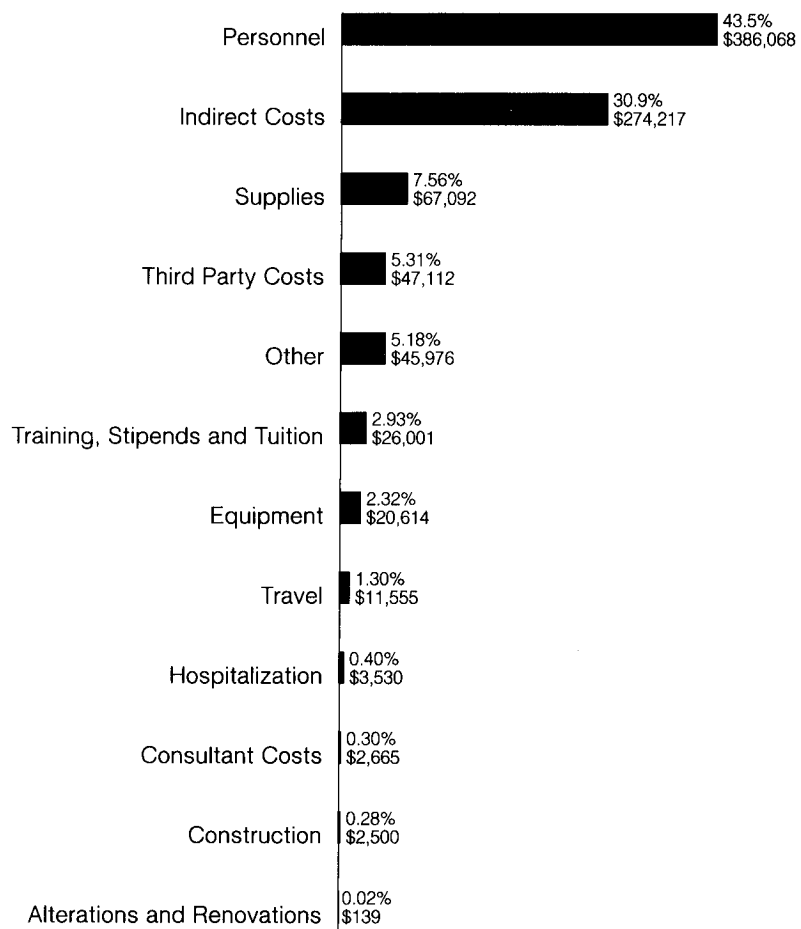
Distribution of NCI Contracts Fiscal Year 1987



Note: Excludes contracts that are not in direct support of research or control, such as Construction, and Reimbursable contracts.

**Distribution of the
NCI Grant Dollar
Fiscal Year 1987**

(Dollars in Thousands)



**NCI Foreign Research
Grants and Contracts
Fiscal Year 1987**

(Dollars in Thousands)

Country	Number Grants	Grant \$	Number Contracts	Contract \$	Total Dollars Awarded	Percent of Total Dollars Awarded
Australia	5	421	0	0	421	4.1%
Belgium	1	274	1	261	535	5.2
Belize	0	0	1	45	45	0.4
Canada	24	1,878	4	734	2,612	25.6
China	0	0	1	935	935	9.2
Denmark	0	0	1	285	285	2.8
Finland	2	104	1	304	408	4.0
France	5	959	0	0	959	9.4
Germany	0	0	1	241	241	2.4
Ghana	0	0	1	45	45	0.4
Israel	9	747	1	67	814	8.0
Italy	0	193*	1	68	261	2.6
Jamaica	0	0	1	311	311	3.1
Japan	1	56	1	29	85	0.8
Sweden	8	642	2	189	831	8.2
Switzerland	1	1	0	0	1	0.0
Tanzania	0	0	1	117	117	1.1
Trinidad/Tobago	0	0	1	269	269	2.6
United Kingdom	5	453	2	565	1,018	10.0
Total Foreign	61	5,728	21	4,465	10,193	100.0%

Note: Excludes Manpower Grants: Canada-\$20; United Kingdom-\$48; Germany, Federal Rep.-\$20; Switzerland-\$36.

