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NCI's Frei & Freireich Era Lauded As Researchers Receive First NIH Distinguished Alumi Award

When Emil "Tom" Frei and Emil "Jay" Freireich came to work at NCI in 1955, the time was right for a major breakthrough in treatment research on cancer, a disease previously thought to be incurable. When

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In Brief

White House Floats Healy's Name For NIH Post; USC To Enhance Norris Center With NCI Grant

BERNADINE HEALY, research director of the Cleveland Clinic, is the latest "leading prospect" for NIH director in the 14 month farcical search by the Bush Administration. The White House leaked Healy's name to the media last weekend in what is apparently another trial balloon. If Healy doesn't draw too much fire from antiabortion groups (she was a member of an advisory panel that recommended government funding of research using fetal tissue), she may get the appointment. David Korn, dean of the Stanford School of Medicine; Leon Rosenberg, dean of the Yale School of Medicine; and William Danforth, chancellor of Washington Univ. were others whose names have been dropped by White House sources as No. 1 candidates. Healy, 46, was deputy director of the White House Office of Science and Technology Policy from 1984 to 1986. She represented the OSTP director as an ex officio member of the National Cancer Advisory Board during that time. Healy is a cardiologist, has been president of the American Federation for Clinical Research and of the American Heart Assn. . . . **.UNIV. OF SOUTHERN** California Board of Trustees approved a $47 million addition to the Kenneth Norris Jr. Cancer Hospital and Research Institute. Planed for completion in 1994, the 150,000 square foot structure will include an ambulatory care center that will enable the center to double its outpatient volume, laboratory space for cancer cause and prevention, faculty offices, and other accomodations. The hospital will not add to its present limit of 60 beds. The project is being financed by private contributions, state bonds and a $1.2 million construction grant from NCI. . . . **GRETCHEN HASCALL** is acting executive secretary of FDA's Oncologic Drugs Advisory Committee. She replaces David Hersey, who retired in May. Hascall is exec sec of three other FDA advisory committees, including Biological Response Modifiers. . . . **NEW MEMBERS** of ODAC are Harold Harvey, professor of medicine in the Div. of Medical Oncology at University Hospital, Hersey, PA; Nancy Kemeny, Memorial Sloan-Kettering Solid Tumor Service; Waun Hong, M.D. Anderson; and Kathleen Pritchard, Toronto Bayview Regional Cancer Center.

First Successful Chemo Regimen, Other Feats Of Frei, Freireich Lauded

(Continued from page 1)

they left NCI 10 years later, they had demonstrated that at least one form of cancer, childhood leukemia, indeed could be cured. In the intervening years, their work set the standard by which all other clinical research, even today, is measured.

For that contribution, the two researchers were honored with the first NIH Distinguished Alumni Award, presented at a symposium in their honor this week. The award, given by the NIH Alumni Association, is to be an annual event.

"We were particularly lucky in time and place," said Frei, who was 31 when he came to NCI. "The clinical center was new, and believe it or not, there was empty laboratory space. The goal here was research. You were expected to do new things. We were ideally positioned to do leukemia research."

"Many of us in clinical research don't live to see the results of our research. It's a privilege to be alive to witness the fruits of our work," said Freireich, who was 28 when he joined NCI. Frei and Freireich both left NCI for M.D. Anderson Cancer Center in 1965, where Freireich is now director of the adult leukemia research program. Frei is now director and physician-in-chief of the Dana-Farber Cancer Institute.

In 1955, less than 1 percent of childhood leukemia patients lived long enough to be considered cured. While a few new drugs had shown antileukemic activity as single agents, most patients who responded relapsed quickly due to drug resistance, which made single agent chemotherapy useless for long term control of the disease.

Patients also suffered infections and complications that were as life-threatening as the disease itself.

Despite a consensus among cancer specialists that there was no cure for the disease, Frei and Freireich persisted in their research.

"The process of discovery is rejecting paradigms that have already been proved," Freireich said later.

