

NIH GUIDE

for GRANTS and CONTRACTS

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Vol. 6, No. 13, July 1, 1977

IN THIS ISSUE:

DESCRIPTIONS OF NIH COLLABORATIVE PROGRAMS

The descriptions of the collaborative programs of the various components of the NIH which appear in this issue replace those published in Vol. 5, No. 4, dated April 21, 1976, of the *NIH Guide for Grants and Contracts*. This issue also contains a request for information about addressees from minority and women's institutions and businesses.

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NOTICE

Please use the form on the last page (52) of this announcement if you wish your name to be placed on the mailing list for the Guide, wish to change your address, or wish to indicate a change in your areas of interest.

HAVE YOU MOVED?

If your present address differs from that shown on the address label, please send your new address to: Grants and Contract Guide Distribution Center, Division of Research Grants, NIH, Room 219, Westwood Building, Bethesda, Maryland 20014, and attach your address label to your letter. Prompt notice of your change of address will prevent your name from being removed from our mailing list.

The GUIDE is published at irregular intervals to provide policy and administrative information to individuals and organizations who need to be kept informed of requirements and changes in grants and contracts activities administered by the National Institutes of Health.

Supplements, printed on yellow paper, are published by the respective awarding units concerning new projects, solicitations of sources, and requests for proposals.

NOTICE

PLEASE COMPLETE AND RETURN
FORM ON PAGE 52 IF APPLICABLE

DESCRIPTIONS OF NIH
COLLABORATIVE PROGRAMS

A N N O U N C E M E N T

Descriptions of the collaborative programs of the various components of the NIH appear in this issue of the *NIH GUIDE FOR GRANTS AND CONTRACTS*. These announcements replace those published in Vol. 5, No. 4, dated April 20, 1976. The present issue also contains a new breakdown of programs of the Center for Research for Mothers and Children, National Institute of Child Health and Human Development (F-34, F-35, F-36, and F-37).

Individuals wishing their names to be placed on the mailing list for announcements of the NIH and those who do not now receive the *GUIDE* or supplements or who wish to receive different sets of announcements than they now receive should complete and return the form on page 52 of this announcement.

To those individuals who wish to receive the regular *GUIDE* only (or the *GUIDE* and supplements) the NIH will send all announcements of policy implementation or changes related to both grants and contracts.

Supplemental issues of the *GUIDE* appear on yellow paper at irregular intervals and announce the availability of a Request for Proposal (RFP) or ask that interested organizations submit a statement of capabilities to perform R&D activities in a particular area. For research activities, NIH programs allow a period of at least 45 days from the date of an RFP until the date when the offeror must submit a proposal. Announcements of procurements for support of research provide a minimum term of 30 days for response.

While program staff review statements of capability and send RFP's only to those organizations having personnel and resources capable of performing the particular task, any organization may request the RFP and submit a proposal.

Review of proposals in response to an RFP is the task of technical review groups. These groups, many of which are formally chartered committees, usually contain a high proportion of scientists outside of the Government.

At the present time the NIH is in the process of restructuring these technical review groups in such a manner that non-Governmental scientists will constitute at least three-fourths of the membership of such groups which determine those proposals that are or are not acceptable. Program staff then negotiate contract(s) with one or more offerors whose proposals fall in the "acceptable" range.

Because of the large number of names on these mailing lists, individuals now on the list (and those wishing their names to be added) should request announcements only for those programs in which they have direct interest.

NIH BIOMEDICAL RESEARCH CONTRACTS

1. BACKGROUND In addition to support of research and research training through the grant mechanism, with which the biomedical research community is well acquainted, NIH accomplishes its several missions through work conducted in its own facilities and support of mission-related activities in other institutions, Federal and non-Federal. Work supported in other Federal laboratories is arranged by interagency agreements and appropriate transfer of funds. This represents only a small fraction of funds available for contracts, but is nevertheless significant in that it makes available the talents and expertise existent in other Governmental laboratories. The major part of contractual activities are conducted in universities, research foundations, and commercial and industrial organizations across the Nation.

Contracts are identified in NIH reports as "collaborative research and development." This is because NIH seeks collaboration with other organizations and fosters collaboration among a number of other institutions to accomplish certain research goals.

2. BASIC CRITERIA Contracts are used for procurement of research and development when the following considerations obtain:

- a. the NIH procures a specific service or defined end product, including research, development, and related activities for identified NIH program needs, e.g., evaluation studies, technical assistance, surveys, consulting services, training projects where NIH selects the individuals or specifies the content of the program, planning for NIH use, production of publications or audiovisual materials (other than as results of R&D projects or as proceedings of scientific conferences which are not being procured for use by the Government); and
- b. the NIH exercises direction or control under terms of the agreement by specifying the scope of the work and manner of performance and requires responsiveness by the performer in the event a change in direction of the effort is necessitated by program developments; and
- c. NIH staff closely monitors technical and administrative performance during the course of the activity to ensure that work on the project is accomplished in accordance with terms of the agreement.

3. MANDATORY USE OF CONTRACTS Notwithstanding any of the foregoing, selection of contracts is mandatory whenever:

- a. an award is made to a commercial, i.e., profit-making, organization;
or
- b. material having a security classification is involved.

4. SELECTION OF CONTRACTORS It is the policy of NIH to advertise its requirements for research and development contract projects as widely as possible. Participation in such projects is sought from all segments of the biomedical scientific research community and from engineering development organizations, where the expertise for the performance of specialized work may reside. Such advertising is conducted through the medium of COMMERCE BUSINESS DAILY^{1/}, NIH GUIDE FOR GRANTS AND CONTRACTS Supplements, and notices in general or specialized scientific journals. It is also the policy of NIH to encourage possible contractors to submit statements of competence and interest in regard to contract programs which will be announced in general terms, henceforth, in this publication. Such statements will serve as the basis for the compilation of lists of "sources." These sources may be requested directly to submit proposals on individual projects as they are developed within a specific program.

NIH policy is to assure that awards of contracts are based on scientific and technical ability and judgment, availability of facilities, and other such factors as displayed in the contract proposal, as well as on price. Scientific review of proposals is conducted by advisory panels composed of at least 75% non-NIH members from the scientific community. Contracts proposed for award by such bodies receive further review by a senior staff group of the awarding unit.

5. DESCRIPTIONS OF THE COLLABORATIVE PROGRAMS of the NIH awarding units appear in this issue of the NIH GUIDE FOR GRANTS AND CONTRACTS. It will be the policy of NIH to assure that all new collaborative programs are announced in this manner, as well as through other media. The GUIDE also will provide information on the contract programs of the NIH awarding units as well as furnish information on procedural and administrative policy matters. GUIDE Supplements are issued by the individual awarding units to announce the availability of RFP's or, as stated above, to compile lists of "sources" from whom proposals may be solicited.

^{1/} COMMERCE BUSINESS DAILY available at an annual subscription rate of \$80 for second class and \$105 for first class (airmail). To order, send remittance plus full mailing address to: Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

References

- (1) DHEW Grants Administration Manual, Chapter 1-10, Considerations in Selecting Award Instrument - Contract or Grant
- (2) FMC 73-7, December 19, 1973

COLLABORATIVE (CONTRACT) ACTIVITIES OF
THE NATIONAL CANCER INSTITUTE

This issuance provides a summary of programs in cancer biology and diagnosis, cause and prevention, treatment, and control and rehabilitation currently conducted by the National Cancer Institute (NCI). The contract mechanism is used at least as a partial means of pursuing the objectives of each of the programs described below.

CANCER TREATMENT

The objective of the Division of Cancer Treatment is to develop the means to cure as many patients as possible and to maintain control of the cancerous process. In pursuing this goal, the Division is involved with the development and evaluation of drugs used singly and in combination with other drugs and other modalities of treatment such as surgery, radiotherapy, and immunotherapy. Although most of its early efforts were devoted to drugs alone, the program is currently emphasizing combined modality approaches. The program is implemented in laboratories and clinics in Bethesda, Baltimore, and Washington, D.C., by NCI scientists and at universities, commercial organizations, and other institutions under contract agreements with the NCI. The Division is also responsible for specific grant-supported activities as described below.

The Division of Cancer Treatment had its beginning in 1955 with the establishment of the Cancer Chemotherapy National Service Center. In 1965 a thorough study of the previous ten years' experience in drug development was undertaken and, as a result of that study, a linear array was developed and the logical steps from drug acquisition through screening to clinical trials were outlined. The program was then organized into major segments along the lines of the linear array. The major contract- and grant-supported activities of the Division will be described briefly.

Developmental Therapeutics Contract Program

The Developmental Therapeutics Program supports the search for, and development of, new and potentially more effective anticancer agents, as well as the development of better methods of drug selection and prediction of optimal therapy with new and old drugs and drugs combined with other treatment modalities such as surgery, radiotherapy, and immunotherapy. Other research is concerned with the pharmacology, toxicology, and mode of action of cancer chemotherapeutic agents and other drugs used as single agents or in combined modalities of treatment. Studies in molecular biology and the development and use of biological markers to assess tumor status also constitute major areas of research. Support activities include the production and formulation of drugs for pharmacologic and clinical evaluation and an extensive animal resources activity in support of the biological testing program.

For further information contact the Associate Director for Developmental Therapeutics, Division of Cancer Treatment, NCI, NIH, Bethesda, Maryland 20014.

Clinical Cooperative Group Grant Program

Grant support is provided to clinical cooperative groups for the clinical evaluation of new methods of cancer treatment in large numbers of patients. Whereas this program had primarily focused on the study of new cancer chemotherapeutic agents, greater emphasis is now being given to disease-oriented treatment strategies and the evaluation of various combined modality approaches to cancer therapy.

For further information contact the Associate Director for Cancer Therapy Evaluation, Division of Cancer Treatment, NCI, NIH, Bethesda, Maryland 20014.

Clinical Trials Contract Program

The ultimate goal of this contract research program is the assurance of a normal life expectancy to all cancer patients. Shorter term goals are to increase the number of patients responding to therapy with drugs, surgery, radiation therapy, or immunotherapy and to prolong periods of remission of disease through these treatment strategies. The program is concerned primarily with the coordination of research designed to integrate local and systemic treatment modalities into appropriate strategies for specific forms of cancer. The local modalities of surgery and radiotherapy are therapeutically complementary to the systemic eradication of cancer cells by chemotherapy and possibly immunotherapy. Clinical research supported by contract to this program is coordinated directly with the clinical cooperative group trials (see above) and includes: the introduction of anticancer agents into clinical trials, monitoring the evaluation of such agents by independent investigators and those in clinical cooperative groups and study groups, and integrating therapeutic modalities under investigation with other established modalities in the treatment of advanced and early cancer of various sites.