*Administrative Supplement

Selected Minority Focused Activities Fiscal Year 1987

Objectives:

- Reduce cancer incidence, morbidity and mortality by increasing the involvement of targeted populations in the implementation of intervention programs.
- Increase the number of minority patients involved in NCI-supported clinical trials in an attempt to improve survival and cure rates in these populations.
- Enhance the capabilities of minority researchers and influence them to develop careers as cancer investigators.
- Heighten awareness about cancer risk and prevention.
- Pursue basic research intended to understand the etiology and biology of cancer in defined minority populations.

Strategy:

The National Cancer Institute (NCI) has developed mechanisms to broaden participation by minority institutes and individuals in cancer-related research and training activities. It seeks to enhance the effectiveness of cancer treatment and control programs in reaching the minority community and other historically underserved segments of the general population, through the following:

Comprehensive Minority Biomedical Program

(CMBP)—Promotes broadened participation by minorities in cancer related research and training through minority-focused programmatic efforts which cross divisional lines within the Institute:

- **Minority Satellite Supplement Award:**
A special initiative designed to expand the number of minority patients in clinical trials and treatment programs. Eight Supplemental awards, involving seventeen satellites were made in 1987.
- **Minority Investigator Supplement:**
Provide supplemental funds to NCI grantees who support minority researchers in their projects. Eleven investigators were supported in 1987.
- **Minority Access to Research Careers:**
Provide fellowships to minority students to pursue training related to cancer research.
- **Minority Biomedical Research Support:**
Through co-funding with other Institutes, NCI provides support for specific cancer-related projects at participating minority institutions.
- **Support for Meeting Attendance:**
Encourages participation in annual meetings by providing travel support through the American Association of Cancer Research.
- **Prevention Awareness:**
Initiates, with the Office of Cancer Communications, model strategies for the dissemination of cancer information to the black populations by utilizing minority institutions, especially historically black colleges.

Cancer Control Intervention Research

- Primary prevention of cancer in blacks by identifying the long term effectiveness of smoking prevention or cessation intervention programs.
- Identification and remedy of key factors that contribute to avoidable mortality from specific cancer sites in black populations.
- Establishment of a Research Network for Black Population to stimulate research on important scientific and social issues relevant to this population.
- Increased data collection efforts on cancer in Hispanics.
- Development of a Hispanic Cancer Control intervention research program.
- Initial planning for the development of an intervention research program on the Native American population.

Appropriations of the NCI 1938-1988

12.5%
\$2,296,568,783

1938 through 1966 \$1,331,538,220	
1967.....	175,656,000
1968.....	183,356,000
1969.....	185,149,500
1970.....	190,486,063
1971.....	230,383,000

87.5%
\$16,018,315,500

1972.....	\$378,794,000
1973.....	492,205,000
1974.....	551,191,500
1975.....	691,666,000 ¹
1976.....	761,727,000
"TQ".....	152,901,000 ²
1977.....	815,000,000
1978.....	872,388,000 ³
1979.....	937,129,000
1980.....	1,000,000,000 ⁴
1981.....	989,355,000 ⁵
1982.....	986,617,000 ⁶
1983.....	987,642,000 ⁷
1984.....	1,081,581,000 ⁸
1985.....	1,183,806,000
1986.....	1,264,159,000 ⁹
1987.....	1,402,837,000 ¹⁰
1988.....	1,469,327,000 ¹¹

**Total
(1938-1988) \$18,314,894,283**

Transition Quarter ("TQ")—July 1, 1976 through September 30, 1976. The Interim Period in the changing of the Federal Fiscal Year from July 1 through June 30 to October 1 through September 30.

¹ Includes \$18,163,000 for training funds provided by Continuing Resolution.

² Includes \$3,201,000 for training funds provided by Continuing Resolution.

³ Includes \$20,129,000 for training funds provided by Continuing Resolution.

⁴ 1980 appropriation authorized under a Continuing Resolution.

⁵ Reflects 1981 rescission of \$11,975,000.

⁶ Amount included in Continuing Resolution. Includes \$47,988,000 transferred to the National Institute of Environmental Health Sciences for the National Toxicology Program.

⁷ Appropriated under Continuing Resolution and Supplemental Appropriation Bill.

⁸ Includes \$23,861,000 for training funds provided by a Continuing Resolution and \$4,278,000 in a Supplemental Appropriation Bill.

⁹ Includes \$6,000,000 from a Supplemental Appropriation Bill.

¹⁰ Authorized under Omnibus Continuing Resolution.