Working together and with their trainees--who now are spread around the U.S.--Frei and Freireich discovered they could combine drugs and use larger doses for shorter periods of time, which made the drugs safer and more effective. They advocated longer rest periods between treatments to allow normal healthy cells to recover.

Many of the methods now used to treat opportunistic infections were developed by Frei & Freireich. They developed the method to prevent bleeding by transfusion of blood platelets. They showed how platelet transfusion could ward off the destruction of platelets by the immune system. They proved that infections could be stopped by transfusions of white blood cells. They advocated the use of antibiotics and germ-free rooms for patients.

"These are things we now take for granted," said Div. of Cancer Treatment Director Bruce Chabner, who presented the award to the researchers.

Much of what is known today about remission induction in the treatment of leukemia may be traced to their landmark 1962 study on the combination treatment VAMP--vincristine, amethopterin, mercaptopurine and prednisone. That research--besides providing curative treatment for a previously incurable disease--also led to the development of treatments for metastatic breast cancer, and curative treatments for Hodgkin's disease, non-Hodgkin's lymphoma, metastatic germ cell tumors, osteogenic sarcomas, rhabdomyosarcoma and Ewing's sarcoma.

Today, the five-year survival rate for children with acute lymphocytic leukemia now exceeds 75 percent.

For their work in chemotherapy, Frei & Freireich were given the Albert Lasker Award in 1972 and in 1983, shared the General Motors Research Foundation's Charles Kettering Prize.

"They opened a whole new era in for those of us interested in cancer research by proving that drugs do have a curative effect," said Paul Marks of Memorial Sloan-Kettering Cancer Center.

After moving to M.D. Anderson, the two researchers continued their work in adult leukemia, examining the use of combination therapy. They developed a regimen of cytoxan, oncovan, arabinoside and prednisone (COAP), which was demonstrated to cause complete remissions in half of the 300 patients treated, with an average duration of one year. Between 15 to 20 percent of the patients were cured.

At the symposium to honor Frei & Freireich,

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Vincent DeVita, physician-in-chief at Memorial Sloan-Kettering and former NCI director, put the researchers' accomplishments in historical perspective:

"Think back about the attitude toward cancer at that time. It was widely considered an incurable disease. The major question was whether you could palliate patients with chemotherapy, and was it worth it? Of course, there was no cure.

"I remember being quite stunned when I arrived and I saw my first remission with chemotherapy....The basic principles for the use of chemotherapy were established here under Frei and Freireich."

Another legacy of Frei & Freireich was the clinical associate program, which was the first oncology training program in the country.

DeVita also credited the two with causing excitement over cancer research. "Their accomplishments directly led to the legislation creating the National Cancer Program," he said.

DeVita, who was one of the last Frei & Freireich clinical associates, said he learned from Frei that "you didn't have to be older or more senior" to accomplish a great deal.

In 1965, DeVita left NCI for what was supposed to be a two-year stint at Yale, but he returned after a year. "I was frustrated because the advances I saw at NIH were not being used in the hinterlands. I saw people who needed platelets but weren't getting them because platelets were not supposed to work."

Freireich, recognizing the impermanence of scientific achievements, said that as late as 1975, he participated in scientific meetings "where the question was, 'Does chemotherapy cure leukemia?'" As some leukemia patients have been known to relapse many years later, it is important to investigate the mechanisms of relapse and to study whether there is a total cure, he said.

"In my personal practice, I have a young woman who was cured, went on to get married and have children, and 12 years later she came back with a disease similar to the disease she had earlier," Freireich said.

Reviewing his work since leaving NCI, Freireich said leukemia is still an important disease. "Twenty-five years later, AML is much closer to opening the door to common malignancies that it was 25 years ago. My contention is that AML is still the most important disease for understanding common malignancies. The next 25 years will be even more exciting and I hope I'll be here to talk about it."