The program also encompasses supportive care research, directed particularly toward methods to protect patients at high risk of infection because of their disease or the immunosuppressive effects of chemotherapy or radiotherapy.

For further information contact the Associate Director for Cancer Therapy Evaluation, Division of Cancer Treatment, NCI, NIH, Bethesda, Maryland 20014.

CANCER CONTROL AND REHABILITATION

The Division of Cancer Control and Rehabilitation (DCCR) has the principal Federal responsibility for assuring the rapid and effective application of cancer research findings in the prevention, detection, diagnosis and treatment of cancer and for the rehabilitation and continuing care of cancer patients. It is the ultimate DCCR goal to reduce the incidence, morbidity, and mortality from cancer through a five-pronged effort.

1. Identification of new methods, knowledge, and techniques that may be applicable to control activities. These activities will involve close monitoring of the progress of research efforts

- and potential results; surveys to identify proven, practical knowledge and techniques; and data collection efforts to compile available information directly applicable to control activities.
2. Field testing of potential control knowledge and techniques in limited community field trials to determine their potential for widespread community usage. This effort provides an orderly transition from Phase III clinical research trials to community usage.
 3. Evaluation of potentially useful control knowledge and techniques to determine their effectiveness, practicality, acceptability, impact on the disease, and economic or cost-benefits prior to embarking on costly widescale community demonstration and promotion efforts.
 4. Demonstration of effective, practical, control knowledge and techniques in large-scale community environments that are widespread geographically and demographically to provide the public and health professionals with first-hand knowledge of the utility and effectiveness of the demonstrated knowledge and techniques; and to provide the basis for continued community support of the efforts.
 5. Promotion of demonstrated effective, practical knowledge and techniques to assure their rapid widespread utilization in all areas in the Nation.

DCCR will not support laboratory or clinical research to develop new procedures or techniques, except for research in rehabilitation. DCCR has full responsibility for development and implementation of research in rehabilitation and will support research projects in this area. DCCR will also support work to improve the application and distribution of existing procedures and techniques recommended for general use. Such refinement research will compete for DCCR resources on the same basis as other projects.

DCCR is concerned with the entire scope of the cancer problem, from the prevention of the disease to the rehabilitation and continuing care of the cancer patient during and after treatment. Program thrusts, therefore, are in three major intervention areas: (1) Prevention; (2) Detection, Diagnosis and Pretreatment Evaluation; and (3) Treatment, Rehabilitation, and Continuing Care.

Prevention activities will include identifying methods and techniques to inform, educate, and persuade the American public to fully utilize available cancer prevention services.

Activities in Detection, Diagnosis, and Pretreatment Evaluation will be concentrated on promoting more effective communication among physicians, health professionals, and the public regarding the detection, diagnosis, and pretreatment evaluation of cancer patients, with particular emphasis on improvements to this end through the use of existing community resources and mechanisms. Identifying new methods and techniques and disseminating information on them to both health professionals and the public where appropriate is also being stressed.

Treatment, rehabilitation, and continuing care activities will undertake to promote more effective communications among physicians, health professionals, and the public regarding the treatment and rehabilitation of cancer patients. Particular emphasis will be placed on the use of community resources and mechanisms. Additional emphasis will be placed on the identification of new methods and techniques to be demonstrated to both health professionals and the public where appropriate. It will also be necessary to develop and demonstrate a broad spectrum of rehabilitative and continuing care activities. In addition to the traditional approach, such activities will include counseling to the patient and his or her family to maintain family competence assuring adequate self-care, personal care, and vocational functions.

DCCR supports these program activities with both grants and contracts. Identification, and field testing, with the accompanying evaluation, are envisaged to be the first steps in translating and transmitting research results to the medical providers and cancer patients or potential patients. DCCR support for these activities will be on an individual project basis by the most appropriate support mechanism. The second steps, demonstration and promotion, with the accompanying evaluation are to be accomplished through grants and contracts involving institutions and communities, including outreach and communications programs from the Comprehensive Cancer Centers and the Community-Based Cancer Control Programs.

The grant-supported portion of the DCCR program encompasses all three intervention areas. It is intended (1) to provide new concepts for a more effective utilization of existing procedures and/or techniques and (2) to provide information on refinement of established procedures and/or techniques for a more vigorous prosecution of Cancer Control.

Grant applicants should submit PHS Grant Application Form NIH 398 to the Division of Research Grants, National Institutes of Health, Bethesda, Maryland 20014.

They should type "CANCER CONTROL" in the top margin of the face page of the application. Applications must be received by February 1 (renewals) or March 1 (new) for review at the September-October meeting of the National Cancer Advisory Board; by June 1 (renewals) or July 1 (new) for review at the January-February meeting of the Board; and by October 1 (renewal) or November 1 (new) for review at the May meeting of the Board.

Guidelines for the grant-supported portion of the DCCR are available upon request. Inquiries should be directed to:

Dr. Veronica Conley
Chief, Office of Committee
and Review Activities
Division of Cancer Control
and Rehabilitation, NCI
Room 7A-07, Blair Building
National Institutes of Health
Bethesda, Maryland 20014

Telephone: (301) 427-7941

DCCR contracts are advertised in the *Commerce Business Daily* and other publications. All noncompetitive contracts require special justification and DCCR should be queried before fully developed unsolicited proposals are submitted.

Inquiries concerning DCCR contracts should be addressed to:

Mr. David Keefer
Head, Cancer Control Contracts Section
Research Contracts Branch, NCI
Room 201A, Blair Building
National Institutes of Health
Bethesda, Maryland 20014

Telephone: (301) 427-7984

CANCER BIOLOGY AND DIAGNOSIS

General. The research of the Division of Cancer Biology and Diagnosis, NCI, is divided into four programs. The Cancer Biology Program includes the efforts of the Laboratories of Biochemistry, Molecular Biology, Pathophysiology and Theoretical Biology, and the Dermatology Branch, aided by a small number of research support contracts. The Tumor Immunology Program encompasses the intramural research of the Laboratories of Cell Biology and Immunodiagnosis, and the Immunology and Metabolism Branches, plus a national effort supported through research contracts. The Cancer Diagnosis Program includes the intramural research of the Laboratory of Pathology and a national program of research contracts in the area. The Breast Cancer Program consists entirely of a research contract program of national scope.

The three national research contract programs, in Tumor Immunology, Cancer Diagnosis, and Breast Cancer, were established to foster research in these areas, and are divided into three or four subprograms. Each subprogram is monitored by a committee, largely of non-Government scientists, who provide peer review of contract proposals, and also advise on program goals, directions, and solicitations. Where related NCI grant and contract programs exist, notably grants in immunology, grants in diagnosis of the National Organ Site Programs, and research contracts of the Viral Oncology Program and of the Division of Cancer Treatment involving breast cancer or immunotherapy, coordination is provided by the staff and by the knowledge of the fields by committee members. Unsolicited proposals, if considered relevant to the programs, are reviewed for technical merit and originality and may be funded on the latter basis as non-competitive procurements. However, the bulk of contract awards are made to the best proposals of those solicited by advertised Requests for Proposals.

Tumor Immunology. This research contract program is designed to give emphasis generally to the immunologic aspects of the cancer problem, and specifically to areas deserving early additional support, in the opinion of the staff and advisors. The program is divided into three portions. Immunobiology supports laboratory research into those aspects of immunology of special importance in cancer. Immunodiagnosis includes laboratory and clinical research on the development and testing of immunological techniques that may be used for cancer diagnosis, especially in early stages of the disease, and centers on research in human tumor-associated antigens and responses to them. Immunotherapy involves laboratory and clinical research to develop and test immunologic methods for the treatment of human cancer.

Cancer Diagnosis. This program supports selected areas of research, equipment development and clinical testing to provide new and improved methods for the early detection and diagnosis of human cancer. The first of three subprograms, General Cancer Diagnosis now supports varied efforts ranging from laboratory research on aberrant hormones and other biochemical substances as cancer markers, to the development of immunochemical methods for identification of human fecal blood, to combined laboratory and clinical studies on the early recognition of pancreatic cancer, to controlled clinical trials of sputum cytology for the detection of lung cancer and of fecal blood for bowel cancer, to theoretical studies of strategies for multisite cancer screening. The area of Cytology Automation is concerned with the development of equipment, based on cell sorting, pattern recognition, or other techniques, that could be used by clinical laboratories for reading Papanicolaou smears or other cytologic specimens for cancer detection. Support may be provided for research, including ancillary aspects, for equipment development, and for both engineering and clinical testing. The newest subprogram in Cancer Diagnostic Radiology is devoted to the development or improvement of radiologic and other imaging techniques used or usable for the diagnosis of cancer. It is presently concerned with the clinical evaluation of computerized transaxial tomography in brain lesions, the development of computerized tomography for other areas of the body, including working out and testing computer algorithms for this with both x-rays and radionuclides. Future work may include ultrasonic imaging.

Breast Cancer. The program of the Breast Cancer Task Force includes laboratory and clinical research of many types, all specifically directed toward breast cancer. Primarily virological studies are not covered here, but are part of the Viral Oncology Program of the Division of Cancer Cause and Prevention. Breast Cancer Epidemiology is devoted to work to identify individuals and groups at high risk of the disease, and includes ancillary laboratory studies. Breast Cancer Experimental Biology supports basic laboratory and animal studies into the growth and spread of tumors of the breast. Present work in Breast Cancer Diagnosis is largely clinically related, including attempts to improve x-ray and mammography, to develop other physical methods such as ultrasound, and to investigate other possible methods for screening and diagnosis, such as cytology of breast fluid and breast cancer antigens. Breast Cancer Treatment is supporting clinical trials of the extent of surgery needed in primary disease, of adjuvant chemotherapy, of tumor estrogen receptors as guides to hormone therapy, and clinical research on tumor cell kinetics as a predictor of therapeutic response.