¹¹ Authorized under Omnibus Continuing Resolution.

**NCI Budget History
by Mechanism
Selected Fiscal Years
1972, 1980, 1987**

(Dollars in Thousands)

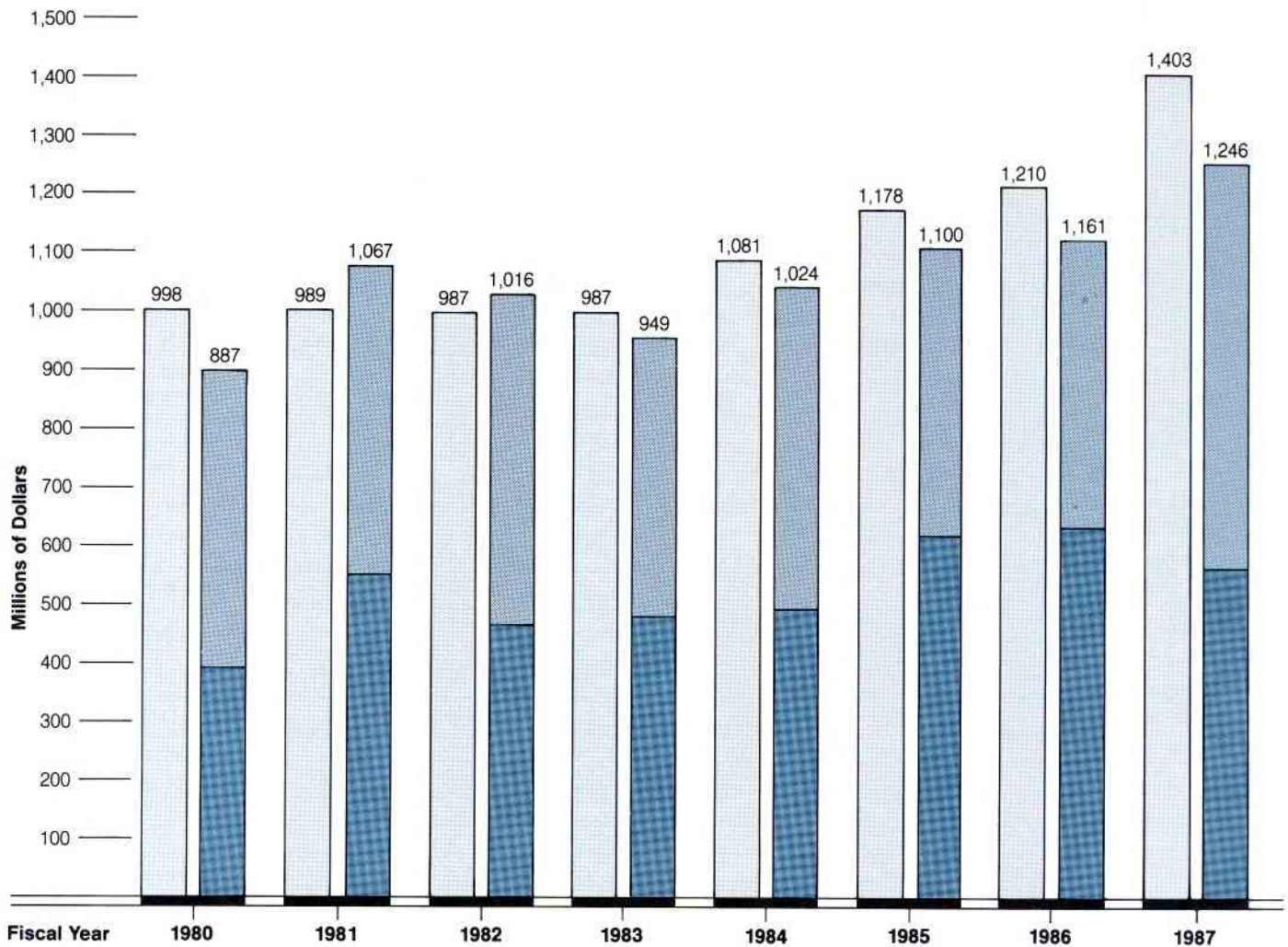
	1972 Actual		1980 Actual		1987 Actual	
	Dollars	Percent of Total	Dollars	Percent of Total	Dollars	Percent of Total
Group I—Investigator Initiated:						
Regular Research Grants	60,073	19.0	216,081	30.9	415,845	40.5
Small Grants	—	—	—	—	279	0
Clinical Cooperative Groups	10,102	3.2	36,884	5.3	57,077	5.6
Program Projects—PO1's	39,260	12.4	104,643	14.9	161,009	15.7
Clinical Education Program	—	—	10,906	1.6	1,627	0.2
Research Career Program	2,026	.6	5,014	0.7	7,660	0.7
Fellowships and Training	18,395	5.8	27,260	3.9	31,728	3.1
Organ Site	638	.2	17,554	2.5	—	—
Cancer Centers-Core Support	10,090	3.2	67,421	9.6	95,819	9.3
Other Center Support Grants	1,089	.3	591	0.1	—	—
Cooperative Agreements	—	—	—	—	16,508	1.6
Minority Biomedical Support	—	—	1,980	0.3	3,039	0.3
Organ Systems	—	—	—	—	822	0.1
Outstanding Investigator Grant	—	—	—	—	35,123	3.4
First Awards	—	—	—	—	7,954	0.8
<i>Subtotal</i> (Small Business Grants)	141,673	44.7	488,334	69.8	834,490 (8,323)	81.3 (0.8)
Group II—Co-Initiated:						
RFAs	—	—	6,683	1.0	13,304	1.3
Research Contracts	46,802	14.8	55,265	7.8	35,827	3.5
RFA R21's	—	—	—	—	—	—
<i>Subtotal</i> (Small Business Contracts)	46,802	14.8	61,948	8.8	49,131 (5,164)	4.8 (0.5)
Group III—NCI/NCP Initiated						
Resource Support Contracts	63,194	20.0	115,425	16.5	128,407	12.5
Interagency Agreements	12,053	3.8	18,740	2.7	9,466	0.9
<i>Subtotal</i>	75,247	23.8	134,165	19.2	137,873	13.4
Group IV—Other Resources						
Planning Grants	1,698	.5	221	0.0	—	—
Construction Grants	47,004	14.9	10,814	1.5	2,500	0.2
Construction Contracts	3,999	1.3	4,618	0.7	2,550	0.3
<i>Subtotal</i>	52,701	16.7	15,653	2.2	5,050	0.5
Total	316,423	100.0	700,100	100.0	1,026,544	100.0
% Total		84.3		73.1		73.2
In-House Research	25,696	6.8	98,665	10.3	158,982	11.3
Management & Support	33,246	8.9	95,735	10.0	159,187	11.3
(NIH Management Fund)	(12,910)	(3.4)	(39,549)	(4.1)	(79,809)	(5.7)
Cancer Control (Grants & Contracts)	—	—	63,663	6.6	58,077	4.2
<i>Subtotal</i>	58,942	15.7	258,063	26.9	376,246	26.8
Total NCI	375,365	100.0	958,163	100.0	1,402,790	100.0
Transfers:						
Diagnostic Radiation	(2,800)	(.8)	(3,611)	0.4	—	—
National Toxicology Program	—	—	(43,495)	—	—	—