Frei traced the evolution of combination chemotherapy from 1965 to the present. The development of the VAMP regimen for ALL led to the development of the MOPP regimen for Hodgkin's disease. That led to CHOP for non-Hodgkin's lymphoma, which led to ara-C-D for AML, then CMF as adjuvant for breast cancer, then PVB for testicular cancer, then ABVD for Hodgkin's disease, then AM for adjuvant treatment of osteogenic sarcomas, then PFL for head and neck cancers, then M-VAC for neoadjuvant treatment of bladder cancer, which has led to 5FU/L for adjuvant treatment of colon cancer.

Frei discussed a study at Dana-Farber of PFL vs. previous platinum based regimens for treatment of stage 4 head and neck cancer. PFL has a response rate of 68 percent, compared to 29 percent for the controls, after follow-up of two years.

Frei outlined his "near future," "intermediate future" and "long term" predictions for advances in cancer research:

Near future (up to five years):

--the neoadjuvant approach is going to be successful in head and neck and possibly bladder cancer.

--molecular knowledge on drug resistance, which has taken off in the last five years, will continue to make gains.

--Gains will be made in research on solid tumor microenvironments, monoclonal antibodies, growth factor receptors, specificity, humanization of monoclonal antibodies, membrane receptors and lymphocytes including LAK, TIL and bioengineered ricin-related molecules.

Intermediate future (five-10 years):

--Advances will be made in x-ray crystallography, novel targets such as oncogenes, oncogene products and signal transduction, antiviral agents, cell cycle and antiangiogenesis.

Long range (10-25 years):

--Advances will be made in antisense transcriptional control, invasion and metastasis, splicing and tumor suppressor genes.

"We've got to think of cancer research as a science, and we need to give the investigator the resources for independent, creative work," Frei said.

At the symposium, James Griffin of Dana-Farber discussed his work with growth regulation of leukemia, and Donall Thomas of Fred Hutchinson Cancer Research Center discussed his work on bone marrow transplantation.

ODAC Rejects Amsacrine NDA, Renews Approval Of Idarubicin

FDA's Oncologic Drugs Advisory Committee recommended against approval, on three separate votes taken at the committee's meeting this week, of

amsacrine for use in combination with established antileukemic agents as induction therapy in adults with previously untreated acute nonlymphocytic leukemia.

The votes by ODAC followed comments by the committee's primary reviewer of the drug, David Ahmann, that the new drug application submitted by Parke-Davis Pharmaceutical Research Div. of Warner Lambert should be rejected.

FDA's reviewer, Grant Williams, also recommended against approval.

Amsacrine (Parke-Davis' trade name, amsidyl) has long been considered an active agent against ANNL and has been widely distributed as an NCI Group C drug since 1981. FDA granted it orphan drug status in 1985, and it has received market approval in 33 countries.

ODAC members were not impressed, however, by results from the two clinical trials which were presented in support of the NDA.

The Parke-Davis team making the presentation included Howard Holden, director of worldwide regulatory affairs; Charles Kowal, senior director for clinical oncology; and William Grove, senior clinical scientist for clinical oncology. The two trials were a multi-institution study supported by the company, and a Southeastern Oncology Group (SEG) study supported by NCI.

The Parke-Davis study compared a regimen consisting of amsacrine, ara-C, and thioguanine (AAT) with the regimen considered as standard therapy for ANNL, daunorubicin, ara-C, and thioguanine (DAT). After two cycles, patients were further randomized to observation or a maintenance arm of DAT.

The complete response rate was 50 percent for AAT and 46 percent for DAT.

The SEG study randomized patients to either amsacrine plus ara-C (AA) or daunorubicin plus ara-C (DA). All patients then received DAT, after which they were randomized to observation or DA.

In the SEG study, the complete response rate was slightly higher for the daunorubicin group, 43 percent, to 37 percent for those receiving amsacrine.

In the Parke-Davis study, there was a statistically significant difference in the complete response rate after one cycle, 33 vs. 21 percent, in favor of amsacrine. That prompted FDA to ask ODAC whether response after one cycle when standard therapy was two cycles was significant.

FDA's Williams pointed out that one of the trials showed only borderline evidence of equivalence and the other, the SEG study, none at all. However, FDA staff members and the committee did agree later that equivalence of amsacrine and daunorubicin in the combinations, in complete response rates, had been established.