CANCER CAUSE AND PREVENTION

The Division of Cancer Cause and Prevention is responsible for planning and executing a broad research program on etiology and prevention of cancers. Experimental and epidemiologic research is conducted on potential and actual viral, chemical, and physical carcinogenic agents and on their combinations. Evaluations of carcinogenic hazards and studies on mechanism of cancer induction are included. Biometric and epidemiologic investigation of cancers are conducted in populations and extensive demographic data are continuously compiled. The various areas of research complement each other, with data from one area providing input for another area in the planning, conduct, and evaluation of research programs. Laboratory findings provide leads that must be evaluated in human populations; observed associations of cancer with other factors determined in epidemiologic studies require further clarification in experimental investigations.

The Division of Cancer Cause and Prevention is divided into three main parts, each headed by an Associate Director. The Viral Oncology area is concerned with determining the significance of viruses in the induction of cancers in man and with developing means for preventing these cancers with virological, immunological, and other techniques. The Carcinogenesis area is concerned with determining the significance of chemical agents in the induction of cancer in man and with developing means of preventing these cancers. The Field Studies and Statistics area is concerned with continued monitoring of populations for cancer incidence, prevalence, and mortality; identifications of groups with different risks of cancers; and determination of associated environmental and genetic factors.

The program is conducted by means of in-house research, but contracts form the bulk of nation-wide efforts within the integrated programs in the three areas. The Division of Cancer Cause and Prevention staff is responsible for planning, coordination, and evaluation of contract-supported efforts as well as for the conduct of in-house investigations. Many of these efforts are done in conjunction with investigators who are also grantees of the National Cancer Institute.

Two special programs are operated within the Office of the Director of the Division; the Smoking and Health Program and the Diet, Nutrition and Cancer Program. The major objective of the first is to develop a safer cigarette. The objective of the latter is to delineate the effects of diet on cancer etiology, and of nutrition as an aid to treatment and rehabilitation.

Viral Oncology

The Viral Oncology Program is responsible for planning and conducting the Institute's program of coordinated research on viruses as etiological agents of cancer. Scientists within the Program not only provide the broad operational management for intramural and collaborative research but also conduct investigations on oncogenic viruses and their interaction with host cells. Any information obtained from these coordinated studies is applied (1) to the search for viruses or virus genetic information which may be

etiologically related to the initiation of human cancer and (2) to the development of therapeutic and preventive measures for control of human cancers when such agents are found. The Viral Oncology Program is organized into four laboratories--Laboratory of DNA Tumor Viruses, Laboratory of Tumor Virus Genetics, Laboratory of Viral Carcinogenesis, Laboratory of RNA Tumor Viruses--and one Branch, the Collaborative Research Branch.

The Virus Cancer Program. Contract-supported research is conducted within the Viral Oncology Program under the Virus Cancer Program. This program, begun in 1964, is predicated upon the idea that at least one virus is a cause, either directly or indirectly, of human cancer. The program applies a research convergence technique to coordinate objectives, personnel, resources, and information under the general direction of the Office of the Associate Director for the Viral Oncology Program.

Senior scientists from all organizational units under the Office of the Associate Director for the Viral Oncology Program, as well as others in the Division of Cancer Cause and Prevention, participate in the Program. In particular, the Collaborative Research Branch plays a major role in the planning, development, and scientific administration of this program. Work has progressed from an emphasis on animal tumor viruses, as models for the human system, to studies on human viruses or virus components associated with neoplasms of various types. An understanding of the relationship between tumor viruses and neoplasia will be an important contribution to the control of cancer.

For further information write to Deputy Associate Director, Viral Oncology Program, National Cancer Institute, Room 1A15, Building 37, Bethesda, Maryland 20014.

Carcinogenesis Testing

The Carcinogenesis Testing Program (1) plans, directs, coordinates, and evaluates a program of applied research on chemical and physical causes of cancer and their prevention; (2) administers carcinogen testing procedures and related in vivo and in vitro bioassay methods through intramural laboratories and contracts; (3) develops and standardizes models for carcinogenesis testing; (4) develops and maintains technical information resources and data analysis activities related to environmental carcinogenesis; (5) advises, cooperates, and collaborates with the Carcinogenesis Research Program in the support of their activities.

The organization of the Carcinogenesis Testing Program is divided into two major components: an intramural program and a contract-supported collaborative program. A third, but smaller component, supports studies with grants. The intramural program is primarily devoted to laboratory research, scientific documentation, and program coordination and consists of the Office of the Associate Director of the Carcinogenesis Testing Program, the Carcinogen Bioassay Branch, the Pathology Branch, and the Technical Information Resources Branch.

The collaborative program is devoted primarily to targeted research implemented through the contract mechanism and consists of long-term animal studies and short-term in vitro experiments for the detection of environmental carcinogens, as well as research activities designed to develop the most accurate and efficient approaches to carcinogen testing and to better define animal and in vitro model systems. Environmental cancer technical information, collection, analysis, and development are other major activities in the collaborative program. These are designed to serve the needs of both the program and the appropriate scientific community.

Carcinogenesis Research

The Carcinogenesis Research Program is responsible for planning, directing, coordinating, and evaluating a program of basic and applied research on chemical and physical factors in cancer etiology and the prevention of carcinogenesis in cancer etiology through research in carcinogenesis and toxicology, metabolism, chemistry, immunology, cell biology, experimental tumor pathology, and information sciences.

The organization of the Carcinogenesis Research Program is divided into two major components: an intramural program and a contract-supported collaborative program. A third, but smaller, component supports research with grants. The intramural program is primarily devoted to laboratory research, scientific documentation, and program coordination and consists of the Office of the Associate Director for Carcinogenesis Research and five branches (Biology, Carcinogen Metabolism and Toxicology, Chemistry, Experimental Pathology, and Lung Cancer).

The collaborative program is devoted primarily to targeted research implemented through the contract mechanism and consists of seven program segments: Biological Models, Carcinogen Metabolism and Toxicology, Cell Biology, Chemistry and Molecular Carcinogenesis, Colon Cancer, Information and Resources, and Lung Cancer.

The Office of the Coordinator for Collaborative Research is comprised of a management team of scientist-administrators with both research and administrative experience. These scientist-administrators, designated as segments managers (1) develop and implement improved management methods in the contract-supported collaborative programs; (2) assist in allocations of resources and evaluation of priorities in the overall program; and (3) coordinate the planning, administration, and evaluation of contractual research. In addition, each of the segments has a director who provides scientific leadership and participating senior intramural staff who serve as project officers and provide technical guidance and direction. Peer review of proposals is provided by two technical review committees whose members and chairmen are from the outside scientific community.

For further information write to Director, Division of Cancer Cause and Prevention, National Cancer Institute, Room 11A03, Building 31, Bethesda, Maryland 20014.

Field Studies and Statistics

The Field Studies and Statistics area is concerned with: continued monitoring of populations for cancer incidence, prevalence, and mortality and of associated internal and external environmental and genetic factors; the conduct of observational research in situations where society or nature has provided experiments on cancer, such as studies on occupational groups, migrant populations, groups with other diseases, etc.; studies on diagnosis and therapy, including design and evaluation of therapeutic trials, and results of the therapies, diagnostic and detection studies, etc.; and collaboration in a variety of investigations requiring epidemiologic, demographic, statistical, and mathematical expertise.

Clinical Epidemiology Branch conducts intramural and extramural research on personal, familial, and ethnic factors which may make some individuals more susceptible to cancer. It also conducts surveillance studies of cancer and related diseases in domestic animals for possible application of the results to human cancer. Environmental Epidemiology Branch studies rates of cancer deaths and new cases, correlates these with demographic and environmental variables to formulate clues to cancer causation, and conducts analytical studies to identify environmental and host determinants of cancer. Biometry Branch has as its major functions consultation and support in mathematics, statistics (including experiment design and analysis), and system analysis in problems of cancer research and the development of the basic data of cancer incidence, prevalence, and mortality in the United States sufficiently precise to permit administrators and research workers to measure their successes (and failures) in preventing, diagnosing, or treating cancer.

This program is conducted through in-house research, research contracts and grants, in a nationwide effort.

For further information write to Associate Director, Field Studies and Statistics, National Cancer Institute, Room C403, Landow Building, Bethesda, Maryland 20014.

COLLABORATIVE (CONTRACT) ACTIVITIES OF
THE NATIONAL EYE INSTITUTE

The National Eye Institute's collaborative programs emphasize multi-institutional cooperative clinical trials of alternative treatments for specific vision disorders. Two major clinical trials, the Diabetic Retinopathy Study and the Diabetic Retinopathy Vitrectomy Study, are underway. The first mentioned Study is designed to determine the value of photocoagulation therapy for diabetic retinopathy and the second, the Diabetic Retinopathy Vitrectomy Study, is attempting to evaluate the benefits of early, as opposed to deferred, vitrectomy in a randomized patient cohort. Other trials are in the planning stage, and proposals will be selected at the appropriate times.

The Institute's collaborative programs also include a small number of contracts for the development and evaluation of diagnostic instrumentation and for the maintenance of special colonies of animals with well-characterized disorders of the visual system as research resources for the national community of vision scientists.

For further information write to the Associate Director for Extramural and Collaborative Programs, National Eye Institute, Bethesda, Maryland 20014.

COLLABORATIVE (CONTRACT) ACTIVITIES OF
THE NATIONAL HEART, LUNG, AND BLOOD INSTITUTE

DIVISION OF HEART AND VASCULAR DISEASES
ETIOLOGY OF ARTERIOSCLEROSIS AND HYPERTENSION

- A major component of the program of the Division of Heart and Vascular Diseases is concerned with basic, animal, and clinical research in the etiology and pathogenesis of arteriosclerosis and of hypertension. Most of the work being supported in this area is supported by research grants, but a number of problem areas have been identified for which collaborative research supported by contract may be more appropriate. One such area is the establishment of resource centers in which models of chronic atherosclerosis and hypertension in non-human primates can be developed and studied. Activities in this area were initiated in FY 1975.

For further information write Dr. Gardner McMillan, Associate Director for Etiology of Arteriosclerosis and Hypertension, Division of Heart and Vascular Diseases, NHLBI, Bethesda, Maryland 20014.

DIVISION OF HEART AND VASCULAR DISEASES
ISCHEMIC HEART DISEASE

Program objectives are a reduction of death and disability from acute myocardial infarction, chronic ischemic heart disease, and sudden cardiac death. The program consists of regular research and program project grants directed at problems of ischemic heart disease, as well as Institute-targeted research in defined areas of high interest, utilizing both contracts and special program grants.

