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ANNUAL REPORT
OF
PROGRAM ACTIVITIES
NATIONAL CANCER INSTITUTE
Fiscal Year 1981
Part V

U. S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service National Institutes of Health

ANNUAL REPORT,

OF

PROGRAM ACTIVITIES

NATIONAL CANCER INSTITUTE (U.S.)

Fiscal Year 1981

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Division of Extramural Activities

NATIONAL CANCER INSTITUTE

DIVISION OF EXTRAMURAL ACTIVITIES

ANNUAL REPORT

October 1, 1980 through September 30, 1981

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OFFICE OF THE DIRECTOR

The mission of the Division of Extramural Activities is to plan and direct, in coordination with the other Divisions of the National Cancer Institute, a program in support of national and international cancer research and training through a system of grants and contracts. The role of the DEA relates to the peer review and financial management of the grants and the review activities of resource contracts. All grant applications must undergo dual review and critical assessment of their scientific merit, the ability of the investigator, the adequacy of available facilities, budget priorities, and the program relevance of the proposed work. This review is conducted by appropriate committees composed of outstanding scientists and other recognized authorities in the health sciences. The final part of the dual review of grants is conducted by the National Cancer Advisory Board, a group of eminent scientists and lay people whose major interests are in cancer.

The Office of the Director provides the leadership and direction to the NCI's peer review activities for grants, and proposes and institutes policies and procedures for achieving the Institute's missions.

During fiscal year 1981, 3800 grant applications were referred to the National Cancer Institute. Of these, 474 were assigned to review committees under the Division of Extramural Activities and the rest received their initial review through the Division of Research Grant study sections. This involved the conduct of many site visits, the preparation of large numbers of summary statements of recommendations, site visit reports, and other material for review by both the initial review groups and the National Cancer Advisory Board.

The DEA during this fiscal year assumed the responsibility for developing and implementing a plan for technical merit peer review of Institute-wide research, resource, and intramural support contract proposals. The DEA contract review committees formerly had responsibility for technical merit review of only research contract proposals. It is anticipated that the additional review responsibilities will require the formation of several new chartered and ad hoc review committees within the Division.

All committee management activities for NCI are carried out in the DEA. This office is responsible for the development and implementation of the policies, guidelines, and standards of procedures for the appointment of members, and the establishment and management of the NCI review and advisory committees. The consultants are divided into two broad categories--the review groups whose primary function is to determine the scientific merit of research grant applications and contract proposals, and the program advisory groups who provide the broad perspective on the research needs and scientific opportunities of the Institute.

The Director of the Division is also Executive Secretary of the National Cancer Advisory Board. The Board meets four times a year. Three of its meetings are for the final review of all NCI grants and to advise the Director of the NCI on various program matters, and the fourth meeting--usually held in November--is totally for program review at which one or more of the NCI Divisions is reviewed in detail.

Personnel changes during the year have included the addition of Dr. Vincent Oliverio as Acting Special Assistant to the Director, and the appointment of Mrs. Winifred Lumsden as Committee Management Officer.

Office of the Special Assistant for Special Projects

The Office of the Special Assistant for Special Projects is primarily concerned with the coordination of various functions of the extramural arm of the Institute. For the past fiscal year, principal activities included: (a) preparations for the National Cancer Advisory Board (NCAB); (b) management, including review, of NCI's conference program including both R13 grants and Fogarty International Center (FIC) contracts; (c) coordination of the RFA (Request for Applications) and PA (Program Announcement) programs; and (d) for part of the year, DNA recombinant research and Freedom of Information (FOI) and Privacy Act (PA). The DNA recombinant coordination has been virtually eliminated because of relaxation of the NIH guidelines; the FOI and PA activities were transferred this year to the Office of Cancer Communications. Details of the activities follow.

National Cancer Advisory Board

Activities concerned with the NCAB include not only the routine planning of pre- and post-Board meetings, but more importantly, advising staff of all Divisions regarding policy and procedures and serving as Executive Secretary of the Special Actions Subcommittee. This Subcommittee brings to the Board's attention any problems cited by a DRG or NCI review group or by a Program Director in any NCI Division, for any grant under review at a particular meeting. This includes ethical and human subject problems and biohazard problems, as well as perceived errors in review. In addition, the Subcommittee continued this year with both the in-depth review of current grants in a chosen program and review of selected large basic and clinical grants. Grants reviewed this year included those in the Nutrition, Diagnosis, and Clinical Cancer Education and Training Program. Twenty-three multidisciplinary research Program Projects (P01) grants were also reviewed.

Conference Program

In the past, conferences were supported primarily by R 13 grants or Fogarty International Center (FIC) contracts. The R 13 grants were usually supported by one or, at most, two B/I/D's, the FIC contracts by many. A major change in NIH policy during this past year was to phase out the FIC Conference program with all applications now going to DRG for assignment to single or multiple B/I/D's, whichever seems more appropriate. A summary of conference related activities follows:

Table 1

Fogarty International Conferences - FY 81 (1)

<u>Cancer Activity</u>	<u>Number Reviewed</u>	<u>Number Paid</u>	<u>Amount Paid</u>
Tumor Biology	13	7	\$24,500
Biological Carcinogenesis	8	6	30,000
Chemical Carcinogenesis	4	4	8,500
Immunology	6	4	26,500
Biochemistry/Pharmacology	3	3	4,000
Epidemiology	1	1	3,000
Multidisciplinary	8	5	30,000
Total	43	30	\$126,500

(1) Figures based on applications received from October 1, 1980, until February 1, 1981, when this program was officially closed.

Table 2

R 13 Conference Grants by Cancer Activity
(Based on 9 months)

<u>Cancer Activity</u>	<u>Reviewed</u>		<u>Awarded</u>	
	<u>Number</u>	<u>Direct Cost</u>	<u>Number</u>	<u>Cost</u>
Tumor Biology	12	\$ 364,390	4	\$ 51,000
Radiation Therapy	7	192,733	1	25,571
Immunology	5	104,356	1	5,000
Epidemiology	3	127,525	2	68,555
Cancer Control	3	161,753	1	144,893
Clinical Treatment	3	56,747	-	-
Biological Carcinogenesis	1	34,990	1	34,990
Chemical Carcinogenesis	3	88,721	-	-
Biochemical Pharmacology	2	18,404	2	13,010
Nutrition (DCCP)	2	52,686	1	32,586
Nutrition (DCT)	1	5,000	1	5,000
Diagnostic Research	1	34,500	1	34,500
Breast Cancer	1	6,712	1	6,712
Total	44	\$1,248,517	16	\$ 421,817
Total including Type 5s.			21	\$1,837,482

Table 3

Conference (R 13) Grants - FY 81

	<u>Number</u> (1)	<u>Direct Costs</u>
<u>Reviewed:</u>	44	\$1,248,517
Approved: mean priority score (206)	41	978,440
(2)		
awarded: mean priority score (168)	16	421,817
not awarded: mean priority score (230)	25	-
<u>Disapproved:</u>	3	-

(1) Covers period June '80 to June '81

(2) Based on 9 months.

Requests for Applications (RFA) and Program Announcements (PA)

The RFA and PA are available to all NCI Divisions to announce and to invite participation in new programs. This office advises, clears, and approves these documents before publication in the NIH Guide for Grants and Contracts. Submissions for this year include:

RFA's

"Mechanisms of Biological and Chemical Prevention of Carcinogenesis"

NCI-DCCP-CPCB-81-1. May 22, 1981

Grant applications are invited for studies on the mechanisms of inhibition of carcinogenesis. The studies seek to enhance present understanding of the mechanisms of action of representative members of the following categories of agents: (1) Antioxidants, Flavonoids, Disulfiram and related compounds, nucleophiles, including cellular nucleophiles and other physiological trapping agents, Coumarins and other lactones; (2) Vitamins, Provitamins, and other Cofactors; (3) Retinoids; (4) Protease Inhibitors; and (5) Biological agents such as Chalcones, Lymphokines/Lymphotoxins, and Tumor Necrosis Factor.

"Role of Tumor Promoters: Hormones and Other Cofactors in Human Cancer Causation"

NCI-DCCP-CPCB-81-2.

Grant applications are invited for both basic and applied studies intended to provide insights and approaches to an understanding of the role of tumor promoters, hormones, and other cofactors in human cancer causation. In the area of tumor promoters, the intended emphasis is on the use of nonphorbol agents.