"These trials were not designed originally as equivalence trials," Williams said. "They were designed to determine if one agent was superior to the other." He added that in meetings with Parke-Davis representatives prior to filing the NDA, it had been agreed that equivalence and not superiority would be the key endpoint to be considered. "At first, they expected amsacrine to produce a 60 percent complete response.

"The statistical issue boils down to this," Williams said to the committee. "How much doubt are you willing to accept to establish equivalence? The figures should not overlap controls. What risk is the oncology community willing to accept to obtain approval of a drug that possibly is inferior? Do we really need another drug that is only possibly equivalent?"

Ahmann argued that no advantage had been shown for amsacrine. "In my opinion, it would be very difficult to approve the application at this time. You could make an argument for approval for treatment of refractory ANNL, but as first line therapy, I personally could not support it."

FDA submitted three questions to ODAC:

"1. In (the Parke-Davis study), the complete response rate with the AAT regimen is 50 percent and with the DAT regimen is 46 percent. This is sufficient evidence that the CR rate with AAT is at worst equivalent to the CR rate with dAT.

"We are interested in the contribution, if any, of amsacrine to the CR rate of the AAT regimen. If the CR rate expected with AT is 41%, as results of prior published studies indicate it may be, then it is within the 95% confidence interval of DAT-AAT and there would be inadequate statistical assurance that amsacrine contributes to the cR rate of the AAT regimen. Is there substantial evidence that amsacrine contributes to the CR rate of the AAT regimen?"

Five committee members voted that there is not, two voted that there is, and one abstained.

"2. In (the Parke-Davis study), the CR rate after one induction course with AAT is 33% and with DAT is 21% (P=0.011). The CR rate after one course was not a primary efficacy endpoint in the protocol. Are these results with this endpoint sufficient basis for concluding that this is a well controlled study demonstrating the efficacy of amsacrine in combination with cytarabine (ara-C) and thioguanine for primary induction therapy of ANLL?"

The committee's "no" vote was 6-0-2.

"3. The SEG study comparing DA to AA shows a 6% lower CR rate on the amsacrine regimen (37% vs.

43%). The 95% confidence interval on the difference in CR rates includes a 16.9% lower CR rate for the amsacrine regimen (43% vs. 26%). Survival using the Wilcoxon analysis is worse on the amsacrine regimen (P=0.023). The median survival time on the DA regimen is 185 days vs. 96 days on the AA regimen. Is this a well controlled study demonstrating the efficacy of amsacrine in combination with cytarabine for the primary induction therapy of ANLL?"

Obviously, it was anything but, and ODAC's vote to that effect was 6-0-1.

FDA Executive Robert Temple said, "I assume the committee would like to see data collected from the Group C use of amsacrine for refractory disease. There is no formal data, and it may be confounded by use of multiple drugs." But he suggested that whatever data are available might be useful in determining if studies should be initiated with amsacrine in combination with other agents for patients who have failed other therapy.

The committee heard a report on two studies which had been mentioned in support of Adria Laboratories' new drug application for idarubicin but whose data was not considered by FDA when the NDA was considered by ODAC last February. Adria had received the data only two weeks before the committee meeting.

The committee gave tentative approval of the NDA then with the condition that final approval must await FDA analysis of those two studies, one by Memorial Sloan-Kettering Cancer Center and the other by the Southeastern Oncology Group.

A multicenter study supported by Adria and chaired by Peter Wiernik and an Italian cooperative group study (GIMEMA) were also part of the presentation.

The studies all compared idarubicin (Adria: idamycin) with daunorubicin on combination with ara-C for treatment of ANNL. There were some variations among the studies in the consolidation and maintenance courses.

The MSK study, which was limited to younger patients, randomized 65 patients to idarubicin and 65 to daunorubicin. There were 51 complete responses with idarubicin, 38 with daunorubicin. The P value was 0.014.

