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NCAB REVIEW OF CANCER CONTROL PROGRAM FINDS IT HAS MADE SUBSTANTIAL PROGRESS BUT HAS PROBLEMS

No part of NCI's operations has been subjected to more criticism in the last four years than the Cancer Control Program and the unit that runs it—the Div. of Cancer Control & Rehabilitation. Much of the criticism has its origins in the vague definitions of what the program is supposed to include; much was based on what the critics felt were inappropriate or low priority projects funded by DCCR; some came from those whose contract or grant proposals were disapproved or given too low priority to be funded; and some was based on what

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In Brief

FDA ONCOLOGIC DRUGS ADVISORY COMMITTEE GETS NEW CHARTER, GEORGETOWN'S SCHEIN IS CHAIRMAN

PHILIP SCHEIN, head of the Div. of Medical Oncology at Georgetown Univ., will be chairman of the newly rechartered Oncologic Drugs Advisory Committee for the Food & Drug Administration. The committee's charter expired last year, and FDA said it had some trouble getting the charter renewed, what with the Administration's efforts to trim the number of advisory groups. The committee's work was vital; FDA relied on it for advice in considering approval of NDAs (permitting drugs to go on the market) for anticancer agents. The committee also rewrote package inserts for anticancer drugs, and advised on other matters, such as clinical testing guidelines (generally, committee members opposed them). Four other holdover members will join Schein on the 11-member committee—Stanley Balcerzak, Ohio State Univ.; Bernard Fisher, Univ. of Pittsburgh; Richard McHugh, Univ. of Minnesota; and John Whitaker, medical oncologist and hematologist in private practice in Austin. First meeting of the new committee will be in November or December. . . . **"BIOLOGY OF BRAIN** Tumors," the proceedings of a workshop organized by UICC, discusses classification, genetics, epidemiology and growth kinetics of human brain tumors. Available from the Managing Editor, UICC, 3 rue du Conseil-General, CH-1205 Geneva, Switzerland, for 15 Swiss Francs. . . . **OSHA RULES** requiring lab workers to shower after handling the potent carcinogen aflatoxin are not appropriate, Univ. of California biochemist Bruce Ames says. "FDA allows 15 micrograms of afflatoxin per one pound jar of peanut butter. Considering the relative exposure a lab worker would get, it seems silly to have them shower everytime they handle afflatoxin," Ames said. . . . **GILBERT OMENN**, who represents the White House Office of Science & Technology Policy on the National Cancer Advisory Board: "We're being unrealistic to think that any review would lead to derecognition. Unless it is tied to a criterion, such as the core grant, there never will be derecognition of any comprehensive cancer center."

CONTROL PROGRAM REVIEW COMPLETED; PROBLEMS, CHALLENGES DESCRIBED

(Continued from page 1)

critics felt was mismanagement of the program and division by DCCR staff.

Last November, the National Cancer Advisory Board at the urging of Panel Chairman Benno Schmidt asked for a complete review of DCCR activities. NCAB member William Shingleton, who is chairman of the DCCR Advisory Committee, was asked to conduct the review and report to the Board.

Shingleton presented his first report at the May meeting of the Board, covering 14 DCCR funded programs (***The Cancer Letter,*** June 30). Shingleton completed the report at the September Board meeting, covering the rest of the programs and also presenting an overall evaluation of DCCR activities.

The report noted "some of the problems and challenges encountered in development of the present Cancer Control Program:"

"Since the division was inaugurated in 1974, certain considerations have provided challenges and controversy in establishing the program. Some of these are:

"1. Present perceptions of 'cancer control' are influenced by the long and vacillating nature of this program as revealed through a historical review of this federal activity prior to 1971. This program historically has lacked a clear definition. There has been variable resistance to cancer control activities by private industry, organized medicine, and to some degree by the scientific research community. There has also been in the past, prior to the present program, a lack of stability of location and continuity within the federal government.

"2. The present Cancer Control Program was established late in the drafting of the National Cancer Act. The intent was to re-establish cancer control as a vital part of the National Cancer Program. Prior cancer control activities had been allowed to lapse in the late 1960s.

"3. Because cancer control spans many intervention areas and interfaces with research, clinical practice, and public health, there has been continued questioning of a precise definition of cancer control. There has been difficulty in accepting the broad range of peers required.

"4. The control program was put into a biomedical research institution (NIH, NCI) which has had little public health orientation.