**Comparison of Dollars,
Positions and Space
Fiscal Years 1971–1987**

	Dollars			Positions			Space		
	Obligations (\$000's)	Percent of Increase Over Base Year	Percent of Increase Over Prior Year	Actual Full-Time Permanent Employees	Percent of Increase Over Base Year	Percent of Increase Over Prior Year	Allocated Space (Square Feet)*	Percent of Increase Over Base Year	Percent of Increase Over Prior Year
1971	232,855	Base Year	—	1426	Base Year	—	321,230	Base Year	—
1972	378,636	62.6	62.6	1665	16.8	16.8	329,587	2.6	2.6
1973	431,245	85.2	13.9	1736	21.7	4.3	357,972	11.4	8.6
1974	581,149	149.6	34.8	1805	26.6	4.0	381,436	18.7	6.6
1975	699,320	200.3	20.3	1849	29.7	2.4	382,485	19.1	0.3
1976	760,751	226.7	8.8	1955	37.1	5.7	387,324	20.6	1.3
1977	814,957	250.0	7.1	1986	39.3	1.6	428,285	33.3	10.6
1978	872,369	274.6	7.0	1969	38.1	-0.9	491,725	53.1	14.8
1979	936,969	302.4	7.4	1973	38.4	0.2	493,156	53.5	0.3
1980	998,047	328.6	6.5	1837	28.8	-6.9	467,730	45.6	-5.2
1981	989,338	324.9	-0.9	1815	27.3	-1.2	472,633	47.1	1.0
1982	986,564	323.7	-0.3	1703	19.4	-6.2	477,782	48.7	1.1
1983	986,811	323.8	0.02	1731	21.4	1.6	484,093	50.7	1.3
1984	1,081,460	364.4	9.6	1698	19.1	-1.9	466,890	45.3	-3.6
1985	1,177,853	405.8	8.9	1596	11.9	-6.0	466,890	45.3	.0
1986	1,210,284	419.8	2.8	1573	10.3	-1.4	465,790	45.0	-1.2
1987	1,402,790	502.4	5.9	1642	15.2	4.4	465,790	0	0