The nine specialized Centers of Research in Ischemic Heart Disease which utilize comprehensive, multi-disciplinary programs focused broadly upon both the fundamental and clinical aspects of ischemic heart disease are a major segment of the program. Another special grant program on Sudden Cardiac Death emphasizes both the clinical aspects of the sudden cardiac death problem, as well as fundamental studies on the mechanisms and prevention of lethal arrhythmias.

Research on the protection of ischemic myocardium involves fundamental studies on biochemistry and physiology of the ischemic myocardium and interventions designed to protect the tissue. Clinical studies are to be initiated in the near future. Projects designed to quantify ischemic myocardium are focused primarily on radioisotopic imaging techniques.

The Coronary Artery Surgery Trial is designed as a 7-year study to test the effects of coronary artery surgery in randomized subgroups of patients meeting sharply defined clinical, angiographic, and physiological criteria. All patients undergoing coronary angiography at the participating institutions enter a registry. Sixteen participating institutions and a coordinating center are presently involved.

For further information write Dr. Peter L. Frommer, Associate Director for Cardiology, Division of Heart and Vascular Diseases, National Heart Lung, and Blood Institute, Room A922, Landow Building, Bethesda, Maryland 20014.

DIVISION OF HEART AND VASCULAR DISEASES
LIPID METABOLISM

The Lipid Metabolism Branch is responsible for planning, developing, and directing a collaborative program of research into the structure, metabolism, and functions of lipids and lipoproteins as they relate to atherosclerosis, and coordinating a national research program designed to increase knowledge related to the diagnosis and management of lipid disorders, especially those associated with premature vascular disease.

The Lipid Metabolism Branch implements its program goals in part through (1) a network of 13 Lipid Research Clinics and (2) a Patient Registry and Coordinating Center, a Lipid Standardization Laboratory, a Central Exercise Laboratory, and a Central Clinical Chemistry Laboratory.

The objective of the Lipid Research Clinics Program includes:

1. Evaluation of current techniques for the diagnosis of hyperlipoproteinemia and the development of better ones. Standardization of methodology techniques and definitions dealing with hyperlipoproteinemia and its diagnosis.
2. Improvement of detection, diagnosis, and medical care for hyperlipidemic patients by providing guidance and assistance to physicians on the management of these patients and by the testing and development of improved therapy (both dietary and drug) for specific disorders.
3. Determination of the prevalence of hyperlipoproteinemia and its natural history.
4. Design and implementation of an intervention study to test the lipid hypothesis in high-risk patients, i.e., will lowering blood lipids reduce cardiovascular mortality and morbidity in patients with specific types of hyperlipoproteinemia? Will it delay the development and/or progression of cardiovascular disease?

For further information write Dr. Basil Rifkind, Chief, Lipid Metabolism Branch, Division of Heart and Vascular Diseases, National Heart, Lung, and Blood Institute, Bethesda, Maryland 20014.

DIVISION OF HEART AND VASCULAR DISEASES
DEVICES AND TECHNOLOGY

The goals of the program are the reduction of death and disability from cardiovascular diseases through the development of therapeutic and diagnostic devices, instrumentation, and related components.

The major current effort is in the development of circulatory assist and cardiac replacement devices. This involves not only the development and assessment of pumps, energy conversion, storage and transmission systems, control systems, and materials but also the necessary physiological assessment and evaluation of reliability. Biocompatible materials of relevance to cardiovascular devices are of specific interest.

Diagnostic devices of particular interest are in the area of the detection and quantification of arteriosclerotic lesions. There is an existing program in flow and pressure measurement and cardiovascular imaging devices.

For further information write Dr. Peter Frommer, Associate Director for Cardiology, Division of Heart and Vascular Diseases, National Heart, Lung, and Blood Institute, Room A922, Landow Building, Bethesda, Maryland 20014.

DIVISION OF HEART AND VASCULAR DISEASES
CLINICAL APPLICATIONS AND PREVENTION

Primary research interests and activities in this area are directed toward the conduct of epidemiological studies, clinical trials, biometrics research, and research into the prevention of heart and vascular diseases.

Preventive Cardiology Branch The research conducted and supported in this branch is directed toward studies of preventive measures to reduce morbidity and mortality from atherosclerosis, hypertension, and stroke. An example of these prevention studies is the Hypertension Detection and Follow-up Program in 14 communities, to determine the extent to which mortality from hypertension can be reduced in the general population.

Clinical Trials Branch Cooperative clinical trials supported by contracts are the primary responsibility of this branch. The aspirin-myocardial infarction clinical trial involving 30 clinical centers was initiated in 1975. The centers have been selected and will be enrolling about 4200 patients with proven myocardial infarction into this 3-year secondary prevention trial. The Multiple Risk Factor Intervention Trial (MRFIT) in 20 centers is a primary prevention trial to determine the extent to which coronary heart disease mortality can be reduced by reduction of serum cholesterol, elevated blood pressure, and cigarette smoking in men who have above-average risk of developing coronary disease because of these factors. Medical and biometrics staff of the Branch maintain direct liaison with the involved investigators throughout the duration of these trials.

Epidemiology Branch This branch conducts epidemiological studies of heart and vascular diseases in populations within the United States and in cooperation with medical investigators in other countries. The Framingham Heart Disease Epidemiology Study and other prospective studies in Puerto Rico, Japan, Hawaii, Israel, and Yugoslavia are examples of such investigations conducted with direct funds, contract funds, and P.L. 480 counterpart currencies. Other activities include genetic studies among twins and studies of the possible relationship of trace elements in drinking water to heart disease.

For further information write Dr. William J. Zukel, Associate Director for Clinical Applications and Prevention, Division of Heart and Vascular Diseases, National Heart, Lung, and Blood Institute, Bethesda, Maryland 20014.

DIVISION OF BLOOD DISEASES AND RESOURCES

The Division of Blood Diseases and Resources (DBDR) supports contract research in blood-banking sciences, thrombosis, hemorrhagic diseases, sickle cell disease, and red cell disorders. In addition, the clinical evaluation of promising drugs and biologics may be sponsored by the Division.

The Blood Resources Program supports research in blood-banking systems management aimed at improving the operations of blood-banking nationwide. Other activities include the improvement of methods of blood fractionation, the development of new fractionation products, the improvement of the storage of blood and blood products, the proper utilization of blood components in therapy, and the elimination of the hazards of blood transfusion, with special emphasis on the problem of post-transfusion hepatitis. This program includes development of blood substitutes and research in transplantation biology.

If information on selected programs or specific details are required, write Dr. Anthony A. René, Acting Chief, Blood Resources and Transplantation Branch, Division of Blood Diseases and Resources, National Heart, Lung, and Blood Institute, Bethesda, Maryland 20014.

The Blood Diseases Program is concerned with research into problems related to hemostasis, thrombosis, and red cell disorders.

Specifically, the program on hemostasis and thrombosis is supporting work on the preparation of highly purified reagents used in coagulation research, such as the production and distribution of a standard reference heparin for laboratory investigation of physical, chemical, and biological properties of this substance. Other work is being conducted on the relation between diet, platelet function, and thrombosis in man and experimental animals. Clinical trials have been supported to test the efficacy of anticoagulant and platelet-inhibiting agents for the prevention of venous thrombosis in high-risk subjects. A cooperative clinical study on the development of inhibitors to Factor VIII in hemophiliacs is currently being funded. Other contractors have supported improvements in methods of carrier detection in women from families with a history of hemophilia, the standardization of and improvement in clotting factor preparations, and the exploration and evaluation of methods for

developing a nationwide system with potential for comprehensive care in hemophilia.

Further activities are envisioned in the natural history of hemophilia, the value of prophylactic and self-treatment with Factor VIII, and the evaluation of genetic counseling techniques in hemophilia. Other areas may include the development of specific blood tests designed to identify patients at high risk to develop venous thrombosis, the development of animal models for thrombosis research, and the relation of von Willebrand's disease and thrombosis to atherogenesis.

The red cell program currently supports efforts in the collection and purification of erythropoietin. Other possible activities include cooperative studies of hemolytic anemias and evaluation of the efficacy of erythropoietin in the treatment of red cell disorders.

New collaborative programs are announced in the *NIH Guide for Grants and Contracts* and other appropriate forms as the programs are implemented. If information on selected programs or specific details are required write Dr. Joseph C. Fratantoni, Chief, Blood Diseases and Resources, National Heart, Lung, and Blood Institute, Bethesda, Maryland 20014.

The Sickle Cell Program supports basic, clinical, and applied research to increase the understanding of the pathophysiology of sickle cell disease. Basic research is directed at globin synthesis, cell membrane functions, alteration in blood flow, and conformational and structural studies of sickle hemoglobin. Other areas of support include investigation of anti-sickling agents, diagnostic techniques for antenatal and neonatal diagnoses, management of complications, extracorporeal techniques for drug therapy, continuing education programs for professionals and the general public, and clinical trials for evaluating treatment modalities for vaso-occlusive crises.

For further information, write Dr. Clarice Reid, Chief, Sickle Cell Disease Branch, Division of Blood Diseases and Resources, National Heart, Lung, and Blood Institute, Bethesda, Maryland 20014.

DIVISION OF LUNG DISEASES

The Research and Development Program is addressed to studying the structure and function of the lung, chronic bronchitis and emphysema, pediatric pulmonary diseases, fibrotic and immunologic lung diseases, pulmonary vascular diseases, and respiratory failure. Part of this work involves the development of techniques and devices for pulmonary diagnosis and respiratory assistance, monitoring, and control. The transfer of research findings to the community is the objective of the prevention, control, and education program.

The contract mechanism is used to complement and supplement research on problems inadequately represented in investigator-initiated research projects and goal-oriented centers. Contract research activity is administered through the Division's four Branches: the Structure and Function Branch, Airways Diseases Branch, Interstitial Lung Diseases Branch, and Prevention, Education, and Manpower Branch.

The Structure and Function Branch fosters a program of basic and applied clinical and nonclinical research on the lung and respiratory system, including research on respiratory function, nonrespiratory function, structure, and growth and development. Contract-supported programs include the development of physical and chemical methods of separating, culturing, and identifying individual lung cells and the establishment of a lung cell resource facility to ensure the availability of contaminant-free and well-characterized lung cell lines to serve as reference material. A targeted research grant program fosters use of the organ culture technique to study metabolic processes in the lung, including connective tissue biosynthesis, carbohydrate and lipid metabolism, and metabolism of vasoactive hormones. The growth and development subprogram is focused on infantile respiratory distress syndrome (IRDS) and supports by contract the development of methodology to assess lung function in infants and young children, as well as a clinical trial to evaluate the efficacy of antenatal steroid therapy in the prevention of IRDS.