"5. Cancer research thus far has produced many 'midway' technologies, not final cures.

"6. The present day health delivery system is more oriented to curing acute disease than to preventive medicine, or dealing with terminal care in a systematic fashion.

"7. While many believed in the early days of the program that significant lags were present, experience of the past four years shows that a more significant problem for cancer control is to modify the premature application of new methods/techniques.

"8. There is a relative lack of proven methodology for educational approaches to bring about effective and needed change in life style habits in the population which relate to certain types of cancer incidence. There is need to consider new approaches in mass health education for children.

"9. There has been considerable political and economic resistance to eliminating known carcinogenic substances in the environment (cigarette smoking).

"10. There is an urgent need for an expanded scientific base for cancer prevention.

"11. Needs for manpower to carry out a natural cancer control program have emerged, and these needs must be assessed.

"12. In the early days of the present control program, the grant mechanism was not always suitable for demonstration type programs and difficulties were encountered in obtaining meritorious applications. That situation is now improving and the number of meritorious applications is increasing.

"13. DCCR has the mandate of doing basic or clinical research in rehabilitation. In addition, cancer control has the responsibility of testing the effectiveness of demonstrations which can be viewed as experimentation. It is DCCR's responsibility to do research in assessing needs (state-of-the-arts, patterns of care, and epidemiological factors), and in determining the appropriate mechanisms to effect diffusion of information about cancer. The assignment of rehabilitation research and the use of research methodologies in establishing and evaluating programs has not been well understood by many.

"14. Cancer control efforts require close working relationships with voluntary groups, professional societies, federal, state, and governmental agencies. This kind of activity requires a great deal of effort and long period of time."

The report summarized recommendations of the CCRAC:

1. Expand cancer control experimental studies in selected areas—educational approaches, behavioral modification, transfer methodologies, limited field testing of interventions, and limited epidemiologic studies to refine the existing information bases.

2. Continue state-of-the-art consensus development meetings and other reviews to reduce premature transfer in the control program and by the community.

3. Continued expansion of primary prevention programs by demonstration and education programs is recommended.

4. Continue detection demonstration projects in cervical and breast screening to planned completion.

5. Continue to limit broad screening programs to

cervical and breast until state-of-the-art conferences for other cancer sites are held.

6. Upgrade communication and planning with increased support of cancer control outreach activities in cancer centers.

7. Strengthen coordination of cancer control activities at NCI with cancer control activities at state and local levels.

8. An assessment of manpower resources available to carry out an expanding national program in cancer control should be done.

9. Expand community programs, since it is estimated that 80% of cancer patients are managed in community hospitals. Limit community based programs to present number until experience is evaluated. Complete CCRAC concept review of Clinical Oncology Programs before expansion.

10. Expand pioneering program in cancer rehabilitation research, pain management, nutritional support, hospice and psychosocial interventions.

11. Provide contractors and grant applicants with guidelines and advice for evaluation methodology.

12. Continue present pattern of funding demonstration programs providing seed money for developing local capabilities and limit demonstrations to 3 to 5 years with "bell shaped" funding curve.

Some 'significant accomplishments' were listed in the report:

1. Over one million women in high risk populations have been screened in DCCR breast and cervical cancer screening programs.

2. Twenty-five demonstration networks have been established that link community hospitals to a primary care hospital which provides oncologic expertise in the treatment of leukemia/lymphoma, head and neck, and breast cancer. Over 8,000 cancer patients have benefited from the expertise provided by these networks.

3. The first organized hospice in the United States was organized and funded in New Haven, Conn. Three projects have been initiated to field test approaches to the hospice concept. These will provide the first scientific evaluation of hospice in the United States.

4. A major emphasis program to study or demonstrate pain management for cancer patients has been developed. It is estimated that 40-60% of dying patients have severe pain as their most distressing symptom.

5. DCCR has played a major role in studying effects of in utero exposure to diethylstilbestrol. It is estimated that one-two million exposed daughters can profit from these projects.

6. A patterns of care study for radiotherapy has been initiated. The study design requires a national survey of radiation therapy practices. All cancer patients receiving such therapy will benefit from this project. The study is a 'landmark' in the sense of having a professional medical society (American College of Radiology) assess practices of its members.

7. State-of-the-art consensus development conferences have been established to determine those cancer interventions which would be of use to practitioners of medicine throughout the United States. The emphasis of consensus meetings has been related to an examination of cancer screening on a site by site basis, (thyroid, cervical, endometrial, breast, bladder, colo-rectal, lung). The thyroid alert to physicians and the public resulted from the thyroid state-of-the-art meeting.