*Does not include the Frederick Cancer Research Facility.

National Cancer Institute Obligations and Outlays Fiscal Years 1980-1987



Obligations

Outlays Current Year Funds
 Prior Year Funds

Obligations: Orders placed, grants and contracts awarded, salaries earned and similar financial transactions which legally utilize or reserve an appropriation for expenditure.

Outlays: Payments (cash or checks) made from current or prior year appropriations.

**NCI Total Research
Projects
Fiscal Years 1982-1987**

(Dollars in Thousands)

Fiscal Year	Type Awarded	Requested		Recommended		Awarded		Percent Funded ¹
		Number	Amount	Number	Amount	Number	Amount	
1982	Competing ²							
	New	2,187	\$308,153	1,784	\$189,245	434	\$47,224	24.3
	Renewal	730	174,573	706	117,099	323	50,186	45.7
	Board Supplement	28	1,166	24	1,289	4	86	16.7
	Subtotal	2,945	\$484,992	2,514	\$307,633	761	\$97,496	30.3
	Noncompeting					1,797	260,853	
	Total					2,558	\$358,349	
1983	Competing ²							
	New	2,229	\$323,572	1,844	\$215,945	529	\$55,316	28.7
	Renewal	783	160,881	763	113,664	358	56,698	46.9
	Board Supplement	23	2,492	15	727	3	110	20.0
	Subtotal	3,035	\$486,945	2,622	\$330,336	890	\$112,124	33.9
	Noncompeting					1,923	294,019	
	Total					2,813	\$406,143	
1984	Competing							
	New	2,113	\$310,433	1,773	\$207,996	558	\$68,376	31.5
	Renewal	774	179,764	745	135,253	416	90,140	55.8
	Board Supplement	13	1,776	11	788	3	105	27.3
	Subtotal	2,900	\$491,963	2,529	\$344,037	977	\$158,621	38.6
	Noncompeting					1,869	302,626	
	Total					2,846	\$461,247	
1985	Competing							
	New	2,400	\$398,621	2,042	\$282,590	599	\$83,691	29.3
	Renewal	782	183,483	758	140,472	416	84,708	54.9
	Board Supplement	19	1,659	13	850	2	65	15.4
	Subtotal	3,201	\$583,763	2,813	\$423,912	1,017	\$168,464	36.2
	Noncompeting					1,964	348,011	
	Total					2,981	\$516,475	
1986	Competing ²							
	New	2,354	\$392,028	1,997	\$277,698	564	\$84,470	28.2
	Renewal	787	198,814	765	160,021	385	77,012	50.3
	Board Supplement	12	775	10	366	1	14	10.0
	Subtotal	3,153	\$591,617	2,772	\$438,085	950	\$161,496	34.3
	Noncompeting					2,111	397,664	
	Total					3,061	\$559,160	
1987	Competing ²							
	New	2,034	\$390,474	1,782	\$292,044	557	\$97,643	31.3
	Renewal	898	241,189	882	195,014	504	120,550	57.1
	Board Supplement	7	731	7	429	0	0	0
	Subtotal	2,939	\$632,394	2,671	\$487,487	1,061	\$218,193	39.7
	Noncompeting					2,042	424,960	
	Total					3,103	\$643,153	