"Surgical Oncology Research"

NCI-DCT-CTEP-CIB-81-3. June 26, 1981

Grant applications are invited for surgical oncology research. Treatment of cancer has evolved as a multidisciplinary effort involving the disciplines of medical oncology, pediatric oncology, surgical oncology, and radiation oncology. The disciplines of medical oncology, pediatric oncology, and radiation oncology have developed strong cadres of academic investigators but academic development in surgical oncology has often not kept pace. It is felt that surgical oncology is not keeping pace in recruiting new young investigators. Continued development of multidisciplinary treatment of cancer is the long-range objective of the Division of Cancer Treatment and the attainment of this goal requires sufficient academic strength in surgical oncology. (This was also submitted as a Program Announcement)

R 13 Conference Grants Reviewed FY '81

1981 Annual Symposium on Fundamental Cancer Research	P.I. Charles A. Le Maistre, M.D. March 3-6, 1981, Houston, TX	(1)
Host Factors in Human Carcinogenesis	P.I. Helmut Bartsch, Ph.D. April, 1981; Greece	(1)
NMR Imaging and Cancer: State of the Art Conference	P.I. Charles D. Maynard, M.D. October 1-3, 1981; Winston-Salem, NC	(1)
Cancer Prevention and Screening Symposium	P.I. John A. Kerner, M.D. November 7-8, 1980; San Francisco, CA	
Modern Prospectives in Genetics A Symposium Series (01)	P.I. Hilary Koprowski, M.D. Series; Philadelphia, PA	(1)
Sixth International Congress of Human Genetics	P.I. Leon E. Rosenberg, M.D. September 13-18, 1981, Jerusalem Israel	
NIKKO Conference on Brain Tumor Research and Therapy	P.I. Victor A. Levin, M.D. October 13-16, 1981; Nikko, Japan	(1)
Conference on Biostatistics in Clinical Oncology	P.I. Valerie Mike, Ph.D. June 14-18, 1981, New York, NY	(1)
Eighth Annual Conference on Analytical Cytology	P.I. Myron R. Melamed, M.D. May 19-24, 1981; Portsmouth, NH	(1)
Cold Spring Harbor Meetings on Cell Proliferation	P.I. James D. Watson, Ph.D. Series; Cold Spring Harbor, NY	
Symposium: Chromosome Breakage and Neoplasia	P.I. James L. German III, M.D. December 11-12, 1980; New York, NY	
International Workshop on Mechanisms in Cell-Mediated Cytotoxicity (01)	P.I. William R. Clark, Ph.D. September 14-17, 1981; Carry-Le-Rouet, France	(1)
EORTC Symposium on the Nutrition of the Cancer Patient	P.I. Maurice J. Staquet, M.D. January 8-9, 1981, Brussels, Belgium	(1)
Cancer Epidemiology in Latin America Meeting	P.I. Jorge Litvak, M.D. Fall, 1981; Washington, DC	
IIIrd International Symposium On Gnotobiology	P.I. Yoon B. Kim, M.D., Ph.D. June 29-July 3, 1981; Tokyo, Japan	(1)
Conferences for Personnel of Cancer Data Programs	P.I. Calvin Zippin, Sc.D. Series; San Francisco, CA	

International Conference on Prostaglandins and Cancer	P.I. Peter W. Ramwell, Ph.D. August 31-September 2, 1981; Washington, DC	(1)
Xth International Symposium Comparative Leukemia Research	P.I. David S. Yohn, Ph.D. August 31-September 4, 1981; Los Angeles, CA	(1)
Gordon Research Conference on Mammary Gland Biology	P.I. Russell Hilf, Ph.D. June 8-12, 1981; New London, NH	(1)
1982 Annual Symposium on Fundamental Cancer Research	P.I. Charles A. Le Maistre, M.D. May 2-5, 1982; Houston, TX	(1)
Symposium: Biology of Hybridomas	P.I. Dorothy R. Pitelka, Ph.D. June 7-11, 1981; Washington, DC	
Ions, Cell Proliferation and Cancer, W.A. Jones Cell Science Center Symposium	P.I. Wallace L. McKeehan, Ph.D. November 11-13, 1981; Lake Placid, NY	
Symposium on Current Concepts in Cancer Therapy	P.I. Marc K. Wallack, M.D. December 10-12, 1981; St. Louis, MO	(1)
Symposium on the Design of New Antineoplastic Agents	P.I. Thomas J. Bardos, Ph.D. May 18-20, 1981; Amherst, NY	
Chemical Modification: Radiation and Cytotoxic Drugs	P.I. Eric J. Hall, D.Sc. September, 1981; Key Biscayne, FL	
1981 Gordon Conference on Host Defense in Neoplasia	P.I. Harold F. Dvorak, M.D. July 20-24, 1981; Plymouth, NH	(1)
Gordon Conference on Chemotherapy of Experimental and Clinical Cancer	P.I. Emil Frei III, M.D. July 27-31, 1981; Plymouth, NH	
Hodgkin's Disease and the EBV: A Planning Workshop	P.I. Nancy M. Gutensohn, SD May 4-5, 1981; Boston, MA	
Gordon Research Conference on Cancer, 1981	P.I. Leila Diamond, Ph.D. August 16-21, 1981; New London, NH	
Workshop on Photo-sensitizing Agents	P.I. David Kessel, Ph.D. September, 1981; Bethesda, MD	
Cancer 1981: Cancer 2001 An International Colloquium	P.I. Robert C. Hickey, M.D. November 11-14, 1981; Houston, TX	

R 13 Conference Grants Reviewed FY '81

Culture of Human Epithelial Cells W.A. Jones Cell Science Center Symposium	P.I. Wallace L. McKeehan, Ph.D. May 26-28, 1981; Lake Placid, NY
Third World Congress on Pain	P.I. John J. Bonica, M.D., D.Sc. September 4-11, 1981; Edinburgh, UK
Symposium on Computerized Treatment Planning Systems	P.I. Farideh Bagne, Ph.D. April 22-25, 1981; Detroit, MI
Modern Prospectives in Genetics: A Symposium Series (01-A1)	P.I. Hilary Koprowski, M.D. Series; Philadelphia, PA
Gordon Conference on Immunochemistry and Immunobiology	P.I. Martin G. Weigert June 8-12, 1981; Plymouth, NH
Workshop on Standards for Laboratory Animal Diets	P.I. Marie E. Coates, Ph.D. August 16-21, 1981; San Diego, CA (1)
International Workshop on Mechanisms in Cell-Mediated Cytotoxicity (01-A1)	P.I. William R. Clark, Ph.D. September 14-17, 1981; Carry-Le-Rouet, France
Computed Tomography in Radiotherapy: A Symposium	P.I. C. Clifton Ling, Ph.D. September 18-19, 1981; Washington, DC
Genetic Toxicology: An Agricultural Perspective	P.I. Raymond A. Fleck, Ph.D. November 1-5, 1981; Davis, CA
ISOTT International Meeting - August 1981	P.I. Haim I. Bicher, M.D., Ph.D. August, 1981; Detroit, MI
International Conference on Malignant Lymphomas	P.I. Franco Cavalli, M.D. September 2-5, 1981; Lugano, Switzerland
Midwest Autumn Immunology Conference	P.I. Jon R. Schmidtke, Ph.D. October 18-20, 1981; Minneapolis MN
Biochemical and Biological Markers Neoplastic Transformation	P.I. Prakash Chandra, Ph.D., D.Sc. September 28-October 8, 1981; Corfu, Greece
Banbury Conference on Gene Amplification and Aberrant Chromosomal Structures	P.I. James D. Watson, Ph.D. September 20-23, 1981; Cold Spring Harbor, NH

(1) Awarded, based on 9 months

RESEARCH ANALYSIS AND EVALUATION BRANCH

Overview of Branch Activities

The Research Analysis and Evaluation Branch (RAEB) serves as a major source of scientific information on NCI-supported research projects. Members of the Branch analyze and index the scientific content of all grants awarded by NCI, all NCI contracts, and all NCI intramural projects, and monitor published results supported by grants through a unique literature surveillance program. This information is widely disseminated throughout NCI--to the other Divisions, Office of the Director, Office of Cancer Communications, Financial Management Branch, Program Analysis and Formulation Branch, and the International Cancer Research Data Bank; to other NIH organizations such as the Research Documentation Section and the Research Analysis and Evaluation Branch of the Division of Research Grants; to other NIH Institutes; and to other Government and private organizations. Staff members also compare pending grants and contracts with existing NCI-supported projects at the same institution to assure that there is no project overlap or duplicated support.

The number of requests for information continued to be high during the fiscal year, as the institute has adjusted to the reorganization finalized in 1980. DEA program directors were transferred to other NCI Divisions, causing a decentralization of personnel and a great increase in the number of staff members responsible for the programmatic aspects of NCI grants. Requests are therefore coming not only from former DEA program directors but also from their colleagues in the other Divisions who must familiarize themselves with the details of grant-supported programs. Because the Branch acts as a central source of information, some of the difficulties usually resulting from a decentralization of personnel have been kept at a minimum.

Computer Information System: GENIUS

The heart of the operation of the Research Analysis and Evaluation Branch is the Grants Network-Internal Users System (GENIUS), in use since 1975. The bulk of the data base consists of scientific data for NCI grants indexed according to specific key words or phrases taken by the indexer from the text of the grant application. Data can be retrieved in a variety of formats in order to respond to inquiries and prepare reports.