The Airways Diseases Branch is addressed to research on chronic obstructive lung disease (COLD), asthma, cystic fibrosis, bronchiolitis, and other airways diseases. Contracts support population studies to determine the epidemiology of COLD, and case-control studies to explain host differences between those who develop COLD and those who do not. Also under investigation is the role of alpha-1-antitrypsin deficiency in chronic respiratory disease. Another program was initiated to develop methods to detect early airways disease prior to the occurrence of irreversibility, and to study the effects of smoking and smoking cessation on these indices. Since increased production of mucus and inability to clear the airways are critical pathogenetic factors associated with chronic bronchitis, cystic fibrosis, and asthma, physiochemical studies of respiratory mucus have been encouraged. Basic research on lung elastin and studies to elucidate the association between specific HL-A antigen subtypes and respiratory diseases are also underway. Finally, this branch supports evaluation of several therapeutic interventions - a contract program to evaluate effects of nocturnal oxygen therapy in patients with chronic hypoxic lung disease and a targeted research grant program to establish a scientific basis for aerosol therapy.

The Interstitial Lung Diseases Branch conducts and directs a program of research on fibrotic and immunologic lung diseases, pulmonary vascular diseases, and respiratory failure. Included in its contract program are development of an in vitro test for sarcoidosis and establishment of an animal model of pulmonary fibrosis. A targeted research grant program was initiated to study the pathogenesis of lung inflammation, including factors which interact to initiate the inflammatory process, sites of action, and the role of proteases and their inhibitors. Contracts support the development of a high performance respiratory mass spectrometer, a multiple gas pulmonary function analyzer, and sensors for continuous monitoring of blood gas tensions in adults and neonates. A controlled clinical trial is evaluating the role of the extracorporeal membrane oxygenator in treatment of acute respiratory insufficiency; a pathology center to analyze tissue specimens from those receiving this therapy is also in operation. Another contract program was initiated to develop and evaluate methods for estimating pulmonary artery pressure in order to make feasible the noninvasive diagnosis of pulmonary hypertension.

The Prevention, Education, and Manpower Branch plans, conducts, and directs a program for the development of manpower trained in research pursuits and also designs, develops, operates, and coordinates programs which facilitate or implement the transfer of knowledge gained through research and development into clinical practice through educational measures, demonstrations, control programs, and other means. Contracts support the development and evaluation of an education program for early treatment of acute respiratory insufficiency and an education program for recognition and early treatment of neonatal respiratory insufficiency and failure. Both programs are directed at physicians and paramedical personnel. A third contract program supports the development of continuing education programs in pulmonary medicine, with particular emphasis on motivating physicians to seek and use continuing education programs and on evaluating the impact of such programs in terms of quality of care.

For further information write Dr. Suzanne Hurd, Associate Director for Program Planning and Evaluation, Division of Lung Diseases, National Heart, Lung, and Blood Institute, Room 6A15, Westwood Building, Bethesda, Maryland 20014.

CONTRACT SPONSORED ACTIVITIES OF THE
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

OBJECTIVES

Contract-sponsored research activities of the National Institute of Allergy and Infectious Diseases are designed to translate into human health benefits newer scientific information and technology acquired through research in the field of immunology and infectious diseases. To achieve this end the public health needs are identified by first determining the incidence and impact of diseases falling under the Institute's purview and assessing the technical feasibility of intervention through a targeted program. The ultimate goals are the development and evaluation of biologic products and drugs for prevention and treatment of infectious and immunologic diseases and the development of improved methods for assessing the impact of specific diseases and diagnosis of individual cases. Contracts are used to support epidemiological studies which will use new diagnostic tools to define further the characteristics of specific entities within illness clusters, e.g., acute diarrheal diseases, and to identify feasible approaches to prevention and control. In support of these efforts contracts are awarded for the development, production, and evaluation of vaccines and antiviral substances and the production, distribution, and evaluation of reagents for research in microbiology and immunology. Information on contract activities is published in the *NIH Guide for Grants and Contracts* and made available through other media including announcements in scientific journals. Progress reports are deposited in the National Technical Information Service and scientific results are published in journals.

Contract-sponsored activities are designed to be flexible and responsive to research needs and promising scientific opportunities. When an activity reaches an appropriate stage of development, efforts are made for other Federal agencies or the private sector to assume responsibility for delivery and utilization. New programs are initiated in response to public health needs and related opportunities resulting from research breakthroughs.

PROGRAM AREAS

Each organizational unit involved in contract-related research is designed to carry out a facet of a broad mission of meeting vital health research needs. The programs having significant contract activities are described below.

Infectious Diseases The Institute's Infectious Disease Program functions in particularly close concert with intramural scientists of the NIAID and the Bureau of Biologics, FDA. It also benefits from the experience of advisory groups and collaboration with university and drug industry scientists. Within this framework, the program promotes targeted research leading to the development and evaluation of promising prophylactic and therapeutic agents for the control of selected infectious diseases. A

vaccine-development program was initiated in 1962 to conduct collaborative vaccine studies, especially against acute respiratory infections. Later interests turned to rubella vaccine and vaccines against influenza, hepatitis and selected bacterial diseases.

Current interests include development and evaluation of vaccines against pneumococcal pneumonia, meningococcal and Hemophilus influenzae meningitis, influenza, respiratory syncytial virus, and parainfluenza virus infections. Another infectious disease program is designed to bring interferon and other promising antiviral substances into clinical application. The program in hepatitis sponsors developmental studies on vaccines and serologic techniques and reagents, experimental infections in animal models, and epidemiologic surveillance in high-risk groups. The Infectious Diseases program is considering new initiatives in gastroenteritis and nosocomial infections.

The Infectious Disease Program also includes contract-sponsored projects in cholera, leprosy, parasitology, tuberculosis, and selected virus diseases in conjunction with the U.S.-Japan Cooperative Medical Science Program. These programs are carried out in collaboration with Japanese as well as American scientists and with other organizational units of the National Institutes of Health and the Department of Health, Education, and Welfare.

Research Resources The Research Resources Branch was established in 1962 and conducts a collaborative program for the support of research by stimulating the production, testing, and distribution of a wide range of reagents. These reagents for health research purposes include viral and mycoplasma seed cultures and their corresponding antisera, allergens, and interferons. All reagents are characterized by appropriate microbiological, immunological, and biochemical methods and provide the recipients with well-characterized reference materials. Reagents for most of the important viruses and mycoplasmas involved in infections of the respiratory and gastrointestinal tracts are available for distribution. Reagents are also available for selected arthropod-borne viruses and for the antigens of hepatitis A and B. The reagents related to allergic diseases have recently received greater emphasis, and this expanded program is working toward the acquisition of reagents for ragweed, ryegrass, and ascarid allergens.

Since research involving recombinant DNA molecules is of current interest to many areas, a contract-sponsored program has been initiated relating to the construction and testing of safer cloning vehicles and hosts. The program also provides support for research requiring high-technology biophysical separation, purification, and concentration procedures. These facilities and procedures are needed in the preparation of antigen subunits used for newer, more sophisticated reagents for research in virology.

The Research Resources program presently is involved in developing and providing well-characterized and standardized reagents useful in tissue-typing and in providing technical advice and information or reagents and techniques through workshops and publications.

Immunology The program of the Transplantation and Immunology Branch was started in 1964 to encourage research and provide resources designed to solve the immunological problem of graft rejection in organ transplantation.

From the beginning, the Transplantation and Immunology Committee, made up of experts in the field, has helped to identify objectives to be pursued through contracts with a variety of laboratories.

Programs to acquire information relating directly to clinical studies are in progress. These are focused on the evaluation of tissue-matching as an appropriate predictor of graft-survival and a program to collect and analyze information on the efficacy of anti-thymocyte globulin in abrogating renal graft rejection. These investigations are designed to establish a better understanding of the graft-rejection process. In turn, this information is ultimately to be applied in the circumvention of the graft-rejection process. It is anticipated that the present program in immunology would be considerably broader than the original emphasis in transplantation immunology.

For further information contact the Director of Extramural Activities Program.

COLLABORATIVE (CONTRACT) ACTIVITIES OF THE NATIONAL INSTITUTE
OF ARTHRITIS, METABOLISM, AND DIGESTIVE DISEASES

ARTIFICIAL KIDNEY - CHRONIC UREMIA PROGRAM

The Artificial Kidney-Chronic Uremia Program was established by the National Institute of Arthritis, Metabolism, and Digestive Diseases in 1965 with funds earmarked by Congress for a target-oriented, planned program of research and development in chronic uremia, dialysis, and artificial kidneys. The goals of this program are achieved through contracts placed with universities, non-profit research laboratories, and industrial concerns. Currently about 70 contracts are in effect for carefully selected research and development program elements.

Research and development in the program includes studies on the pathophysiology of uremia, blood access and clotting mechanisms, dialyzers and dialysate delivery systems, therapy and its evaluation, and membranes and other materials. Studies in pathophysiology are directed toward minimizing some of the complications of dialysis patients as well as developing a better understanding of the mechanisms of the disease in order to design improved therapy.

Toward these goals, studies are underway on better methods for acid-base control, anemia, improvements in blood access, bone disease, hemofiltration, hemoperfusion, sexual dysfunction, peritoneal dialysis, and abnormalities of carbohydrate and lipid metabolism in uremia. High program priorities are in studies of evaluation of therapy particularly with the view of quantitating dialysis therapy and various measurements of patient well-being, especially in the known parameters of complications of dialysis.

At present, over 30,000 patients in the United States are being maintained by chronic dialysis. Estimates are that 10,000 new patients each year will be suitable candidates for artificial kidney therapy or for renal transplants when they reach a stage where their own kidneys no longer can support them. The NIAMDD Artificial Kidney - Chronic Uremia Program is one of the major efforts to create the technology to enable these persons to attain a higher level of rehabilitation at lower cost.

For further information write Dr. Robert J. Wineman, Associate Chief, Artificial Kidney Program, National Institute of Arthritis, Metabolism, and Digestive Diseases, Bethesda, Maryland 20014.