The SEG study randomized 111 to idarubicin, 119 to daunorubicin. There were 76 complete responses with idarubicin, 65 with daunorubicin.

The Wiernik group randomized 101 patients to idarubicin, 113 to daunorubicin. There were 68 complete responses with the first, 66 with the second. Overall survival was significantly better with idarubicin (P=0.040).

GEMEMA, which included older patients, randomized 124 to idarubicin, 125 to daunorubicin. There were 50 complete responses with idarubicin, 49 with daunorubicin.

After a brief discussion, ODAC Chairman Craig Henderson said there would be no formal vote. "We did that the last time in essence." There was no opposition to approval expressed by FDA.

Wiernik and Adria's Richard Gams, senior director for medical research, interpreted the committee's response, with the previous action, as recommendation for approval.

NIH Establishes Women's Health Office, Responds To Criticism

NIH this week established of an Office of Research on Women's Health and announced other actions it plans to take to increase attention to research on women's health.

Acting NIH Director William Raub announced the steps at a meeting this week between top NIH officials and members of the Congressional Caucus for Women's Issues.

The new office, to be located in the NIH director's office, will be charged with assuring that NIH-supported research addresses issues regarding women's health and ensuring appropriate participation of women in clinical research. Ruth Kirschstein, director of the National Institute of General Medical Sciences, will be acting director of the new office until a permanent director is appointed.

Congress has criticized NIH for neglecting women's health. A General Accounting Office study this year said NIH was slow in carrying out a commitment to include more women in studies.

"NIH will take whatever steps are necessary to ensure that appropriate numbers of women are inlcuded in research projects, both intramural and extramural, and that this perspective is well articulated, understood and acted upon by the research community," Raub said.

The new office will develop a plan to increase NIH-supported research on women's health. NIH plans to hold mandatory training sessions for executive secretaries of all study sections and program directors and will reissue a policy statement on inclusion of women in clinical research that was published in the Aug. 24 "NIH Guide for Grants & Contracts."

Kirschstein will attend 12 clinical study section meetings to emphasize the policy and Raub said he will address every advisory council meeting this fall.

Raub said HHS would seek funding for the new office as a discrete line item in the budget of the NIH director's office. If funds are appropriated, the office will have the authority to distribute them around NIH for support of new research aimed at women's health.

NIH policy states that adequate numbers of women should be included in clinical studies in approximate proportion to the gener-related prevalence of the condition under study; where failure to include an adequate number of women will compromise the investigator's ability to answer the scientific question being posed, the rating will be affected adversely; any justification for not including women appropriately in clinical studies will be evaluated by the peer reviewers and program staff and no such application or proposal will be funded unless the justification is compelling; and failure to provide information in an application regarding the representation of human subjects by gender will result in a deferral of consideration.

Kirschstein, who also attended the meeting along with directors of eight NIH institutes and centers, explained an estimate of the amount NIH spends on women's health research. Members of Congress and others have called that estimate, $778 million in fiscal 1987, or 13.5 percent of the NIH budget, too low.

The figure was based on a narrow definition, Kirschstein said. "This does not mean that the remainder, 86.5 percent of the NIH budget, is spent on diseases of men," she said. "Rather, the vast majority of NIH research funds devoted to clinical studies are expended for studies of diseases which affect both men and women, for example, colon cancer, which is responsible for a greater yearly mortality in women than all gynecologic cancers combined."

NIH is preparing an inventory for FY 1988 and 1989 for research on women's and men's health that Kirschstein said would correct misunderstandings.

Members of the Congressional Caucus on Women's Issues said they were pleased with the announcements. Rep. Pat Schroeder (D-CO) said she will push for the formation of an independent advisory committee on women's health, perhaps to be formed by the Institute of Medicine. She also called on HHS to convene a "women's health summit."