8. A major program to systematically study the psychosocial impact of cancer on patients and family has been developed. Psychosocial considerations are major components of all rehabilitation Cancer Control Programs.

9. DCCR has contributed to cancer control activities in 1,900 community hospitals, representing 47% of the 4,000 community hospitals with 50 beds or more in the United States. More than 35,000 health professionals have been involved in programs funded by DCCR.

10. It has helped create awareness and funded multiple programs in cancer rehabilitation. Rehabilitation research programs have been implemented.

11. Widespread awareness of the need for and the funding for training of oncology nurses has been developed.

12. An asbestos education task force has been developed which can serve as a model for other cancer prevention problems.

The report covered planning and review:

"DCCR has used a system for planning the control program which maximizes the use of non-NCI peer reviews using scientific reviews and consultants in the pre-award process, peer review of proposals and grant applications, and reinforcing post award monitoring through the use of merit peer review. Many disciplines were represented, including clinicians, epidemiologists, behavioral and social scientists, allied health professionals, lay persons, and public health professionals. These provided an independent view of relevance, need, priority and proposed approaches to individual programs.

"In a series of planning conferences in 1972-1974, the Cancer Control Program was defined in terms of objectives and approaches. In addition to NCI staff, some 120 non-NCI scientists, clinicians, and experts in associated fields provided the planning for the overall program. Two additional conferences were conducted where 86 non-NCI experts provided further planning for rehabilitation and education activities. In all conferences the definition was succinct in objectives for each intervention area—prevention, diagnosis, pretreatment evaluation, treatment, rehabilitation and continuing care—and for the primary program components—demonstrations in the community activities area and the intervention pro-

gram area. Most important, detailed descriptions of approaches to individual projects were provided. In implementing the Cancer Control Program, these detailed plans were followed and the control program today, basically, is comprised of these planned projects.

"In the pre-award phase of implementing the Cancer Control Program, concept review by DCCR's scientific board, the CCRAC, has been used. This advisory committee has utilized an average of five consultants per meeting to augment the 20 person committee. In addition, DCCR staff utilized over 100 consultants to develop program descriptions and reviewed each program description internally through the DCCR executive staff.

"In the award process, applications were received by four peer review committees. These were structured to assure that non-NCI expertise existed for each intervention area and for the health care and lay community being affected by the proposed program. The contract oriented committees were:

"Cancer Control Prevention, Detection, Diagnosis & Pretreatment Evaluation Review Committee.

Cancer Control Treatment, Rehabilitation, and Continuing Care Review Committee.

Cancer Control Community Activities Review Committee.

"The Cancer Control & Rehabilitation Grant Review Committee reviewed all DCCR grant applications. One of the problems encountered by the review, especially grants, was the disapproval rate. Since FY 1974, some 320 applications have been received with 126 approved at an acceptable priority score. All grants receiving a score better than 250 have been funded.

"Essentially all of the contract peer reviews used some three to five consultants as specialists to augment the chartered committees."

Two suggested contributing causes for the high disapproval rate are the quality demanded by peer reviewers and the lack of understanding by the community of a cancer control project and an early appreciation of the problems to be faced and effort needed to overcome the community interface problems.

"In post-award monitoring, DCCR has utilized the project officer site visit augmented by consultants with specific expertise. A merit peer review committee for contracts has been used for reviewing the performance of the ongoing contracts. This critical review of the program science and administration has been a great benefit to improving each project area. Since 1976 some 200 merit reviews have been conducted. A few projects (20) were phased out early. Another 19 were not continued into a planned follow on contract—such as from a planning contract into an implementation contract. A number of other projects were not renewed.

"To keep DCCR abreast of state-of-the-art relative to cancer control activities and reduce premature transfer, DCCR introduced state-of-the-art consensus development conferences in 1975. In order of occurrence, state-of-the-art reviews have included: thyroid-radiation induced cancers, cervical cancer screening, endometrial cancer, breast cancer screening, bladder cancer screening, colo-rectal cancer screening, and lung cancer screening. These formalized processes have contributed significantly in maintaining quality in the DCCR programs."