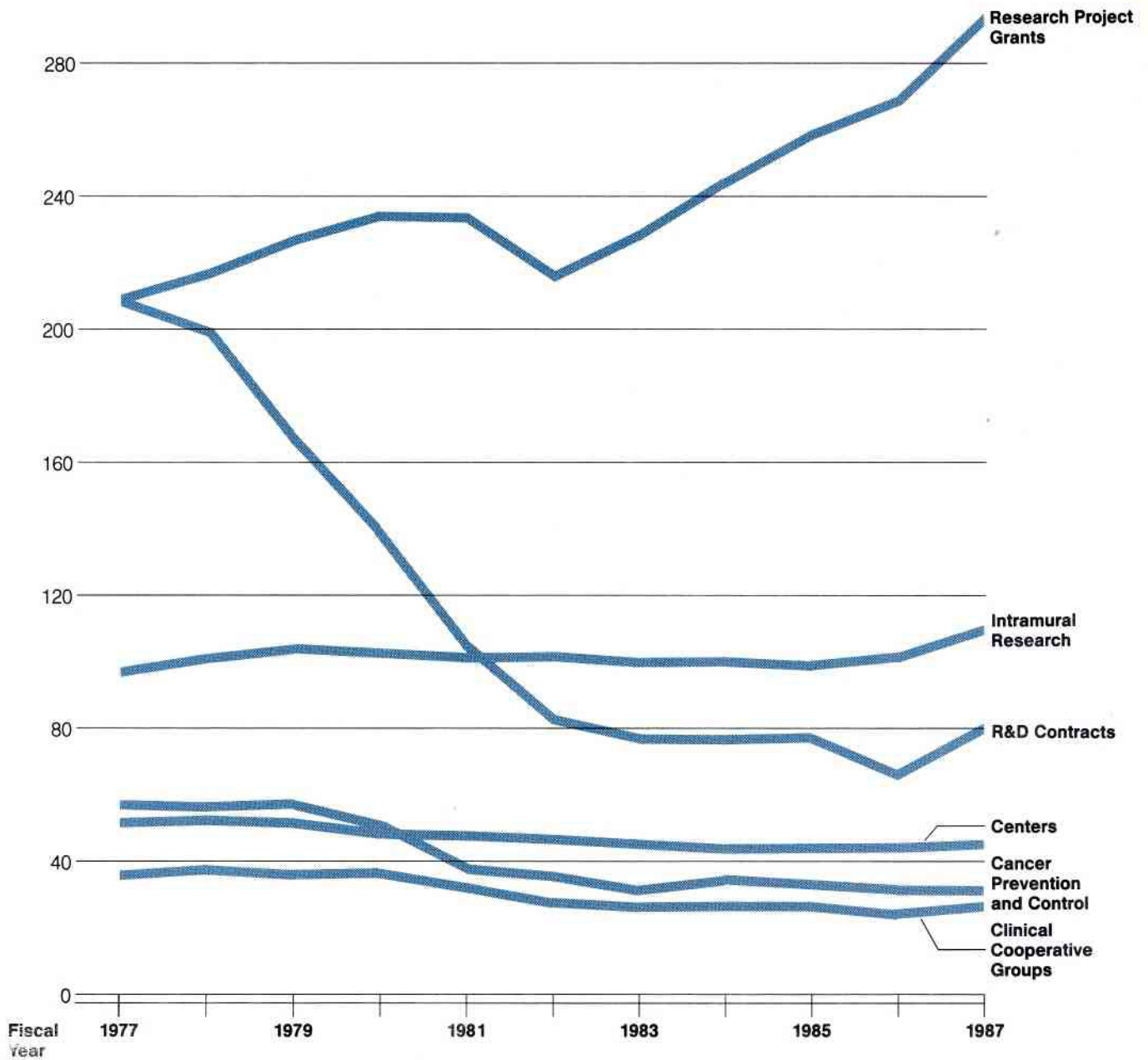
Note: Includes R01 traditional grants, P01 program projects, R23 new investigator research awards, R29 First Awards, R35 Outstanding Investigator Grants, R37 MERIT awards, U01 Cooperative agreement awards, R01 and U01 awards of RFA's and R43/R44 Small Business Innovative Research awards.

¹ Percent Funded; Number Awarded ÷ Number Recommended

² Because of fiscal restraints, grants were awarded below recommended levels.

**Constant Dollar Trends
Obligations By Mechanism
Fiscal Years 1977-1987**

(Dollars in Millions)



1977 Constant Dollars



National Cancer Institute