NCI Statement On Women's Health

In conjunction with the meeting, NCI released at statement confirming its commitment to research on women's health and listing research it has done on cancers that affect women. Following are excerpts of the statement:

"Cancer remains the second leading cause of death among women in the United States, with more than 150,000 women expected to succumb to cancers of the lung, breast, colon and reproductive tract alone in 1990. Thus, both basic research and clinical trials of prevention, early diagnosis and therapy of cancers that affect the survival of women will continue to be an exceedingly high priority. Women participate in every phase of NCI-sponsored investigative activity, and NCI ensures proprotional representation of women in all clinical trials. Of clinical treatment trials sponsored by NCI, at least 50 percent of patients enrolled are women; in 1989 alone, 25,964 patients were enrolled on the NCI-sponsored cooperative group trials, of which 14,594 (56 percent) were women.

"Nowhere is the integration of various basic, clinical and societal approaches better illustrated than in NCI's breast cancer research program. Breast cancer is expected to occur in about 150,000 women in 1990 and take the lives of about 50,000. NCI's comprehensive program is targeted to all aspects of breast cancer....

"NCI is addressing issues related to women who, for reasons of age, race, education or most importantly, poverty and lack of resources, are medically underserved. It is clear that women and minority group members are under-represented among biomedical research and health care professionals. To be truly effective, medical care and research will require a cadre of professionals who accurately represent the public served. NCI has a number of programs to address this problem and has recently developed a Science Enrichment Program, which began with a six-week session this summer to provide opportunity and initiatives for young women and minority students to cultivate a lasting interest in science careers....

"Cancers that affect women are being investigated in various arenas. Approximately 50 percent of NCI's total resources are directed toward investigator initiated research which focuses on basic science leading to an understanding of the biology of cancer. Such basic research will have a significant impact on cancer in women.

"In addition, NCI has a strong cancer centers program which has made a major commitment to women's health. What is learned about one type of cancer can often be applied to our understanding of other cancers. The similarities of basic and clinical approaches to breast, bowel and lung cancers are noteworthy....

"The most efficient and cost-effective approach to reducing cancer mortality is prevention....While we are not yet able to alter the genetic make-up or block its consequences, there are new avenues under investigation to identify and eliminate potential

carcinogens. Many of these prevention trials will benefit women, and women are well represented in these studies.

"In a study that has future implications for preventing colon cancer, the third leading cause of cancer death in women, dietary fiber plus vitamins C and E prevented polyp formation in familial polyposis (64 percent of the enrollees were women). Another study of dietary calcium and fiber to prevent colon cancer was comprised of 52 percent women.

"NCI-supported scientists are examining a number of lifestyle factors involved in breast cancer causation and prevention. A long range study of diet in older Americans and its relationship to breast and other major cancers is underway....A three-year investigation of the possible role of diet, alcohol and oral contraceptives as risk factors for breast cancer was begun in 1989 and will focus on the potential impact of these factors on breast cancer risk in about 5,000 women, with emphasis on women under age 45.

"In addition, women are well represented in a study of prevention of oral cancer involving retinoids and beta carotene. Other prevention approaches include behavioral interventions such as smoking cessation, and hormonal suppression of breast cancer with tamoxifen.

"Much of the development and implementation of NCI-sponsored early detection measures has focused on breast and cervical cancers. NCI has led 11 major medical groups in formulating guidelines and is committed to promoting cancer screening recommendations. The National Breast Screening Awareness Campaign uses mass media materials and patient and physician education to increase the use of mammography for early detection."

NCI convened a three-day meeting of experts to review emerging concepts and strategies in all aspects of breast cancer research. The results of the meeting will help establish an effective research agenda, the statement said.

"There are novel approaches combining several treatment modalities to treat cancers in women, all aimed at overcoming drug resistance," the statement said. "These new avenues, some existing only in concept right now but with technologic feasibility rapidly approaching, are forming the therapies of the future for cancers in women:

▸high dose chemotherapy followed by bone marrow rescue, already in use in breast cancer

▸use of colony stimulating factors to protect bone marrow cells and allow for dose escalation of antitumor drugs, currently in trials for ovarian, breast and lung cancers.