In addition to the scientific indexing prepared by the Branch, two other types of data are available from the system. These include administrative data obtained from the Division of Research Grants' (DRG) IMPAC System and Smithsonian Science Information Exchange (SSIE) abstracts supplied by the applicants and entered into DRG's CRISP System.

When completely operational, the Grants Elements Network-Internal Users System will include data from five separate computer information storage files: (1) active research grants and companion history file of terminated grants, (2) unfunded grants and history file, which includes a total of five previous years of data, (3) active contracts and history file, (4) intramural research projects and history file, and (5) training programs. All scientific and administrative data on the active and history files and the intramural research file, except for the SSIE abstracts, are searchable on the computer. The current unfunded grants file consists of disapproved and approved-but-not-funded grants for the past two years. This file

contains only administrative data from IMPAC. The project title, program area, applicant department, and study section are the only points of access to scientific information on these projects.

The intramural research project file was added to the GENIUS system and became operational in 1978. The active contracts file became operational with all contracts active as of August 1, 1980. The contract data base is currently dependent on the IMPAC System for administrative items. Programming efforts in fiscal year 1981 will be directed to augmenting missing data from the IMPAC system with data from the Contracts Management System. The training file will be automated after the contract system is completed; the anticipated date is fiscal year 1982.

About 80 percent of the active grants, including new proposals and type 2 requests for continuing support, one percent of contracts, and 40 percent of the intramural research projects have been entered into the system. GENIUS is maintained and operated solely by the Branch, which is greatly indebted to the Division of Computer Research and Technology for help in developing and implementing the system. Other institutes at NIH have expressed interest in GENIUS and, with the help of DCRT, are using it as a model for their own systems.

Enviro Control, Inc., a contractor chosen to compare the science information systems within NCI and NIH, submitted its final report this year. After considering the content, quality, capabilities, and usage of all systems, the contractor concluded that GENIUS was well liked by its users and functioned at an above-average level.

Requests for Information

Requests to the Branch are made daily and vary in complexity. Most are now answered by using the GENIUS system, but other sources of information are maintained and used frequently by the Branch. These include copies of grant applications and contract proposals for active projects, progress reports, study section summary statements, reprints of published grant-supported papers, and documents concerning individual trainees and fellows. The Branch has also developed several unique files of information, including one that lists the names and backgrounds of professional personnel on all grants submitted to NCI. This file is used often by RAEB members and by staff of the Review and Referral Branch looking for and verifying the names of scientists with a particular expertise to send on site visits.

The number of requests for information continued to be high during 1980. Branch members answered about 600 inquiries. Thirty percent came from the Office of Cancer Communications and ranged from answers to letters from the public to inquiries from members of the Congress and White House staff. The remainder came from other components of the NCI Office of the Director, including the Budget Office, (14 percent), NCI Program Directors (31 percent), other NIH organizations (3 percent), and non-NIH organizations and individuals (22 percent). Because of this continued high rate and complexity of requests, much more time and effort had to be spent this year in the information retrieval process, resulting in fewer staff-hours available for scientific indexing of information for input into GENIUS.

Requests covered a wide range of topics from a wide variety of sources. Some examples are given in the table below.

Sample Requests to the RAEB, FY 1981

<u>Request</u>	<u>Source</u>
1. Distribution of fiscal year 1980 grant funds by major organ site	NCI Budget Office for Dr. DeVita's appearance at Congressional budget hearings
2. Earliest NCI support for Vitamin A chemoprevention and information on early projects	Office of Cancer Communications (OCC) for a TV broadcast
3. Identification of fiscal year 1979, 1980, and 1981 (est.) NCI grants, contracts and intramural projects related to systemic lupus erythematosus	NIAMDD for a Congressman
4. Information on a grant for study of mortality of workers at Union Carbide plant in New Jersey	OCC to answer Freedom of Information request
5. Active NCI grants and contracts for asbestos studies	NCI Budget Office
6. NCI grants for laryngeal reconstruction	OCC
7. Fiscal Year 1981 NCI grants and contracts for studies on aging	NCI Budget Office for Senate Subcommittee on Aging
8. Active NCI-supported projects on brain cancer linked to oil refineries	NCI Grants Administration Branch
9. Fiscal Year 1980 NCI projects on blood-related research	NHLBI
10. Identification of active and unfunded applications dealing with hyperthermia or BCG, metabolic, or nutritional therapy	OCC to answer Freedom of Information request

Special Projects

Branch staff continued to devote much time to requests to retrieve and analyze information for special programs and activities coordinated in the Office of the Director, NCI. Mr. Harry Canter, Chief of the RAEB, and Ms. Rosemary Cuddy, Deputy Chief, attended a number of meetings dealing with these programs and activities and, along with other members of the staff, were directly involved in providing the necessary information.

Diet, Nutrition and Cancer Program

This is the third year that Branch staff has assisted the Diet, Nutrition and Cancer Program (DNCP), established to coordinate all nutrition research supported by the various NCI programs. The function of the Nutrition Program is to collect, analyze, and disseminate information on the interrelationships between diet, nutrition, and the etiology of cancer and the therapy and rehabilitation of the cancer patient.

Branch members played a significant role in helping DNCP implement their information function. They identified all fiscal year 1980 NCI grants, contracts, intramural, and training projects, estimated the percentage of dollars spent on each award for nutrition research relevant to the Program, and entered these data on a special file, which they provided in machine-readable form to the NIH Nutrition Coordinating Committee. Branch members used these data to help compile the DNCP status report and answer inquiries on NCI support of nutrition activities.

Bellrad Research Projects Analysis Subcommittee

The RAEB is providing information expertise to aid NCI and NIH in their role on the PHS Subcommittee to Coordinate Radiation Activities. Mr. Canter and Ms. Cuddy are members of the Biological Effects of Low Level Radiation (Bellrad) Research Projects Analysis Subcommittee, formed at NCI to concentrate on this topic of major concern to the PHS Subcommittee. Branch members have developed a separate file of information on low level ionizing radiation and incorporated into the GENIUS system a special series of radiation-related categories developed by the Bellrad Subcommittee. In this way, the RAEB can store, search, and retrieve information on NCI-supported grant, contract, and intramural research projects according to criteria determined by the Subcommittee, and will continually update the data set. They also incorporate similar information on projects supported by other NIH Institutes, provided by the Division of Research Grants, NIH.

Smoking, Cancer and Health Program

Branch members identified all fiscal year 1980 projects related to tobacco, its components, uses, and effects for the newly formed Smoking, Cancer and Health Program. They attended a meeting to coordinate NCI's program with other NIH Institutes and with other agencies with an interest in smoking and health. Branch members are helping to prepare an indexing system that will be compatible with the data bases of all the participants.

NIH Digestive Diseases Coordinating Committee

Because of their experience and success in designing specialized information systems, the RAEB staff were asked to advise the NIH Digestive Diseases Coordinating Committee in setting up an information system for digestive disease projects supported by NIH and several other agencies.

Literature Surveillance

Published results are monitored through the Branch's unique literature surveillance program. Ann Whiteman, a member of the Branch, scans 325 major medical and

scientific journals and books to identify those reports resulting from NCI grant- or combined grant-and-contract-supported research. These references and additional references obtained from reprints submitted by grantees are entered into the computer system which generates an alphabetical keyword in context (KWIC) index of the terms in the titles plus additional augmented terms.

In augmenting these terms, staff enters related or hierarchical terms which do not appear in a given title but which are pertinent to the topic and are necessary for efficient retrieval. Terms are assigned by generic and specific categories as well as by their conceptual relationship to cancer and other research areas. Library and investigator file data are used to verify information and ensure accuracy and subject relevance. This comprehensive augmentation incorporates the terminology of all scientific discipline encompassed by cancer research.

The references are arranged according to NCI cancer activities and published monthly with a subject and author index as the NCI-Grant-Supported Index. The Index is the most complete record available within NCI of accomplishments of the total NCI extramural research grant program. As a computer-searchable system, it is used for yearly and monthly listings of current literature and for responding to requests from staff and other members of the scientific community. In calendar year 1980, about 9,934 articles, representing the work of 19,434 authors, appeared in the Index.

Communications Activities

As part of an NCI-wide effort to improve communications, the Branch Chief has been participating in the Program Working Group on Information Systems/Communication. This group is primarily concerned with scientific and technical information resources from all NCI Divisions.

In addition, the Branch maintains regular liaison with other Divisions of NCI. Extra copies of the grantees' reprints are sent to each Division, as are copies of the SSIE abstracts for all grants. SSIE abstracts of grants concerned with specific research areas are sent on a regular basis and upon request to NCI staff such as members of the Breast Cancer Task Force and the Laboratory of Toxicology.