THE DIGESTIVE DISEASES AND NUTRITION PROGRAMS are supporting the following activities through contracts:

1. The National Cooperative Gallstone Study. This study is designed to determine the effectiveness and safety of chenodeoxycholic acid

in the dissolution of radiolucent gallstones at two dose levels compared with placebo. In addition, through basic studies utilizing the same patient population, the mechanism of gallstone-formation and the mechanism whereby chenodeoxycholic acid alters the biliary lipids is being explored in five additional contracts. At the termination of the two-year therapeutic regimen or when gallstone-dissolution has occurred, an additional study will be started to determine the long-term requirements for chenodeoxycholic acid to prevent stone reformation.

2. Crohn's Disease. The study of the relative effectiveness of steroids, azathioprine, sulfasalazine, and placebo.

3. Studies on the therapeutic application of endoscopy to gastrointestinal hemorrhage.

4. The provision of purified gastrointestinal hormones for investigators in this field.

5. Evaluation of Human Nutrient Requirements. This supports a continuing effort of the Food and Nutrition Board, National Research Council of the National Academy of Sciences, which periodically publishes the "Recommended Dietary Allowances" and monographs on nutritional requirements.

It is anticipated that no additional contracts will be let in fiscal year 1977.

THE DIABETES, ENDOCRINE, METABOLIC DISEASES PROGRAM supports the following activity through the contract mechanism:

The National Pituitary Agency. This agency supplies human growth hormone for clinical research and various pituitary hormones, their antisera, reference preparations, and other selected hormone products to qualified researchers.

The Diabetes, Endocrine, Metabolic Diseases Program expects to support the following activities through contracts in fiscal year 1977:

1. A program for the study and development of artificial devices for the control of blood glucose concentration in diabetes.

2. A study of the effect of treatment of juvenile diabetes on the development of the vascular complications of diabetes mellitus.

For further information contact Dr. Lester B. Salans, Associate Director for Diabetes, Endocrine, and Metabolic Diseases, National Institute of Arthritis, Metabolism, and Digestive Diseases, Bethesda, Maryland 20014.

IRON CHELATION PROGRAM

Initiated in July 1974, the program's objective is to develop safe, more effective compounds that can remove pathological stores of iron from the body such as those which result from repeated transfusions given in the treatment of Cooley's anemia. Both chemically synthesized compounds and those isolated from bacterial sources are of interest. In addition, testing or screening systems, to determine the efficacy and toxicity of the compounds, are supported.

It is anticipated that a number of RFP's will be issued in fiscal year 1977 in this particular program. For additional information, contact Dr. David Badman, Hematology Program Director, National Institute of Arthritis, Metabolism, and Digestive Diseases, Bethesda, Maryland 20014.

COLLABORATIVE (CONTRACT) ACTIVITIES OF THE
NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT

OBJECTIVES

The Institute uses the contract mechanism when the initiative for carrying out a research project, including design, direction, and methodology originates primarily within the National Institute of Child Health and Human Development (NICHD) or when the research requires extensive participation by staff in its development. Contracts are used (1) to stimulate research in gap areas; (2) to develop resources, methodology, instrumentation, or specific products; (3) to provide services to investigators; (4) when staff can function as both stimulator for collaborative efforts and coordinator of research among a number of investigators; (5) to provide for innovative, creative, pioneering projects which may be of general value to the scientific community; (6) to give coherence to a relatively unstructured field; (7) to support organizational activities such as conferences which are program- or mission-oriented and provide for information exchange or the development of methods.

PROGRAM AREAS

The Center for Population Research, NICHD, currently has contracts in the following areas:

Contraceptive Development

1. Development of new potential contraceptive drugs including the synthesis and biological evaluation of novel steroids, prostaglandin analogs, luteinizing hormone-releasing factor (LRF) analogs, and other miscellaneous non-steroids to determine the extent and nature of their possible antifertility activity.
2. Development of systems and/or materials for continuous administration of antifertility drugs aimed at improving the safety and efficacy of presently available drugs. Evaluation of biological evidence concerning slow and constant release of contraceptive drugs. Development of formulations to improve the oral activity of natural and synthetic steroids.
3. Development of methods for permanent and reversible sterilization in females. Design of devices that are safe and effective, easily implantable; testing and evaluation of these devices.
4. Development of techniques for observing the normal function of segments of the oviduct in ovum pick-up and transport. Studies of the effect of hormones and physical factors on the oviduct.

5. Studies of hormones involved in reproduction and methods for measuring them. Studies to elucidate the hormonal control of spermatogenesis.
6. Studies on the biochemistry and rheology of cervical mucus and the hormonal control of cervical function.
7. Clinical studies on the safety and efficacy of postcoitally administered estrogens.
8. Clinical studies on the efficacy and safety of androgenic steroids for suppressing of spermatogenesis.
9. Clinical studies on the efficacy of methods based on periodic abstinence. Laboratory and clinical studies related to the definition of the fertile period.
10. Clinical and toxicological studies on long-acting progestin.

Evaluation of Existing Contraceptive Methods

1. Directs a program of research aimed at the evaluation of the safety of methods of contraception and fertility regulation which are currently in use. Conducts prospective and retrospective investigations of adverse medical effects in relation to exposure to contraceptive steroids. Adverse medical effects of particular concern are thromboembolism, stroke, myocardial infarction, hypertension and adenoma of the liver and pituitary, cancer of the breast and of the reproductive organs, diabetes, gall bladder disease, and infertility.
2. Conducts clinical studies aimed at elucidating the effects of contraceptive steroids on carbohydrate and lipid metabolism and also on various nutrients including minerals and vitamins.
3. Conducts investigations of known adverse effects of contraceptive steroids in animal models suitable to clarify possible mechanisms.
4. Pursues investigations related to the determination of the safety or risk associated with the various intrauterine devices that are currently in use.
5. Conducts studies of the effects of contraceptive steroids and other methods of contraception used at or around the time of conception, or early in pregnancy, on the development of the offspring; including congenital malformations, perinatal mortality, and morbidity.
6. Conducts studies of population groups at special risk of particular complications arising from exposure or use of various methods of contraception and investigations leading to the identification of risk factors and the early detection of complications arising from the use of various methods of contraception.

7. Conducts studies of the medical effects of vasectomy in animal models and man to elucidate physiological, immunological, endocrinological, and other consequences of vasectomy.
8. Is concerned with the evaluation of the effects of induced abortion on subsequent pregnancy performance, particularly regarding prematurity, perinatal mortality, and infertility.
9. Conducts investigations of factors associated with infertility in male and female. Among these is the investigation of prenatal exposure to DES and its possible long-term effect on the fertility of the male and possibly even female offspring 20 years later.

Social Science Research Related to Population

1. Studies of the interrelations between social change and population size, structure, and distribution with particular emphasis upon the social, economic, and other determinants and consequences of population change.
2. Analyses of trends and variations in fertility as affected by age at marriage, divorce, abortion, and related variables; studies of the interrelations of fertility and other socioeconomic variables, such as income, education, religion, and residence; and the relationship between trends in fertility and broad socioeconomic changes such as level of economic activity, women's participation in the labor force, etc.
3. Studies of interrelations between family structure, sexual behavior, fertility, illegitimacy, and abortion; motivations and decisions which determine a couple's number and spacing of children; attitudes toward methods of fertility control and use-effectiveness of various methods among various subgroups of the population; and alternatives to child-bearing which couples perceive and how these perceptions affect fertility.
4. Social, economic, and psychological consequences for both parents and children of various childbearing patterns, including age of mother, child-spacing, size of family, etc.
5. Evaluation of policies aimed at regulating population and of policies which indirectly affect population growth or distribution. Past and present policies - including family allowances, direct incentives, and family planning programs - are evaluated for their impact on population.

For further information write Director, CPR, National Institute of Child Health and Human Development, Bethesda, Maryland 20014.

The Center for Research for Mothers and Children, NICHD, currently has contracts in the following areas:

Pregnancy and Infancy

The major contract program in this area is concerned with the sudden infant death syndrome (SIDS). Its objectives are to increase our understanding of underlying mechanisms of the syndrome, to discover its possible causes, to identify infants at risk for SIDS, and to explore preventive approaches. The contract program involves both basic and clinical studies and encompasses the neurophysiologic, cardiorespiratory, metabolic, immunologic, genetic, pathologic, environmental, and infectious disease aspects of the syndrome.

Mental Retardation and Developmental Disabilities

The objective of the contract program is to facilitate the development of emerging new research opportunities holding promise for resolving the problems of mental retardation and the developmental disabilities. Program emphasis is upon research developments in the areas of genetics and inborn errors of metabolism and with early childhood interventions aimed at preventing and/or ameliorating developmental disorders. Special interest areas within the field of genetics include, among others, prenatal diagnosis, genetic counseling, recurrence risk, animal models, and etiology of genetic defects. The development and refinement of approaches to early intervention for both biologically vulnerable and environmentally deprived infants and young children is encouraged through contract research concerned with early identification of developmental risk status, mother-child interactions, development of communication skills, and medical and educational intervention.

Developmental Biology and Nutrition

This contract program supports basic and clinical research to promote understanding of the continuum of time-linked factors that control normal development. A current contract involves assessment of maternal and infant nutrition as it relates to later physical growth, health, and mental development. Nutrition has been emphasized in other contracts concerned with the effects of malnutrition on the development of immunologic competence, response to measles vaccine, and the interactions between malnutrition and infection.

Human Learning and Behavior

This contract program supports research concerned with developmental disorders of learning and communication, including their biological and social aspects; and with the development of behavior from birth through maturity. For example the contract mechanism is used to provide specialized research materials and assistance for difficult to conduct but

crucial studies of normal and abnormal speech and language development in children. Of special interest is the language related problem of developmental dyslexia.

For further information write Director, CRMC, National Institute of Child Health and Human Development, Bethesda, Maryland 20014.

COLLABORATIVE (CONTRACT) ACTIVITIES OF
THE NATIONAL INSTITUTE OF DENTAL RESEARCH

NATIONAL CARIES PROGRAM

Much of the collaborative (contract) research in the National Institute of Dental Research relates to the National Caries Program. The development of means to reduce further the universal disease of tooth decay was identified by the Administration as a special initiative area of biomedical research. Substantially increased funds were made available for that purpose in the beginning of fiscal year 1971, with \$3,500,000 allocated to collaborative research.

Primary emphasis is placed on projects that encompass the application of existing knowledge and will either prove or disprove the findings of earlier laboratory and animal studies when applied to man; projects that seek new preventive modalities that are feasible, effective, and less demanding of the time of scarce professional manpower; and projects that assess new, promising variations of current approaches. Most of the collaborative research in the caries area will be targeted to the acceleration of the development of preventive methods for decreasing the incidence of caries and making this disease almost completely preventable.