CCRAC members scored each program as it was reviewed for them, grading them relative to objective, priority and approach. Objective refers to the relevance and importance of the program to Cancer Control Program goals and objectives as mandated by Congress, defined by DCCR planning, and reviewed and modified by CCRAC. Priority refers to the program in terms of funding priority when considering the need for such a program and the benefits to be derived. Approach refers to an assessment of the approach being field tested and/or demonstrated when considering the merits of the scientific component, the ability of the approach to solve the problems being addressed, and the effect of the program on long term change.

Evaluation of the remaining eight programs:

CANCER CENTER OUTREACH PROGRAM

The Cancer Centers Outreach Program includes the activities that are being supported in comprehensive and non-comprehensive cancer centers. Major elements of this program consist of support, core planning, organization, development and support of staff, and 'seed' money for demonstration projects. Examples of the demonstration projects would be nurse training, physician education, and consultative services.

In fiscal year 1977, $7,493,000 was allocated to 14 comprehensive cancer centers receiving outreach grants. In addition, the cancer centers have grants and contracts ($8 million) in various cancer control program areas. The total 1977 funding to the cancer centers was $15.4 million. This program, as scored by the committee, shows a high rating on objective, a good priority, and an average approach. It was considered to be an important transfer mechanism for cancer control. The education components of the program need strengthening. Prevention and detection efforts need improvement.

Success was noted to be uneven due to time required to gain community support. Demonstration projects should be self supporting after a period of seed money funding for three to five years. The suggestion was made that some of these programs need assistance with improved communication with DCCR staff and other consultants.

CANCER INFORMATION SYSTEM PROGRAM

There are 19 projects funded for $795,000 in FY 1977. These projects are major components of each

comprehensive cancer center outreach program. They provide up to date information on cancer from comprehensive centers to the public in their communities. There is a toll free system serving 20 states in which approximately half the people in the country live. Public education programs use the telephone, brochures, newsletters, etc. The projects train volunteers and recruits for parts of the activity. This project was rated as having a good objective, an average priority, and an average approach.

CCRAC considers this service to be necessary, but suggests that efforts should be made to continue to work towards making it more cost effective. More reliable evaluation of each project is needed, and there is a need to correlate the communication techniques with specific target populations. The suggestion was made to continue use of this mechanism to help publicize and give information on crisis issues such as mammography, asbestos exposure, and the effects of diethylstilbestrol.

COMMUNITY BASED CANCER CONTROL PROGRAM

This program has six funded projects for five years with a total FY 1977 funding of $6,800,000. There is a 50-50 cost sharing. The program was implemented to test the concept of a coordinated approach to community cancer control, improving prevention, detection, diagnosis, treatment, rehabilitation, and continuing care interventions for three to five cancer sites. Population based data systems are used as a baseline for evaluation. It was appraised to be a very important, ambitious, highly visible, and well planned program. Sophisticated evaluation elements were built into the program. It is difficult to evaluate how effective or successful the projects will be since only two of the projects have been implemented for more than one year. It was suggested that the careful evaluation of the currently funded projects continue, and that no new programs be added at this time.

CLINICAL ONCOLOGY PROGRAM

This program is designed to test the community cancer concept and to demonstrate that community hospitals can provide effective multidisciplinary diagnosis, treatment and rehabilitation services to patients in their own communities—where 80% of cancer patients are treated. There are seven programs which were funded with a FY 1977 budget of $700,000. Patient management guidelines have been developed for the evaluation and treatment of the most frequently seen tumors. Referral links to major medical institutions and cancer centers and advanced rehabilitation and continued care methods have been implemented. Cancer educational activities for community practitioners are also developed.

This program appears to have the most clearly documentable direct impact upon patient care and a thorough program area evaluation is needed. The impact is likely to remain long after DCCR support ends. There is some concern regarding possible overlap with other community projects. CCRAC recommended that the staff of DCCR develop a report outlining the goals and objectives of this program in comparison with other community programs, and present this at a future meeting of CCRAC.

SURVEY OF EXPOSURE TO CHEMICAL CARCINOGENS AND RECOMMENDED CONTROL AND INTERVENTION PROGRAMS

$367,000 in FY 1977. The contractor has reviewed the literature available and developed resource documents on specific chemical carcinogens. A total of 147 chemicals was reviewed and prioritized. Dossiers on 20 chemicals giving physical and chemical properties, human exposure data, biological properties, epidemiological and toxicological data have been completed. Monographs have been prepared on vinyl chloride, asbestos and DES. Information has been developed for public and professional education uses. The asbestos monograph will serve as a major resource document in HEW's initiative for the asbestos alert.