This fiscal year, Branch member Toby Friedberg again drafted the annual Report of the National Cancer Advisory Board. She attended meetings of the Board and contacted necessary staff members in order to draft this report, and is now gathering information for the 1982 report.

CONTRACTS REVIEW BRANCH

This is the first full year of operation of this Branch as a separate entity in the Division of Extramural Activities since its separation from the original Review and Referral Branch on May 4, 1980. During this year, increasingly better working relationships have developed between the program and contracting staff and the staff of this Branch. As we have learned to understand each others' requirements and procedures, and as direct interpersonal contacts have developed, cooperation and efficacy have improved. The imposition of an independent, organizationally and geographically separate review structure created problems of communication and understanding among the personnel involved. Initially, the strains were very noticeable, but with experience and improved communication, the strains are rapidly diminishing. The units involved are working together with ever increasing effectiveness. One difficulty which is still serious is that of obtaining sufficient information about even short-term requirements of the program and contracting officers to enable the Branch to schedule review committee meetings realistically. Without timely information, the Branch cannot ensure orderly and proper review and still meet the required deadlines.

A significant achievement of the Branch staff this year has been the completion of a booklet titled "Peer Review of Contract Proposals at NCI." This is a handbook for peer reviewers in the standing committees and for ad hoc consultants. It explains the negotiated procurement process and the procedures used by NCI for the peer review of contract proposals. The process arises from laws and regulations designed to insure fairness of competition, avoidance of conflict of interest, and selection for award of those proposals best suited to fulfill the needs of the Institute. Staff believes that if the reviewers have a working understanding of these issues and the process itself, more effective reviews will result. We expect this booklet will assist peer reviewers new to contract review to gain this understanding more easily.

The de-emphasis of the use of contracts to support research, the continued phasing of the reorganization of the Institute, and the recent assignment to DEA of responsibility for review of resource contract proposals and intramural resource and other support contract proposals in addition to the original responsibility for research contract proposals, have affected Branch operations significantly. As anticipated, the major effect of the de-emphasis of contracts as a research support mechanism resulted in considerable reductions of work load. The reductions were not uniformly distributed among the review committees, so that some committees had essentially no work and their charters could not be renewed (such as Immunology). Others continued to have reduced but reasonable work loads, and some have had a very small load. The description of the individual committees below reflects these changes.

The reorganization of the Division of Cancer Control and Rehabilitation into the new Division of Resources, Centers, and Community Activities (DRCCA) resulted in a reduction of new and renewal procurements partly as the result of diversion of staff attention to the accomplishment of reorganization itself and partly to the changes in responsibilities of the new Division. The review of contract proposals emanating from the Division this past year was minimal. This Branch is now being contacted by staff of the Division indicating needs

for more review of renewal contracts, and there are some indications that new initiatives using contracts are being developed for the coming year.

It has been determined that extramural resource contract proposals will be reviewed by the same review committees and ad hoc groups which review research contracts. This is expected to increase the work loads of all standing committees. Intramural resource and support contract proposals will be reviewed by committees composed of intramural scientists selected and will be administered by appropriate executive secretaries chosen from those in this Branch.

An analysis of the projected procurement actions requiring peer review of contract proposals for resource and support contracts over the next three years discloses that there will be a very substantial work load. If the projections are correct, it appears that the load will be so large that the Branch will require four new chartered committees, seven additional executive secretaries, and 13 additional support personnel. The new requirements for drug development activities are immediate, and Branch staff are currently engaged in selecting members for a drug development ad hoc group while a new charter is being developed and requested for this purpose.

The Contracts Review Committees

Biometry and Epidemiology Contract Review Committee. This Committee advises the Director, NCI, as well as the Directors of the operating divisions, especially those of the Division of Cancer Cause and Prevention and the Division of Extramural Activities, on the technical merit of contract proposals responsive to RFPs relating to cancer epidemiology and biometry. In addition to the usual reasons for collaborative studies using contracts, staff of the Division of Cancer Cause and Prevention use contracts to obtain large amounts of data which might otherwise be unavailable to them. The Committee members must be experts in the various aspects of epidemiology and biometry. They must also understand the problems and opportunities inherent in epidemiological studies. The consequences and implications of the committee's recommendations affect a substantial part of the epidemiological research effort of the United States as well as other countries.

Cancer Control Intervention Programs Review Committee. This Committee advises the Director, NCI, and the Directors of the Division of Cancer Control and Rehabilitation and the Division of Extramural Activities on the technical merit of contract proposals in the fields of cancer prevention and detection, diagnosis, pretreatment evaluation, treatment, rehabilitation, and continuing care. Programs of a more applied nature than the research grant programs reviewed by the Control Grant Review Committee are stimulated and implemented through RFPs. Because of the reorganization of the existing Division into the new Division of Resources, Centers, and Community Activities (DRCCA), there has been almost no work for this Committee. Current indications are that there will be substantial activity in this area in the future. Therefore the charter has been retained. Committee members must understand not only the underlying science and clinical medicine involved but also the implications for cancer control of the activities which these projects support. The community at-large expects these activities to be of great significance in the prevention of cancer and the reduction of its morbidity and mortality.

Cause and Prevention Scientific Review Committee. This Committee advises the Director, NCI, and the Directors of the operating divisions, especially the Division of Cancer Cause and Prevention and the Division of Extramural Activities of the technical merit of contract proposals for research into chemical, physical, and viral carcinogenesis. There are a number of programs in the Division of Cancer Cause and Prevention which use such contracts in furtherance of their mission. Contract proposals submitted to the other divisions for funding research in these areas are also reviewed by this Committee. It is expected that information gained will be of great importance in efforts to prevent cancer.

Clinical Trials Committee. This Committee advises the Director, NCI, as well as the Directors of the Division of Cancer Treatment and the Division of Extramural Activities on the scientific and technical merit of contract proposals involving clinical trials and related studies. The Division of Cancer Treatment uses such contracts when it wishes to stimulate clinical trials in which it will exercise some control on the design, conduct, and statistical analysis of the research. The Committee reviews contract proposals from the other divisions if they are clinical in nature.

Developmental Therapeutics Contract Review Committee. This Committee advised the Director, NCI, as well as the Directors of the Division of Cancer Treatment (DCT) and the Division of Extramural Activities on the scientific merit of contract proposals for development of therapeutically useful anticancer agents through research in radiobiology, molecular biology, biochemistry, and pharmacology. In furtherance of the Department's goal to reduce the number of advisory bodies, the charter of this Committee was allowed to lapse last year because there were very few proposals to be reviewed. However, the new initiative of DCT in the area of biological response modifiers is expected to stimulate many proposals. Therefore, a request for a new charter for a similar committee constituted of experts in drug development as well as biological response modifiers research has been approved at the Institute level. Discussions about committee members are being held with program staff. When Departmental clearance has been obtained, the membership appointment process will be expedited.

Tumor Immunology Committee. This Committee advised the Director, NCI, and the Directors of the Division of Cancer Biology and Diagnosis (DCBD), the Division of Extramural Activities, and the Division of Cancer Treatment on the scientific merit of contract proposals involving cancer immunobiology, immunodiagnosis, immunotherapy, and the immunologic aspects of cancer biology and diagnosis. As a result of the de-emphasis of the use of contracts for support of research by DCBD, the work load of this committee had become greatly reduced. Therefore, its charter was also allowed to lapse and its work will be assigned to other relevant committees or ad hoc groups as necessary.

Summary

Table I shows the numbers and dollar amounts requested for the proposals reviewed by the three active review committees during the period of this report. It should be noted that the table reports requested amounts rather than awarded amounts. The information regarding reductions in the contract awards as the result of negotiations responsive to the recommendations of the peer reviewers is not available to this Branch. This is because the peer review of contract proposals is a single step in the procurement process and the award of contracts may not take place until well after the peer review has been completed.

Table 1

CONTRACTS REVIEW ACTIVITY: OCT. 1, 1980 THROUGH SEPT. 30, 1981*

REVIEW GROUP*	# OF COMPETITIVE RFPs	# OF PROPOSALS IN RESPONSE TO COMP. RFPs	TOTAL \$	# OF NON-COMPETITIVE PROPOSALS	TOTAL \$	TOTAL # OF PROPOSALS	TOTAL \$
			REQUESTED: COMPETITIVE PROPOSALS		NON-COMP. PROPOSALS		REQUESTED
CPSRC**	0	0	\$ 0	2	\$ 3,228,862	2	\$ 3,228,862
CTC**	7	55	11,148,822	2	4,682,479	57	15,831,301
BEGR-C***	<u>6</u>	<u>47</u>	<u>17,263,079</u>	<u>14</u>	<u>6,748,188</u>	<u>61</u>	<u>24,011,267</u>
TOTAL	13	102	\$28,411,901	18	\$14,659,647	120	\$43,071,430

*OPRNC-CAUSE AND PREVENTION SCIENTIFIC REVIEW COMMITTEE
 CTC=CLINICAL TRIALS COMMITTEE
 BEGR-C=BIOMETRY AND EPIDEMIOLOGY CONTRACT REVIEW COMMITTEE

**Amounts include ad hoc reviews conducted by the Committee's Executive Secretary, in which committee members were not involved.