Three factors, all of which interact, are implicated in caries: (1) susceptibility of teeth to the demineralizing action of acids, (2) the presence of caries-inducing bacteria, and (3) a diet which favors the colonization and destructive activity of cariogenic organisms. Because of the complex nature of caries, it is unlikely that any one approach will completely solve the problem of its control and prevention. Efforts are therefore directed to depressing the effects of all factors to a minimum and utilizing a combination of techniques instead of concentrating on one.

The collaborative (contract) research mechanism is also used by the extramural categorical programs of the National Institute of Dental Research listed below. Their major emphasis, however, is grant-supported research.

The PERIODONTAL DISEASES PROGRAM BRANCH supports research relating to the etiology, pathogenesis, diagnosis, treatment, and prevention of periodontal disease.

The CRANIOFACIAL ANOMALIES PROGRAM BRANCH supports studies of the etiology and treatment of such conditions as cleft lip and palate, malocclusion, temporomandibular joint disturbances, neuromuscular disorders, and acquired disfigurements. It also sponsors studies of the physiology of mastication, deglutition, speech, and oral sensation and perception.

The RESTORATIVE MATERIALS PROGRAM BRANCH seeks to develop and test dental restorative materials, adhesive tooth sealants, maxillofacial prostheses, artificial tooth implants, and diagnostic and treatment devices.

The SOFT TISSUE STOMATOLOGY AND NUTRITION PROGRAM BRANCH supports studies in four areas. The primary focus is on research activities in soft tissue diseases(s), nutrition, and salivary glands. Efforts in the area of soft tissue diseases are designed to provide a better understanding of oral ulcerative and viral diseases and oral cancer. The nutrition portion of the program seeks to develop new knowledge of the effects of sound and poor nutrition on oral health and the development and function of tissues of the craniofacial complex. Studies of salivary glands are designed to improve our knowledge of the development, structure, function, and diseases affecting major and minor salivary glands; biochemical studies of saliva are concerned with the influence of salivary constituents on oral health. A secondary focus of the program is on basic studies of mineral metabolism and the interaction of cells, mineral, and tissue matrices.

The PAIN CONTROL AND BEHAVIORAL STUDIES PROGRAM BRANCH is concerned with the pain, fear, and anxiety associated with dental treatment and with trigeminal neuralgia and other conditions. Oral-facial sensory responses and the behavioral aspects of dental conditions and their treatment, including subjective factors in pain response also are of major interest.

Each proposal is reviewed for technical merit by an ad hoc initial review group composed mainly of non-Governmental scientists and then for policy compliance and funding priority by the NIDR Source Selection Board.

All "Sources Sought" or "RFP Available" announcements appear in the *COMMERCE BUSINESS DAILY* and the *NIH GUIDE FOR GRANTS AND CONTRACTS* (Supplement).

For further information write Associate Director for Collaborative Research, National Institute of Dental Research, Bethesda, Maryland 20014.

COLLABORATIVE (CONTRACT) ACTIVITIES OF THE
NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

The mission of the National Institute of Environmental Health Sciences is directed to definition and explanation of toxicologic mechanisms and effects induced by environmental stressors as related to human health. The NIEHS collaborative research program is limited to support of research efforts intrinsic to the mission of the Institute. Collaborative projects, including both research contracts and interagency agreements, are activities which by virtue of required expertise or logistics lie beyond the scope of the NIEHS intramural program and require NIEHS initiative and participation.

Contract proposals are solicited on a competitive basis, through published announcements and direct contract with research groups of recognized competency. Proposal designs are reviewed by ad hoc contract evaluators who also competitively evaluate proposals prepared by prospective contractors.

The current and projected scope of the NIEHS collaborative research program includes efforts in areas of mutagenicity screening and chemical mutagenesis, pharmacokinetics and biologic behavior toxicity of environmental xenobiotics, heavy metals toxicity, biological effects of microwaves and noise, environmental factors associated with defects of reproduction and development, and effects of environmental agents on learning and behavior.

For further information write to Research Contracts Office, NIEHS, P. O. Box 12233, Research Triangle Park, North Carolina 27709.

COLLABORATIVE (CONTRACT) ACTIVITIES OF THE
NATIONAL INSTITUTE OF GENERAL MEDICAL SCIENCES

The Institute awards contracts for research and development in three principal areas. This notice is being published for informational purposes, since no active solicitation for sources or proposals is planned at present.

Automation of the Clinical Laboratory Research, development, and evaluation of rapid, reliable automated systems and instruments, for potential application in all aspects of clinical laboratory sciences, including clinical chemistry, toxicology, hematology, microbiology, virology, blood-banking, etc. Subject areas of interest include sample collection and labeling techniques, new or improved analytical methods, data handling and reduction techniques for compact computers, miniaturized and portable test systems for emergency use, all intended to increase reliability, throughput, and clinical significance.

Genetics and Genetic Chemistry Research, development, or production of materials, in areas where current technological constraints are considered as limiting to progress in genetics. Representative potential problem areas are the availability of materials (oligonucleotides, nucleic acids, and tissue culture cells or animals which represent, or are valid models for, genetic disease states, etc.) or of specific methodology (separations and purification techniques, diagnostic or assay procedures, etc.) for genetics research. The primary criteria for consideration are a recognized research need and the potential for advance in a research area relevant to genetics.

Pharmacology/Toxicology Research, development, and evaluation in all aspects of therapeutic drug use, including synthesis, testing, assays in body fluids, and surveillance for effectiveness, side effects, and drug interactions. The principal aim is to promote safer and more effective use of drugs. Related problems include dose-response patterns, kinetics of uptake, distribution, and elimination, metabolic transformations of administered drugs, and quantitative analytical methods and instruments for identification and assay.

For further information write Special Assistant to the Director, National Institute of General Medical Sciences, Bethesda, Maryland 20014.

COLLABORATIVE (CONTRACT) ACTIVITIES OF THE NATIONAL INSTITUTE
OF NEUROLOGICAL AND COMMUNICATIVE DISORDERS AND STROKE

PURPOSE OF RESEARCH CONTRACT ACTIVITIES

The National Institute of Neurological and Communicative Disorders and Stroke (NINCDS) identifies, within its sphere of interest, specific research needs not currently met. These involve the development of knowledge of importance for the prevention or cure of diseases and disabilities which are of major and general concern to the public. It is not always possible for the Institute, using its own personnel and facilities exclusively, to mount a complete research program to promote knowledge in the required areas. In such situations, the NINCDS relies upon negotiated research contracts to support required research.

In its use of the research contract as a mechanism for research support, the NINCDS has a significant role in the framing of project goals and the parameters within which work will be carried out, in the monitoring of research under way, and often in the dissemination or further utilization of the research results. Contract-supported research is undertaken only when such research can and will be carefully monitored by one or more Project Officers from the full-time scientific staff of the Institute.

ONGOING PROGRAMS

Currently, the NINCDS supports approximately 100 research contracts in a broad variety of scientific areas. Research is supported at a number of institutions, including academic institutions, hospitals, not-for-profit research organizations, and profit-making research and development organizations. Contractors are widely distributed geographically. Current contract-supported programs include the following general program areas: Communicative Disorders, Fundamental Neurosciences, Neurological Disorders and Stroke and Nervous System Trauma.

COMMUNICATIVE DISORDERS PROGRAM

Diseases of the Ears, Nose, and Throat: Areas of emphasis include the epidemiology, pathogenesis, and socioeconomic impact of otitis media with effusion (serous otitis media) and the relation of this disease to acute otitis media and to chronic ear disease. Interest continues in work on the immunology, biochemistry, and pathology of the middle ear in relation to acute and chronic ear disease and cholesteatoma. Vascular hearing disorders, drug effects on hearing, and disorders of fluctuating hearing loss are also of major interest to the Program.

Research into disorders of balance continues to be supported and encouraged by the Communicative Disorders Program.

The Program is interested in well designed research on the epidemiology and pathogenesis of laryngeal papillomatosis and other disorders of the larynx and trachea in children. Of importance in this area are basic studies of the development of the upper airway.

Auditory Disorders: Areas of emphasis include the development of procedures for early detection of auditory disorders in infants and children.

Language, Speech, and Voice Disorders: Projects in this area are directed toward improvements in assessment and differential diagnosis of children with impaired language development, treatment of children with impaired language development, treatment of adults with aphasia, and detection and assessment of laryngeal pathology. Screening procedures for detecting preschool children with signs of impaired language are being developed and evaluated.

Aids for the Communicatively Handicapped: Procedures are being developed for improved design, fitting, and evaluation of hearing aids. Another area of emphasis concerns evaluation of new sensory aids for the hearing-impaired.

Effects of Noise on People: New clinical tests of speech discrimination in noise and of procedures for measuring auditory sensitivity and discrimination among young children in both quiet and noisy environments are under development.

For further information write to Dr. Wesley H. Bradley, Director, Communicative Disorders Program, National Institute of Neurological and Communicative Disorders and Stroke, Bethesda, Maryland 20014.

FUNDAMENTAL NEUROSCIENCES PROGRAM

Neural Prostheses: The development and application of aids for the neurologically handicapped have been limited in many cases by an incomplete understanding of fundamental neuroscience and technology problems. To remedy this lack, contract programs have included multidisciplinary investigations on such problems as the safety of electrical stimulation of the nervous system, methods of increasing information transfer into the nervous system, and methods of functionally activating paralyzed muscles.

Biomedical Engineering: Contracts are awarded for the development of basic knowledge and for diagnostic and therapeutic instrumentation related to the NINCDS goals. These range from feasibility studies to prototype development.

For further information write to Dr. Karl Frank, Director, Fundamental Neurosciences Program, National Institute of Neurological and Communicative Disorders and Stroke, Bethesda, Maryland 20014.

NEUROLOGICAL DISORDERS PROGRAM

Epilepsy and Convulsive Disorders: Investigations of promising anti-convulsant compounds are being supported, as are highly focused studies into methodology for the improvement of the diagnosis, therapy, and rehabilitation of epileptics. Included in the program are a number of Pilot Comprehensive Epilepsy Programs. Studies are being developed on mortality, incidence, and prevalence of epilepsy requiring epidemiologic, demographic, genetic, and statistical expertise. A program to evaluate new chemicals for anticonvulsant activity in rodents has been initiated.