The committee considered the program to be very important, but very expensive. Useful control strategies need to be developed further for dealing with carcinogenic exposure. There will be a wide distribution of monographs and dossiers. Plans are in progress to reissue a request for proposal to update data base and prepare additional monographs.

OCCUPATIONAL CANCER INFORMATION AND ALERT PROGRAM

This program was funded at $300,000 in FY 1977. This program is an interagency agreement with OSHA to develop educational programs for workers exposed to occupational carcinogens. The committee suggests that the DCCR should continue to provide funds to OSHA for worker education, utilizing OSHA's growing expertise in education, labor relations and dealing with management. The objective and priority of this project were rated high. The approach was rated above average.

OCCUPATIONAL INTERVENTIONS PROGRAM

Funded at $1,666,000 for FY 1977. This prevention program includes education and demonstration projects for occupationally related cancers—such as asbestos and vinyl chloride. There is an emphasis on both worker and physician education. One major component of the program is the Asbestos Education Task Force which serves as a major resource for the HEW initiative on asbestos. The prevention program addresses the problem of smoking cessation, risk notification, exposure-prevention methods, and psychosocial support.

The objective was considered to be very important and the priority high. However, some difficulty has developed in the projects related to the problem of limiting "service" elements and providing mechanisms for long term followup of the workers. Final evaluation of the asbestos and vinyl chloride workers projects are in progress. The process of dealing with

other chemical exposures in the workplace is being worked out.

RADIATION PHYSICS PROGRAM

Funded for $898,000 for FY 1977. This program supports six regional centers and a coordination program to monitor radiation practices for diagnostic and therapeutic radiology in DCCR programs. The technology developed relative to radiation exposure in mammography is being disseminated throughout the United States by way of an interagency agreement with the Bureau of Radiologic Health (FDA). This program was judged by the committee to be of high quality from the standpoint of objective, priority and approach.

Map on opposite page shows state by state distribution of NCI grants and contracts supported by the Div. of Cancer Control & Rehabilitation

HEROIN, THC STUDIES FOR TREATMENT OF PAIN, DISCOMFORT NOW UNDER WAY

Seymour Perry, special assistant to NIH Director Donald Fredrickson, heads the Interagency Committee on New Therapies for Pain and Discomfort. The committee's primary interest at present is investigation of the possible benefits of heroin and marijuana in cancer and other therapy.

Perry presented this report to the National Cancer Advisory Board:

Heroin—The Div. of Cancer Treatment has obtained an IND for heroin in order to sponsor studies, within its existing drug testing network, of the efficacy of heroin in treating pain and discomfort in patients with advanced cancer. Raymond Houde at Memorial Sloan-Kettering Institute has already obtained a grant from the National Institute on Drug Abuse to study the pharmacology of opiate analgesics, including heroin. His IND for heroin was recently approved by the FDA, and he has given the DCT permission to cross-file.

The pharmaceutical Research Branch of DCT is overseeing the formulation of a new dosage form of heroin, and through a resource contractor, will be responsible for the distribution of heroin to approved investigators. (For further information in this area, contact Paul Davignon, Chief, PRB, 301-427-7346.)

The Investigational Drug Branch (IDB) of DCT is the focal point for the evaluation and review of clinical trials of heroin sponsored by DCT. It is currently negotiating with a DCT Phase I-II clinical contractor for the initiation of a study of heroin vs. morphine. The IDB is also responsible for the actual filing of DCT's IND for heroin, and it will be processing additional protocols for heroin research which may be submitted by other DCT grantees and contractors. (For further information on these matters, contact Michael Jensen-Akula, Special Assistant to the Chief, IDB, 301-496-1197.

Marijuana, or tetrahydrocannabinol (THC) and Nabilone—At a recent symposium on research on the control of cancer chemotherapy-induced vomiting, it was evident that both THC and a structurally similar synthetic compound, nabilone (Eli Lilly), have potential for controlling the nausea and vomiting produced by cancer chemotherapy. These drugs will probably prove to be more effective than the agents of limited value, e.g., the phenothiazines, which are currently the "standard" for treating emesis in chemotherapy patients. During the discussion of the presentations at this meeting, it also became apparent that there was a need for additional studies and increased communication and coordination among workers in this field.