***Amounts include ad hoc reviews conducted by the Committee's Executive Secretary, in which a minority of committee members were involved.

GRANTS REVIEW BRANCH

Effective May 4, 1980, the former Review and Referral Branch was reorganized into a Grants Review Branch and a Contracts Review Branch. The Grants Review Branch is responsible for (1) internal NCI program assignment of all grant applications referred to the NCI from the Division of Research Grants, NIH; (2) assignment of grant applications for program projects, cancer center core support, construction, training, and other large instrument or special-purpose grant applications to appropriate NCI review committees; (3) scientific merit review of the applications noted under (2) above; and (4) preparation of summary reports of the evaluations and recommendations of each committee review and of each site visit. This involves formulating goals, criteria, and strategies to meet these goals, as well as managing the activity. The latter includes analysis, evaluation, and reporting. The Branch also serves as liaison between the Division of Extramural Activities, NCI, and the Division of Research Grants, NIH, in matters related to grant review and referral.

During the period of this report, the previously described reorganization of the NCI resulted in the transfer of the Cancer Research Manpower Review Committee to the Branch. In addition, the work load required the use of an ad hoc committee for the review of construction grant applications. Thus, the original three committees or subcommittees have grown to six chartered committees and one ad hoc committee. As in the past, a number of special review committees were developed for the review of particular applications or groups of applications when none of the chartered committees had sufficient or appropriate scientific expertise or to avoid conflict of interest situations.

The Grants Review Branch provides initial peer review for large-scale multidisciplinary research project (program project) applications intended to generate knowledge of cancer, its biology, or control. Separate committees review these applications based on their classification as either clinical or basic science studies. The Branch also provides initial peer review of grant requests for the integration and indirect support of ongoing research at Cancer Centers through core funding of administrative personnel and shared resources and services. One review committee affords peer review of the various large cooperative clinical trials supported by the Division of Cancer Treatment. Another committee is concerned with peer review of the cancer control, outreach, demonstration, and detection program activities of the NCI. Training grant applications are reviewed by the Cancer Research Manpower Review Committee. During fiscal year 1981, these six committees (or subcommittees) reviewed the many diverse applications for large grant instruments submitted to the NCI. The appropriate balance and expertise in each committee's deliberations are assured by the selection of members who are active investigators and are nationally and internationally recognized leaders in disciplines relevant to the cancer problem. The disciplinary composition of each committee is matched, insofar as possible, with the disciplinary distribution of the applications it reviews. Committee recommendations are reviewed by the National Cancer Advisory Board as required by the National Cancer Act.

The Grant Application Review Committees:

The Clinical Cancer Program Project and Cancer Center Support Review Committee was established during 1978 by merging two previously independent committees in compliance with the objective of the Department to reduce the number of advisory committees. Through two independently functioning subcommittees, applications are reviewed for program project support concerned with clinical problems in cancer, in one case, and applications for core support of comprehensive, clinical, and specialized research centers in the other. Under normal work load conditions, both subcommittees review construction applications related to their activities. However, ad hoc review of construction applications was utilized this year to relieve the work load of the subcommittees. Due to the complexity and volume of the work required, each subcommittee functions independently. The committee charter provides that each subcommittee consist of 20 members with appointments from the Director of the NCI.

(A) The Cancer Center Support (Core) Review Subcommittee (CCS) provides merit review of requests to fund core grant applications submitted by designated comprehensive cancer centers and by specialized centers as well as applications to fund construction or renovation of related cancer facilities. The Subcommittee also serves as a resource for advice on related cancer research programs, current status of ongoing centers, and identification of areas for future emphasis. Review by CCS informs the Director, NCI, and the NCAB of problems raised by, and the opportunities inherent in, the applications from the centers in terms of the mission of the NCI.

The peer review functions of the CCS require that the members of the Committee have broad knowledge of the basic sciences that can contribute new information about the cause and prevention of cancer and of the clinical sciences involved in prevention, diagnosis, and treatment of cancer. In addition, a thorough understanding of the administration and organization of medical schools, universities, and freestanding cancer research organizations is essential. Sensitivity to an institution's organizational and administrative strengths and deficiencies is important. Reviewers must be able to recognize those management practices that encourage good research.

(B) The Clinical Cancer Program Project Review Subcommittee (CCP) provides merit review of applications requesting support of clinical program projects and related cancer research programs. By means of periodic seminars, it assesses the state of the art in newly evolving areas and identifies areas for future emphasis. The review of large clinical research grant applications requires special expertise in cancer clinical trials; understanding of the special demands of research with human subjects, of hospital and medical school organization, and of the administration of program projects; and, most importantly, detailed expert knowledge of the diagnosis and treatment of all types of cancer.

The Cancer Special Program Advisory Committee (CSPAC) reviews proposals requesting program project support or construction support for the basic sciences. Review of program project grant applications constitutes the primary effort of the Committee. CSPAC has 13 members with expertise in the basic sciences related to the cause, treatment, and prevention of cancer. These review activities also require a thorough understanding of medical school and university

organization, administration of program projects and construction projects, and a sensitivity to the effect on the applicant institution associated with the initiation, continuation, or termination of large-scale programs. The group advises the NCAB and the Director, NCI, regarding the scientific merit of the basic science program project grant applications submitted to the NCI.

The Cancer Clinical Investigation Review Committee (CCI) was reassigned to the Branch in 1978. Its major function is to review applications in support of cooperative clinical trials and related areas of cancer research. The review of cooperative clinical trials requires that the reviewers be sensitive not only to the usual issues of scientific merit of clinical research, but to the special problems involved in cooperative research where the standardization and effective management of clinical research efforts at multiple institutions, sometimes distributed over wide geographic distances, are also important factors. The review by this Committee provides the NCAB and the Director, NCI, with information concerning the problems and opportunities regarding the testing of chemotherapeutic agents and multimodality approaches to therapy.

The Cancer Control Grant Review Committee (CCG) was assigned to the Grants Review Branch in October 1978. Its function is to review grants involving the demonstration and dissemination of methods to reduce the incidence, morbidity, and mortality of cancer. The methods proposed involve one or more of the full range of possible interventions--prevention, detection, diagnosis, pretreatment evaluation, treatment, rehabilitation, and continuing care. An additional function is to review projects involving basic research in cancer rehabilitation. Ad hoc reviews are frequently required to accommodate the broad scope of interventions reviewed. The Committee advises the NCAB and the Director, NCI, on the scientific merit of these applications.

The Cancer Research Manpower Review Committee (CT) was assigned to the Branch in December 1980. It provides advice to the Director, NCI, and the NCAB concerning the technical merit of National Research Service Awards which are institutional, multidisciplinary cancer research training grant applications. The Committee has 20 members with expertise in the basic and clinical sciences relating to cancer etiology, prevention, detection, diagnosis, and treatment.

Construction Grant Application Review: In addition to the chartered committees, an ad hoc group for construction review was tried on an experimental basis for the final cycle of fiscal year 1978 because of the heavy workload and the view that these applications are sufficiently different from other types to justify a separate review. This type of review appears to be satisfactory in that no unusual problems manifested themselves. Therefore, review by an ad hoc group has been continued and construction applications ordinarily assigned to other committees are assigned to this group for review. This procedure is still considered exploratory, and the effects of reviewing construction applications by this means will continue to be monitored closely by review and program staff.

Grants Referral Office: The Grants Review Branch is also responsible for research grant program assignment of all NCI research grant applications to the most appropriate of the 17 program areas in NCI. During the past year, over 3,300 R01 research grant applications were so assigned in addition to 90 Program Project Grants (P01), 174 Cooperative Clinical Trial Grants (R10), 102 Cancer Control Grants (R18), and 30 Cancer Center Core Support Grants (P30). Grant Assignment information is tabulated in a computer file and distributed regularly to all NCI program, review, and grants administration staff.

Summary:

During the year, the Referral Office in the Grants Review Branch received and assigned approximately 3,800 applications. Of these, 90 were program project grant applications, 30 requested support of cancer center core activities, 174 applications were for cooperative clinical trial activities, 70 were for training grants, and 102 sought support for cancer control programs. The grants review activity of the Branch is shown in detail in Table I. The chartered, ad hoc, or special review grants committees or subcommittees of the Branch reviewed 474 grant applications requesting a total of \$879,619,000. Seventy-one percent or 335 applications were recommended for approval with recommended budgets totalling \$331,288,000 or 38 percent of the total requested in all of the applications reviewed. The recommended budgets amount to 46 percent of the total requested for all the applications approved. A total of \$393,395,000 was disallowed in the approved grants. These data are provided in more detail in Table I.