Developmental Neurology: Research is supported on the neurological basis of the developmental disorders of children, including the areas of cerebral palsy, autism, mental retardation, learning and behavioral disorders, central nervous system defects, heritable muscle and neurological diseases, and minimal brain dysfunction.

The Collaborative Perinatal Project is a longitudinal multidisciplinary research effort which seeks leads to the etiologies of the neurological and developmental disorders of childhood. Data were collected prospectively on over 50,000 pregnancies and current efforts within a comprehensive plan for analysis include a number of contract studies which relate the events, conditions, and abnormalities of pregnancy, labor, and delivery, and early childhood to the neurological and mental status of the children of these pregnancies as the child grows and develops. New contract initiatives utilizing the data base and population of the Collaborative Perinatal Project are scheduled for development.

Infectious Diseases: A varied research program on infectious diseases of the nervous system, particularly those related to early life and development, is being conducted.

For further information write to Dr. J. Kiffin Penry, Director, Neurological Disorders Program, National Institute of Neurological and Communicative Disorders and Stroke, Bethesda, Maryland 20014.

STROKE AND NERVOUS SYSTEM TRAUMA PROGRAM

The NINCDS has initiated directed research effort designed to broaden knowledge of the processes and consequences of nervous system damage due to trauma or hypoxia-ischemia. Research focused on the clinical consequences of such damage, and on predicting the results of intervention during the acute process, is receiving special attention. In addition, projects are being initiated on: the investigation of epidemiologic and population factors affecting incidence and prevalence of stroke and/or neural trauma, the development of instruments and procedures of diagnostic and therapeutic potential, controlled clinical trials of

diagnostic and therapeutic methods, and field evaluations of laboratory-demonstrated methods of prevention or control of these disorders. In addition, the research areas of spinal manipulative therapy and psychosurgery are receiving special attention. The NINCDS is particularly interested in sponsoring carefully structured, controlled clinical trials of these clinical therapeutic procedures.

For further information write to Dr. Murray Goldstein, Director, Stroke and Nervous System Trauma Program, National Institute of Neurological and Communicative Disorders and Stroke, Bethesda, Maryland 20014.

BIOMETRY AND EPIDEMIOLOGY

The occurrence of neurological disease in human population groups is studied using the methods of descriptive epidemiology. Data on mortality, incidence, and prevalence are established. Hypotheses are evaluated employing biometric analytic and experimental techniques. Such information is useful in providing etiologic clues, in recognizing unusual patterns of disease occurrence, in evaluating treatment modalities, and in planning programs and facilities for individuals with neurological disease. Emphasis will be placed on a coordinated and complementary program of in-house research and contract research. There will be opportunities for collaborative investigations requiring epidemiologic, demographic, genetic, and statistical expertise.

Special emphasis is placed on surveys of the incidence, prevalence, and costs of neurological and communicative disorders. Surveys are being supported in head and spinal cord injury, intracranial neoplasms, multiple sclerosis, and stroke. Requests for Proposals are being developed for additional surveys relative to other disorders.

For further information write to William Weiss, Chief, Office of Biometry and Epidemiology, National Institute of Neurological and Communicative Disorders and Stroke, Bethesda, Maryland 20014.

CONTRACTS APPLICABLE TO ALL AREAS OF THE NINCDS

Supporting Activities: In order to conduct a broad variety of complex research activities in various laboratories, clinics, and programs, the NINCDS must from time to time seek supporting services and information outside of the NIH. Such supporting activities are varied in nature and complexity but include long-term holding of research animals; production and delivery of specific biological reagents, cell cultures, and antigens; provision of data processing and information and storage and retrieval services; and provision of specialized professional and technical services.

For further information write to Dr. W. Watson Alberts, Assistant Director for Contract Research Programs, Extramural Activities Program, National Institute of Neurological and Communicative Disorders and Stroke, Bethesda, Maryland 20014.

COLLABORATIVE (CONTRACT) ACTIVITIES OF
THE DIVISION OF RESEARCH RESOURCES

Biotechnology Resources Program The Biotechnology Resources Program (BRP) uses the contract mechanism to fund activities that enhance the effectiveness of its grant-supported programs, facilitate program planning and evaluation, or further develop technological advancements of potential benefit to BRP's clientele. For example, the need for and importance of a national high voltage electron microscopy program was established through a contract awarded to the United States Steel Corporation to provide time on their one million volt electron microscope to biomedical research scientists. Also, contracts to the Baylor College of Medicine, University of Oklahoma, the Rand Corporation, and the University of Washington in consortia enabled the BRP to explore the needs of the clinical investigator users of the General Clinical Research Centers' program that can be satisfied by computing capabilities dealing with data organization and analysis.

For further information write to Dr. W. R. Baker, Jr., Assistant Director, Biotechnology Program, Division of Research Resources, Bethesda, Maryland 20014.

Chemical/Biological Information-Handling (CBIH) Program The CBIH Program is concerned with providing biomedical scientists with the research support capabilities they most need to pursue their investigations effectively. The focus specifically is on (a) designing and developing computer-based information-handling tools important to studies of chemical/biological interactions (a line of inquiry relevant to almost every major medical area), (b) making these tools available to the national scientific community in an easy-to-use and highly reliable form, and (c) collaborating with the users of these tools in order not only to refine and extend them but also to develop deeper insights into the investigative process itself. Particular emphasis is placed on questions of where and how computer technology and information science can catalyze the emergence of predictive capabilities regarding the interactions of chemical substances and living systems.

For further information write to Dr. Suzanne S. Stimler, Director, Biotechnology Resources Program, Division of Research Resources, Bethesda, Maryland 20014.

Animal Resources Program (ARB) The overall objective of the ARB is to support resource projects that provide or enable biomedical scientists to effectively use animals in human health-related research. Special attention is given to those animal resource activities that are broadly supportive of the missions of the various NIH components. The Branch objectives are accomplished through a Primate Research Centers Program, a Laboratory Animal Science Program, and Research Contracts. The ARB has used the research contract mechanism as an adjunct to its resource grant programs to support specific, essential services or to initiate activity in vital resource areas that have not responded or are not eligible to respond to the grant mechanism.

For further information write to Dr. Charles McPherson, Chief, Animal Resources Branch, Division of Research Resources, Bethesda, Maryland 20014.

COLLABORATIVE (CONTRACT) ACTIVITIES OF
THE NATIONAL INSTITUTE ON AGING

The National Institute on Aging (NIA) was recently established to conduct and support biomedical, social, and behavioral research problems of the aged.

The current contract research program of the NIA was developed to strengthen extramural research supported by grants. For example, contracts are used to make available aged animals and cell resources to investigators for research on aging. Those activities will be increased to support an expanded program of research.

The NIH plans to give greater emphasis to support of aging research where the contract mechanism seems appropriate. This will include the support of selected studies on causes and mechanisms of aging, medical problems of aging, and psychosocial problems of the elderly.

MINORITY AFFILIATION

The NIH is implementing a policy to increase its efforts to involve minority and women's organizations in the mission of the NIH. A major element of this involvement is the identification of those organizations and individuals with whom we have already established contact; a second is to reach others not now in communication with us.

We now have many thousands of individuals and organizations who receive issues of the *NIH Guide* and we maintain in our automated mailing system a number of codes which identify specific interests of our addressees. We wish to expand this system in order that we may reach minority and women's organizations with specific mailings.

Would you kindly enter this information in the space provided on the back, if applicable, and return.

Please fill out this form if you wish to be put on the mailing list, wish to indicate a change of address, or wish to indicate a change in your areas of interest.

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REQUEST FOR INCLUSION ON MAILING LIST (NIH GUIDE FOR GRANTS & CONTRACTS)

If known, enter your File no. _____
(It appears to the right of your name
on the mailing label for the Guide)

Minority or Women's
Educational Institution

Name: _____

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Other Minority
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I would like to receive the following:

- 1000 The Guide
1100 Guide and all supplements
1200 All supplements only
1300 Those supplements indicated below

If item 1300 was checked, please check one or more of the boxes below to indicate the areas of your interest. Supplements will be sent to you for each area checked, as they become available:

1400 National Cancer Institute (All Programs)

- 1401 Cancer Treatment
1402 Viral Oncology
1403 Carcinogenesis
1404 Field Studies and Statistics
1405 Cancer Control Program
1406 Tumor Immunology
1407 Cancer Detection and Diagnosis
1408 Breast Cancer

1500 National Eye Institute (All Programs)

1600 National Heart and Lung Institute (All Programs)

- 1601 Arteriosclerosis and Hypertension
1602 Cardiology including Ischemic Heart Disease
1603 Lipid Metabolism
1604 Cardiovascular Devices
1605 Clinical Applications and Prevention
1606 Blood Diseases and Resources
1607 Lung Diseases

1700 National Institute of Allergy and Infectious Diseases
(All Programs)

- 1701 Viral Diseases
1702 Bacterial Diseases
1703 Parasitic Diseases
1704 Research Resources
1705 Transplantation and Immunology

1800 National Institute of Arthritis, Metabolism and
Digestive Diseases (All Programs)

1900 National Institute of Child Health and
Human Development (All Programs)

- 1901 Contraceptive Development
1902 Evaluation of Existing Contraceptive Methods
1903 Social Science Res. Related to Population
F34 Pregnancy and Infancy
F35 Mental Retardation & Developmental Studies
F36 Human Learning & Behavior
F37 Developmental Biology & Nutrition

2000 National Institute of Dental Research
(All Programs)

2100 National Institute of Environmental Health
Sciences (All Programs)

- 2101 Environmental Physical Factors
2102 Mutagenesis
2103 Pharmacology and Toxicology
2104 Reproduction and Development

2200 National Institute of General Medical Sciences
(All Programs)

- 2201 Automation of the Clinical Laboratory
2202 Pharmacology/Toxicology
2203 Genetics and Genetic Chemistry

2300 National Institute of Neurological Diseases
and Stroke (All Programs)

- 2301 Collaborative Perinatal Project
2302 Infectious Diseases
2303 Epilepsy and Convulsive Disorders
2304 Head Injury and Stroke
2305 Epidemiologic Studies
2306 Communicative Disorders
2307 Biomedical Engineering and Instrumentation
2308 Neural Prosthesis
2309 Supporting Services

2400 Division of Research Resources (All Programs)

F112 National Institute on Aging (All Programs)

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