The IDB will cross-file on the IND of the Surgery Branch, NCI, for THC in order to sponsor further studies of this drug. Again, these studies will take place through the existing clinical trials network of DCT. The PRB will work to improve the current formulation of THC, and the Cancer Therapy Evaluation Program will assign a staff person to oversee DCT's involvement in emesis control research and to establish a working group to help coordinate and review proposals and research in this area. In addition, the DCT will continue to discuss with Eli Lilly the possible participation of DCT grantees and contractors in Lilly's studies of nabilone, along with a possible cross-filing on their IND.

The following investigators are actively conducting research on THC and nabilone in cancer chemotherapy patients.

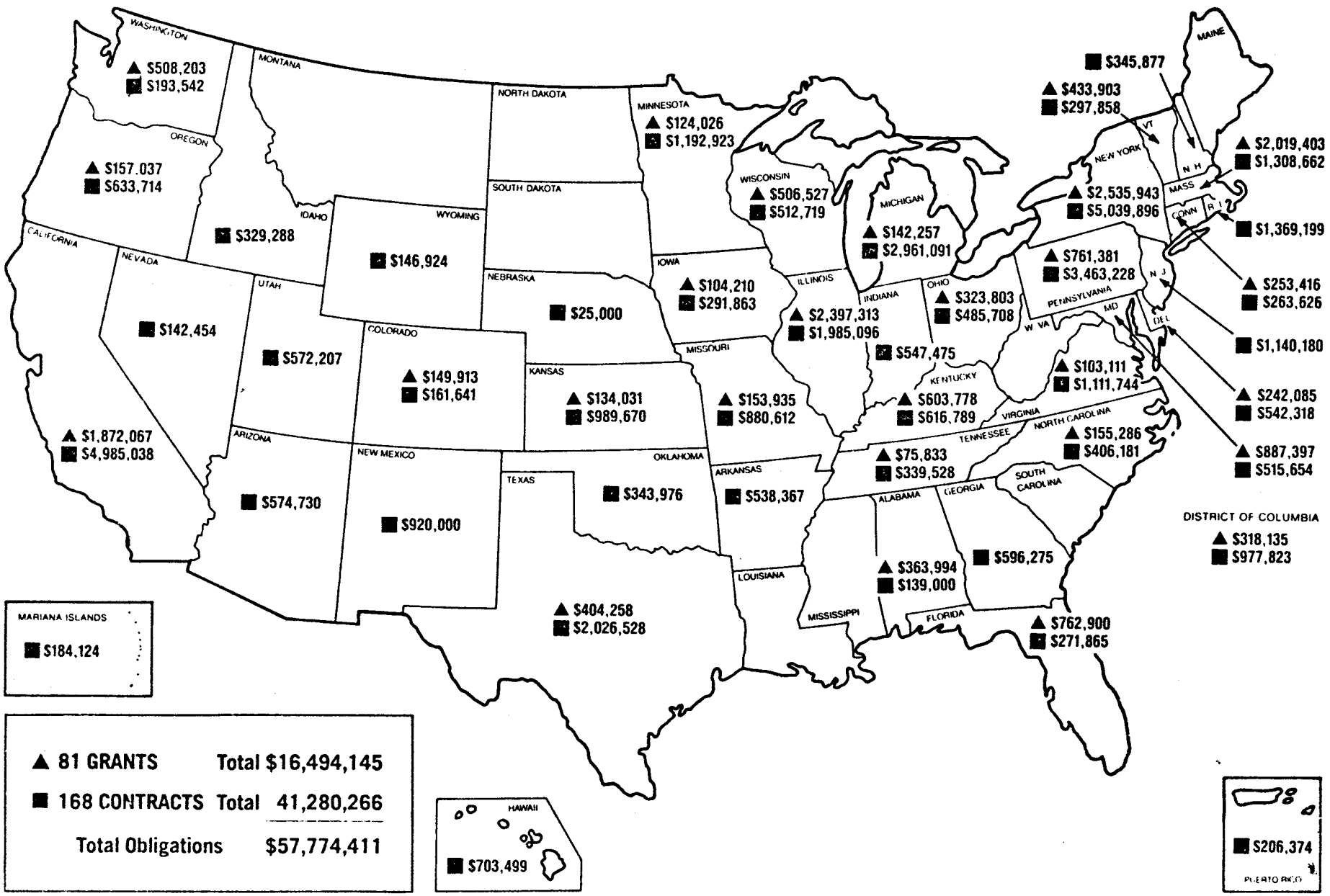
THC—Alfred Chang, NCI; Stephen Frytak, Mayo Clinic; Solomon Garb, American Cancer Research Center, Denver; John Laszlo, Duke Univ. Medical Center; Stephen Sallan, Sidney Farber Cancer Institute; Ronald Stephens, Univ. of Kansas, and J. Thomas Ungerleider, UCLA School of Medicine.