The review activities described above have been carried out by a staff of 29 full-time and 2 part-time personnel.

TABLE I
GRANTS REVIEW ACTIVITY: OCTOBER 1, 1980 THROUGH SEPTEMBER 30, 1981
(Dollars in Thousands - Direct Costs Only)

REVIEW GROUP*	APPLICATIONS REVIEWED:		APPROVED APPLICATIONS:		APPROVED APPLICATIONS:		APPROVED APPLICATIONS: RECOMMENDATION AS % OF REQUEST	APPROVED APPLICATIONS:		OVERALL APPROVAL RATE:
	NO. REQUESTED	\$	TOTAL \$	TOTAL \$	TOTAL \$	DISALLOWED \$		NO.	\$	
CAK	31	\$112,224	\$100,818	28	\$ 45,112		45%	\$ 55,706	90%	40%
CCS	18	\$ 91,036	\$ 76,091	16	\$ 37,532		50%	\$ 38,559	89%	41%
CCG	102	\$ 70,634	\$ 18,297	25	\$ 11,305		62%	\$ 6,992	25%	16%
CCP	45	\$193,439	\$164,824	38	\$ 65,839		40%	\$ 98,985	84%	34%
CCI	173	\$186,471	\$158,767	146	\$ 60,885		38%	\$ 97,882	80%	33%
CT	70	\$ 56,768	\$41,626	48	\$ 26,197		63%	\$ 15,429	69%	46%
SRC	27	\$159,902	\$155,115	26	\$ 76,821		50%	\$ 78,294	96%	48%
AD HOC CONST.	8	\$ 9,145	\$ 9,145	8	\$ 7,597		83%	\$ 1,548	100%	83%
TOTAL	474	\$879,619	\$724,683	335	\$331,288		46%	\$393,395	71%	38%

Total Direct Costs recommended \$331,288

Total of requested budgets of disapproved applications \$154,936

Total of requested budgets disapproved plus amounts disallowed on approved applications \$548,331

*CAK=CANCER SPECIAL PROGRAM ADVISORY COMMITTEE

CCS=CANCER CENTER SUPPORT GRANT REVIEW SUBCOMMITTEE

CCG=CANCER CONTROL GRANT REVIEW COMMITTEE

CCP=CLINICAL CANCER PROGRAM PROJECT REVIEW COMMITTEE

CCI=CANCER CLINICAL INVESTIGATION REVIEW COMMITTEE

SRC=SPECIAL REVIEW COMMITTEE

CT=CANCER RESEARCH MANPOWER REVIEW COMMITTEE

AD HOC CONST.=AD HOC CONSTRUCTION

COOPERATIVE MINORITY BIOMEDICAL PROGRAM

The Cooperative Minority Biomedical Program (CMBP) within the National Cancer Institute (NCI) is an effort to increase NCI's participation in cancer research and training activities at minority institutions. Each year the Division of Extramural Activities staff makes consolidated efforts to broaden the scope of activities in support of the National Cancer Program mission.

In earlier years, the NCI entered into an Intra-Agency Agreement with DRR to support certain MBS Projects. In 1981, this process was eliminated and replaced by a "co-funding assistance award." The arrangement is more clearly defined as a multiple funding activity method and reflects the projects that are of mutual interest to two or more institutions.

The CMBP operates through two Cooperative Agreements: (1) between the National Cancer Institute and the Division of Research Resources; and (2) between NCI and the National Institute of General Medical Sciences (NIGMS). These agreements provide collaboration in the funding of grants in research, training, fellowships, visiting scientists, young investigator awards, and honors undergraduate research training awards and symposiums. The DRR goal is to provide support to strengthen the institutional health-related research capabilities of four-year colleges, universities, health professional schools, and other eligible institutions with significant enrollments of ethnic minority persons. The MARC goal is to foster research and research training in basic medical, biological, preclinical, clinical, and related natural and behavioral sciences. The uniqueness of the MARC program includes five-year institutional awards; all other awards range from one to three years.

To augment these activities, the National Cancer Institute provides funds and programmatic advice to support meritorious research and training that have an impact on the overall mission of the National Cancer Program in either the MBS or MARC programs.

All initial scientific merit reviews are conducted by the General Research Support Review Committee (GRSRC) for DRR grants, and the National Advisory General Medical Sciences Council of the NIGMS for the MARC grants. Program relevance determinations are made by the NCI Special Advisory Group for minority research and training activities and are approved by the National Cancer Advisory Board.

The quality of research, training, and investigators has improved. In fiscal year 1980, the NCI provided approximately \$2 million to fund in whole or in part numerous applications in the MBS and MARC programs. A modest increase in funding is projected for fiscal year 1981. These awards represent NCI's involvement with approximately 65 minority institutions.

GRANTS ADMINISTRATION BRANCH

The Grants Administration Branch (GAB) performs all business activities attendant to the administration of the NCI extramural grant programs for research, centers, control, construction, training, and fellowships. It participates in a managerial capacity with the Directors of the various Divisions and their staff in the formulation and execution of extramural program plans. It interprets, applies, and participates in the formulation of policy affecting the management of grants, develops the Institute's position on extramural business management issues, provides financial and administrative review of grant applications and negotiates the amount of grant awards, and processes applications and all other documents related to extramural programs. This year, NCI will issue over 4000 award notices for a total of \$534,892,000.

GAB is comprised of two sections in addition to the Office of the Chief--the Grants Management Section with a staff of 33 and the Processing Section with a staff of 22. In 1981, GAB continued with the goals established in previous years: equalization of grant workload; improving NCAB preparation; and improving resources. In addition, GAB reorganized the Grants Management Section and parts of the Processing Section. It also implemented the Cooperative Agreement authority and developed formal procedures for the use of this mechanism.

Highlights of 1981 activities

a. Changeover of Clinical Trials to Cooperative Agreements:

Approval was obtained from PHS for conversion of grants and contracts in the clinical trials program to cooperative agreements, a more appropriate funding mechanism for this program. There are approximately 205 grants totaling \$36 million, and 23 contracts totaling \$5.3 million, which will be converted. The contract reviews (summary statements) were presented to the May 1981 NCAB and were approved. Conversion will be completed in fiscal year 1982.

b. Conversion of the Baltimore Cancer Center: The Division of Cancer Treatment is phasing out the intramural program at the University of Maryland Medical Center in Baltimore. GAB developed several options for converting this program from intramural and contract support to grant support. A P50 grant application is to be submitted by the University by July 1, 1981. The application will request three years of support and will be reviewed by an ad hoc review group formed by the Review and Referral Branch and then by a mail ballot of the National Cancer Advisory Board. This concept was presented to the NCAB in May 1981 and approved. If the grant application is approved, an award will be issued by September 30, 1981. The applicant will submit other applications for grant support during the next 3 years, with the aim of receiving sufficient support to qualify for a P30 grant at that time. Each year an annual adjustment to the P50 grant may be made, based on other research support that has been received and the phasing out of the contract and intramural support.

Mr. Richard Riseberg, Legal Counsel, informed the NCI that the Director, NCI, has the authority, with NCAB approval, to transfer the equipment purchased with intramural and contract funds to the University of Maryland for continued use on the grant. This matter was presented to the May 1981 NCAB and approval was given to Dr. DeVita to effect this equipment transfer.

c. D.O.E. Oak Ridge Cost Analysis. Unusual, inconsistently applied, and unjustified charges were noted on four applications from Oak Ridge. An investigation through the D.O.E. and the Indirect Cost negotiators of the appropriateness of maintenance, utility, animal, and administrative fees was inconclusive. Since these charges on D.O.E. grants have NIH-wide implications, the question was forwarded to the Financial Advisory Services Branch, DCG, NIH, for resolution.

d. Eppley Institute. A time, effort, and charge-monitoring system was developed for the year 1980/81 for the control of the Eppley Institute's personnel changes. This system both kept the NCI aware of the constant changes during Eppley's transition period and provided a base for evaluating budgets for the several new awards made.

e. Frontier Nursing Service. A formal administrative review was made of the FNS (Havden, Kentucky) in order to fund a new Cancer Control award.

Equalization of Grant Workload. GAB is continuing the efforts begun late in fiscal year 1978 to recycle grants out of the fourth quarter. The goal is to achieve a maximum of 25 percent funding in the final quarter. Because of late appropriations and late release of reserves, there will always be awards issued in the final month of the fiscal year. Therefore, formal policy and procedures have been developed to prevent an unbalanced workload caused by these factors. In 1981, a selected number of high-priority noncompeting continuation applications with September 1 start dates were given 18-month awards. This action cycled their anniversary date to March 1. The additional funds required for this action were counterbalanced by short funding for six months a similar number of competing grants with August and September start dates. In both cases, the grantee had an additional six months' time and money added to the project period. Those with poorer priorities were awarded for less than 12 months so that their anniversary dates would no longer fall in the fourth quarter (July, August, September). In fiscal year 1978, GAB shifted 136 grants; in fiscal year 1979, 171; in 1980, 106; and in 1981, 104.

Award obligations

In order to obligate as many dollars as possible before the fourth quarter, applicants were requested to submit all noncompeting, continuation (type 5) applications by April 15. In addition, May applications in the fundable range were distributed to the grants management specialists early for prenegotiation and collection of necessary documentation so that awards could be issued as soon as possible after the May meeting of the NCAB. In fiscal year 1978, 44 percent of the grants were obligated in the fourth quarter. In fiscal year 1979, this

figure had been reduced to 30 percent, and in fiscal year 1980 reduced further to 28 percent. The percentage for fiscal year 1981 will be approximately the same as for 1980 (see Staffing). CAB continues to encourage early development of funding plans and "pay lists" and the use of the "early award" authority.

Approval (Encumbrance) List

Efforts were again pursued to eliminate the encumbrance list from the awards process. The information contained on it duplicates the information on the award statement. The only purpose the list serves is to provide a consecutive numbering system for controlling the processing of awards through various offices. Since the average number of awards listed on an NCI encumbrance list is 1.65, it was believed the award notice itself could serve the purpose. Together with the Dental Institute, procedures were developed with DRG and DFM to eliminate this document. NIH approval will be sought to adopt the new procedure.

Improving National Cancer Advisory Board Preparation

a. The elimination of Board Books has reduced the amount of paper prepared for each Board meeting by 96,000 pieces measuring 40 feet. It has also considerably reduced the workload of staff preparing review material for the meeting. Only those summary statements still to be reviewed or discussed are now taken to the meeting. These consist of a folder, plainly identified, of summaries received too late to mail, and another folder containing summaries Board members want to discuss at the meeting. A third folder, as usual, contains material reviewed by the Special Actions Subcommittee.

b. Rescheduling of the Board meeting dates for the October and January meetings has virtually eliminated late summary statements which plagued previous meetings; however, the usual number appeared for the May meeting, which cannot be rescheduled for fiscal reasons. The control system instituted for the receipt of summary statements and to alert review and program staff of potential late summaries has proved relatively successful.

Organization

a. The Grants Management Section was reorganized into three teams corresponding with the NCI Divisions - Division of Cancer Treatment, Division of Cancer Cause & Prevention, Division of Cancer Biology & Diagnosis. Division of Research, Centers & Community Activities programs are spread across the three teams, thus providing all the specialists with experience administering the specialized programs belonging to DRCCA. The reorganization has enabled the Branch to broaden the assignments of the specialists by 1) doubling the number with core grant responsibility and 2) giving each team responsibility for all of the programs funded in their assigned Division. In addition, program directors deal with fewer specialists than in the past in the management of their programs. The Scientific Evaluation Program (Chairman's Grants) has been assimilated into the specialist functions, and computer programs were improved to respond to questions concerning the functions administered by the program.

b. The staff and responsibilities of the file room and Pending Unit were merged into a single Records Management Unit (RMU). Each of the eight RMU staff members has the responsibility for all work pertaining to an individual program, such as Immunology, Cancer Control, etc. The purpose is to build up a relationship between each RMU staff and the program and management staff and a sense of responsibility for the program involved.

Staffing

a. Although there was a normal turnover of personnel in both the Grants Management Section and the Processing Section, unusually long delays in the hiring process created problems in both work production and employee morale. Delays were experienced in grading position descriptions, posting positions, and screening applications after the announcements closed. Meanwhile, many of the qualified applicants accepted jobs elsewhere. The increasing number of vacancies forced GAB to reassign, eliminate, or contract out some of the job responsibilities. Messenger service was curtailed and processing of Chairman's Grant vouchers was contracted out, as was logging of Board applications and Board letter data.

Typing of award terms was transferred from the Awards Unit to the individual teams where an efficient system was devised on the word processor for preparing the terms.

Improvement of Resources

a. The NCI policy manual and the GAB operations manual are providing the desired consistency in the administration of grants. Several chapters have been added or revised on such subjects as audit procedures, communications, civil rights, RCDA's, administrative reviews, and terms of award. In addition, GAB staff has participated in the development of new Core and program project guidelines designed for the grantee community.

b. GAB implemented a 6-month pilot project late in the fiscal year to demonstrate the feasibility of converting the official NCI grant files to microfiche. A single program (Immunology) was selected with the approval and cooperation of program staff for this area. As grant actions are completed, the documents are transferred to microfiche and updated copies provided to both program and management staff. The original fiche is retained in the central file room so that copies can be provided to requestors. The expected advantages of microfiche are availability of files when needed, quicker turn-around time in processing documents, and making file material available more quickly and inexpensively to requestors. It should also reduce the amount of paper used and stored and the space required for storage.

c. GAB has two support contracts--one with Expand Associates, which prepares material for the NCI peer review committees, the other with Capital Systems, which provides backup service for all phases of work, prepares reports, performs analyses, and conducts conferences. Expand's services appeared unduly expensive and GAB performed an analysis of their

costs to determine their validity. Consideration was given to an offer of the central service contract to add these services at less cost. This will be pursued in a subsequent year.

GRANTS FINANCIAL AND DATA ANALYSIS BRANCH

The Grants Financial and Data Analysis Branch is responsible for fund control, maintaining financial data, providing information to requestors inside and out of NIH, and for analysis of financial data necessary to provide funding guideline recommendations, budget preparation, and advice for grants financial policy decisions.

Computer specialists in the branch have written computer programs which have automated work previously done manually and have assisted in special projects to help handle the increasing work load more effectively. They are responsible for creating and maintaining computer programs for the Grants Financial and Data Analysis Branch and for providing programming assistance to the Grants Administration Branch, Research Analysis and Evaluation Branch, and Review and Referral Branch.

To provide fund control for NCI grants, the GFDAB maintains an accounting data set which lists all grants selected for funding as well as all applications recommended for approval in a given fiscal year. Information necessary to identify a grant, funding codes, financial information such as award amounts, and the scientific codes used in budgeting and fund control are maintained on this data set. Computer queries sort the data in many ways to reconcile NCI's totals with the Division of Financial Management, NIH; to indicate the status of funds by mechanism, Division, and research program; and to produce reports for financial plans, variance reports, and deficiency reports for the Office of Financial Management. To reduce errors and save clerical time in the preparation of award statements, common account numbers and Program Directors' names have been computerized for ongoing traditional R01 grants using reconciled data from the previous fiscal year. These codes were automated for other grant programs in fiscal year 1981. Through daily updating of award information, it is possible to determine the status of actual obligations at any given time. Use of computer programs makes it possible to estimate commitments not yet awarded. Both types of information are used in most financial reports.

As a result of the reorganization of NCI, a Division code is entered for each grant in order to identify actual and potential expenditures. This enables staff to sort grants by NCI program, mechanism, cancer activity, and Division. This information is used for funding guideline recommendations and program reviews. To further simplify data processing and promote efficiency, the development of a master file to provide a single data base for grants financial information was undertaken in fiscal year 1979. Introduction of the New Wylbur system in fiscal year 1981, a major modification of the previous text-editing system known as Wylbur, made it possible to expand the fiscal year data set into a master file. Information such as project title, institution name, and initial review group which was often requested but not immediately available has been added to the data set. The data set also includes authorized award amounts and amounts committed for future years, which are used in budgeting. Use of the master file expedites updating of award data by linking directly to the NIH Division of Financial Management system, and provides a better means of checking the accuracy of data. In

fiscal year 1981 current data on all competing applications, which in the past had been maintained on several data sets, were added to the expanded fiscal year data set. This simplified production of such preaward listings as ranking lists and maintenance of historical tables of competing applications.

New Wylbur has enabled GFDAB computer programmers to access, maintain, and update increased amounts of data in a far simpler more direct manner than previously had been possible. It has also allowed them to create simpler and more versatile programs for producing reports and otherwise utilizing the master file. There are plans for integrating the three existing systems maintained by GFDAB--the fiscal year data set, the referral data base used by the Review and Referral Branch to code cancer activities, and the control system used by the Grants Administration Branch to indicate the administrative status of each grant. This will reduce duplication of data and further simplify data retrieval and reporting.