Nabilone—Lawrence Einhorn, Indiana Univ.; Terence Herman, Univ. of Arizona; Irwin Krakoff, Vermont Regional Cancer Center; and Charles Young, Memorial-Sloan Kettering Institute.

Paul Stark, Lilly Research Labs, has had the primary responsibility for Lilly's research on nabilone.

Jane Henney, NCI, has the overall responsibility within the Div. of Cancer Treatment for coordinating its research in Schedule I drugs. Additional inquiries not resolved by the above information should be referred directly to her office, 301-496-6711.

DISTRIBUTION OF CANCER CONTROL GRANTS AND CONTRACTS—FISCAL YEAR 1977



▲ 81 GRANTS	Total	$16,494,145
■ 168 CONTRACTS	Total	41,280,266
Total Obligations		$57,774,411

NCI CONTRACT AWARDS

Title: Lung cancer control–Detection and therapy, phase II, continuation
Contractor: Johns Hopkins Univ., $130,586.

Title: Hormone markers for the detection and diagnosis of cancer, continuation
Contractor: Harbor General Hospital, Torrance, Calif., $30,000.

Title: Isolate/characterize antibodies to collagen, procollagen
Contractor: Yale Univ., $270,400.

Title: Improvement and evaluation of imaging capabilities in the detection of early pancreatic cancer
Contractor: Univ. of Chicago, $668,996.

Title: Studies and investigations of the effects of estrogen and progestin on the biological behavior of the mammary gland during the neonatal period, continuation
Contractor: Baylor College of Medicine, $75,000.

Title: Prognostic significance in breast cancer of the immunologic response of cells from regional lymph nodes
Contractor: Sloan-Kettering Institute for Cancer Research, $321,940.

Title: NCI sera bank facility for breast cancer task force
Contractor: Mayo Foundation, $284,200.

Title: Contribution of fat loss to weight loss in patients with cancer
Contractor: Massachusetts General Hospital, $307,703.

Title: Comprehensive cancer center communications network, renewals
Contractors: Howard Univ. Cancer Research Center, $458,663; and Univ. of Miami, $489,565.

Title: Studies on molecular biology of oncornaviral proteins
Contractor: Johns Hopkins Univ., $242,320.

Title: Breast Cancer Detection Demonstration Program, modifications
Contractors: Univ. of Pittsburgh, $204,550; Cancer Research Center, Columbia, Mo., $314,182; Univ. of Michigan, $333,934; and Univ. of Cincinnati, $198,389.

Title: Prototype head and neck network demonstration project, renewals
Contractors: Univ. of Wisconsin, $135,039; Univ. of Arkansas Medical Center, $298,887; Hahnemann Medical College, no amount listed; Northern California Cancer Program, $324,585, and New York State Dept. of Health, $281,819.

Title: Demonstration of cancer rehabilitation facilities and/or departments, renewal
Contractor: Emanuel Hospital, Portland, Ore., $277,717.

Title: An organized approach by the family physicians to the diagnosis and management of selected forms of cancer, renewal
Contractor: American Academy of Family Physicians, $61,007.

Title: Prototype network demonstration project in breast cancer, renewals
Contractors: Oklahoma Medical Research Foundation, $272,623; Institute for Cancer Research, Philadelphia, $218,923; New England Medical Center Hospital, $235,294; Wilmington Medical Center, $199,967; Georgia Cancer Management Network, $245,000; State Univ. of New York, $257,687; Dartmouth College, $199,380; Albany Medical College, $169,000; Univ. of Alabama, $117,426; and Univ. of Vermont, $238,887.

Title: Research on transformation of differentiating cells, continuation
Contractor: Univ. of California (Berkeley), $35,000.

Title: Complete the study of integration sites of Papovavirus genomes in transformed cells
Contractor: Univ. of Illinois, $150,000.

Title: Liposomal encapsulation of antitumor agents
Contractor: Medical Research Council, London, $188,900.

The Cancer Letter —*Editor* JERRY D. BOYD

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