To improve fund control and budgeting for the DEA Review and Approval in-house budget, codes were developed and entered in a data set during fiscal year 1980. This data set summarizes monthly obligations by subobject class and for individual conferences, research and development contracts, and interagency agreements. It can be sorted in a variety of ways using programs in order to project and account for quarterly and monthly expenditures. During fiscal year 1979 the need for more detailed information on cancer control R18 grants became apparent. In fiscal year 1980, DCCR Program Directors were asked to identify all ongoing grants and applications according to three budget categories--control, rehabilitation research, and centers outreach--which correspond to the grant common account numbers. Following a reorganization of Cancer Control within the Division of Resources, Centers, and Community Activities (DRCCA) in fiscal year 1981, the Division Director coded all ongoing grants and applications as preventive medicine, screening, centers outreach, behavioral medicine, occupational medicine, rehabilitation, community outreach, other outreach, and education to correspond with their common account numbers and the Branch structure of DRCCA. In future years, only new applications will need to be coded. These codes are used on both the accounting and budgeting data sets.

The GFDAB provides data and suggests funding options to aid in developing funding guidelines for NCI grant programs. The GFDAB is responsible for insuring communication on grant funding decisions between the Divisions and the Director, NCI, and to facilitate and expedite the process by making fiscal recommendations and by providing concise program information to each Division Director and Program Director. For each round of applications, detailed lists of recommended applications arranged in priority-score order by cancer activity and with individual and cumulative costs are distributed to Division and Program Directors. A form which summarizes recommended applications by cancer activity and provides a space for funding plan recommendations, including priority score cutoffs and exceptions, plus any other appropriate tables are included in a package with detailed lists. Division Directors' recommendations are consolidated by the GFDAB for discussion at a Division Directors' funding plan meeting. The Directors' decisions are summarized in a memorandum, distributed to staff, and recorded on the fiscal year data set for fund control.

Budget preparation continues to be a major responsibility of the GFDAB. The

Branch works with the Financial Manager's Office to allocate funds by grant mechanism and to advise of reasonable budget requests for grant programs. Using current data on commitments and assumptions based on historical trends, as well as knowledge about specific grants and programs, the financial analysts develop requirements and funding projections for each year in each budget submission. The detailed data showing numbers and dollars for grants by Division, mechanism, type, program, thrust, and cancer activity are entered into a budget data base.

A series of computer programs, run as a package against this data base, produces all the crosswalk tables now required for a budget submission. The computer programs have increased the accuracy of a budget submission and reduced the paperwork and clerical time enormously. Without them it would be a leviathan task to produce the complex set of budget tables required. The automation of the system has the additional benefit of providing time for data analysis and permitting presentation of budget data in virtually any format desired. It has become a simpler task to provide each Division with data relevant to its programs and to produce a consolidated budget for all grant programs. Modifications are made as required. Throughout the course of a fiscal year, the GFDAB answers questions from the Financial Manager's Office about the various budget submissions regarding items such as funds required to pay to certain priority scores or certain percents of requirements, how additional funds would affect funding, the effects of increased or decreased funds on future years, and the impact of various funding policies.

Program reviews were instituted in fiscal year 1979 by the Director, NCI. In these reviews, the Director discusses the funding status of grant and contract programs with each Division Director to determine the need for transferring funds from one area to another. The GFDAB provides charts and tables showing the status of funds in terms of commitments and requirements. In fiscal year 1980 the grants data were added to the budget data base. Computer programs were written to produce the necessary tables and to allow the capability for more timely responses to additional questions regarding the grants data for the program reviews. An additional advantage of having the data in the same format as the budget data is that the budget programs can be run against these data for the comparison and backup.

In addition to providing advice and answering questions about grant funds and budget, the GFDAB serves as a source of current and historical information on non-scientific aspects of cancer grants for NCI staff, the Budget Office, Program and Management Staff, the Directors of NCI and DEA, Congress, the National Cancer Advisory Board, and the public. Monthly lists of active grants are provided to Program Directors, the Director, DEA, and other NCI staff. Typical requests are for lists of unfunded grants; summaries of applications showing requested funding, amount recommended for award, and amounts awarded in a given fiscal year; and lists or summaries of grants awarded to specific states, institutions, or principal investigators. The GFDAB responds to the cancer grants portion of the Congressional Questions for the Director, NCI, for each Congressional Budget Submission.

Historical information on each grant program is available on individual data sets featuring detailed lists of grants and competing applications and summary tables for each fiscal year back to 1970. These data are used for budget projections and to provide historical summaries of fiscal information. To

facilitate and expedite accurate responses to special requests or analyses involving historical data for both applications and awards, comprehensive history data sets for each fiscal year between 1970 and 1980 were created in fiscal year 1980. These data sets contain applications for each grant program taken from the IMPAC system and awards reconciled with DFM taken from the GFDAB system. This assures that award information will be accurate and consistent with past reports and tables. Codes such as those for cancer activity and mechanism were made consistent with fiscal year 1981 codes so that the data sets will be compatible with computer programs now in use and comprehensible to the current user.

The GFDAB distributes several booklets each year in addition to budgets, program reviews, special reports, and monthly active listings. Several times a year a booklet, NCI Grant Programs Status of Funds is printed and distributed to NCI staff and NCAB members. Books listing grant awards by principal investigator and by state and institution are printed and distributed to NCI staff each fiscal year.

In order to consolidate historical data on cancer grants, Grants Financial Data, a compendium of tables and charts summarizing data from 1970 to present is updated annually. Summary tables of requested, recommended, awarded, and unfunded amounts for each grant program are reprinted from individual data sets. Additional tables show grants by categories such as research, manpower, and total grants. Other tables show awards by research thrust, cancer activity, NCI program, budget category, type of institution, and state and institution. For Manpower Programs, tables show number of trainees and categorize trainees by academic or professional degree. Lists of awards for the current fiscal year are provided for programs with relatively small numbers of grants. Additional tables are added or deleted as appropriate each fiscal year. For example, in fiscal year 1979, tables summarizing direct, indirect, and total award costs by mechanism from fiscal year 1970 to present were added. In short the Grants Financial Data provides a central source of historical data on cancer grants, and an overview of how grant dollars are spent, trends in grant applications and awards, and the current status of grant programs as indicated by numbers of applications and awards, percents funded, geographic distribution of awards, and types of research being funded.

A major special project in fiscal year 1981 involved a detailed analysis of program projects from fiscal year 1962 through 1982 which was prepared for discussion at an Institute Director's retreat. It expanded on a fiscal year 1980 special project inspired by level or minimally increasing budgets and steadily increasing inflation which have produced greater competition between traditional R01 grants and program projects (P01's) for research grant funds. The first project outlined various issues critical to program projects such as budgeting, allocation of funds, the funding selection process, the quality of P01's, and scientific review. The 1981 project includes a chronological and fiscal history, and detailed analytical charts and tables comparing R01's and P01's in a number of ways including number of projects, Division, cancer activity, dollars and percent of budget, budget category, type of institution, and relation to P30's.

BUDGET DISTRIBUTION

FISCAL YEAR 1981
(Thousands of Dollars)

<u>PROGRAM</u>	<u>\$</u>	<u>\$</u>	<u>\$</u>
Research			
Traditional Program		\$225,131	
New Investigator Research Awards		3,904	
Conference Grants		755	
Scientific Evaluation		1,698	
Program Projects		111,242	
Organ Site Program			
Bladder	\$4,742		
Large Bowel	4,536		
Prostate	4,235		
Pancreas	1,787		
Subtotal		15,300	
Creg/RFA			
DCBD	672		
DCCP	3,391		
DCT	3,011		
Subtotal		7,074	
Clinical Cooperative Grants		35,459	
Toxicology Cooperative Agreement		700	
Subtotal Research			\$401,263
Resource Development			
Centers			
Cancer Center Support Grants	69,835		
Exploratory Projects	200		
Subtotal		70,035	
Clinical Education		8,000	
Careers			
RCA	164		
RCDA	4,316		
Preventive Oncology	493		
Subtotal		4,973	
Veterinary Pathology (NTP)		357	
National Research Service Awards			
Individual Fellowships	2,781		
Institutional Awards	15,324		
Subtotal		18,105	
Construction		1,000	
Subtotal Resource Development			102,113
Cancer Control			
Cancer Control Grants		24,039	
Centralized Cancer Patient Data System		2,394	
Veterinary Pathology-NCI		294	
Subtotal Cancer Control			26,727
TOTAL	37		\$530,103

FISCAL YEAR 1981

DISTRIBUTION OF AWARDS
(Dollars in Thousands)

	REQUESTED		RECOMMENDED		AWARDED		UNFUNDED	
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
Noncompeting Continuations	2584	\$370,856	2584	\$370,856	2584	\$370,856	0	0
Administrative Supplements	(194)	16,029	(194)	16,029	(194)	16,029	(0)	0
Competing Renewals	993	238,240	873	164,963	356	86,897	517	78,066
New	2652	345,905	2181	196,507	531	55,156	1650	141,351
Competing Supplements	62	4,792	49	4,099	36	1,522	13	2577
TOTALS	6291	\$975,822	5687	\$752,454	3507	\$530,460	2180	\$221,994

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