▸therapeutic use of monoclonal antibodies, already in early trials in ovarian and colon cancers

▸use of growth inhibitors such as suramin and TGF-beta

▸use of agents or antibodies that overcome multidrug resistance

▸use of compounds that inhibit tumor motility, invasion and angiogenesis

▸gene therapy directed at correcting abnormal tumor or metastasis suppressor gene products; creating tumor infiltrating lymphocytes; or genetically engineering tumor cells to be more susceptible to drugs or immune distruction."

Switch To CD-ROM To Save PDQ $1 Million Over Five Years

NCI expects to save $1 million over five years in the recent switch by the Cancer Information Service network from on line use of PDQ to a CD-ROM system.

CIS has been, almost since the inception of PDQ, its most frequent user. Information in PDQ on current standard therapy for each form of cancer, ongoing clinical trials, identity of oncologists with their addresses and phone numbers, names and locations of clinical and comprehensive cancer centers, cooperative groups, community clinical oncology programs, etc. have provided much of the material needed by CIS to respond to public and professional inquiries.

The phone bill for on line service, however, has been mounting. Last year it was about $250,000.

Meanwhile, the entire PDQ file had been made available on CD ROM, laser activated computer disks. It has been offered to those who make frequent use of PDQ, or who use it for extensive periods of time, running up time and phone charges. For them, the annual subscription price of $1,700 for monthly updated PDQ discs can represent a substantial savings.

The International Cancer Information Center, which operates PDQ, determined that those savings could be achieved by CIS. Peripheral devices and software to accommodate CD-ROM were purchased, and CIS personnel trained to use them, at a total cost of $240,000. Annual subscriptions for the disks will total $60,000. These funds have been and will be taken from the $8 million a year NCI has awarded to the 17 CIS offices.

The CD-ROM disks include much more than PDQ; included are all of the ICIC data bases including CANCERLIT, the previous 12 months issues of "Journal of NCI," and the full updated volumes of "Principles and Practices of Oncology," the definitive,

2,000 plus page textbook whose principal editors are Vincent DeVita, Samuel Hellman, and Steven Rosenberg.

CIS received 540,000 calls on the 1-800-4-CANCER national network in 1989.

ICIC has taken the concept of computer based, cancer information and data collection facility a step farther, leading to developing of an "oncology workstation." Phase 1 and subsequent phase 1 Small Business Innovative Research contracts were awarded for development of the idea. A contractor will be selected for marketing the workstations.

In addition to the CD-ROM-PDQ-large medical literature library capability, the workstations will maintain complete electronic medical records, assist in protocol management and administrative functions, standard flowsheets, automated retrieval of laboratory data, provide for long distance networking with other oncology workstations, and other decision support tools which may be developed.

ICIC's Robert Esterhay, who described the program last month at the International Cancer Congress in Hamburg, said that examples of medical record features could include stand alone medical record support; links between medical records, PDQ, and CANCERLIT, and protocol documents; and advanced decision support, such as knowledge based, rule based, expert systems providing patient-specific advice from data in the medical record.

Hardware needed includes a central processing unit (personal computer with certain features) which most offices already have; eight to 16 megabyte memory; and peripheral devices including a 300 megabyte hard disk, CD-ROM optical media, a laser printer, and devices such as a mouse and a touch screen.

Esterhay suggested that the oncology workstation could be built around a "clinic central server, where the information resources and patient and clinic records would be kept. Separate computers for physicians, nurses, office support, and administration would have access to the central server, which would also interface with laboratories and protocol study groups. The station also could be integrated into local area networks and regional networks.

California Community Hospital Raises $22 Million For New Cancer Center

Hoag Hospital of Newport Beach, CA, opened its new, $22 million outpatient cancer center this week, culminating what may be one of the most ambitious and successful fund raising efforts in the history of community cancer programs.

Funds for construction and endowment of the center were raised in only 14 months, after the decision was made to develop a facility bringing all outpatient cancer treatment together rather than merely expand radiation therapy quarters.

The new Patty and George Hoag Cancer Center, which the hospital said is the largest freestanding facility of its kind in Orange County, is a component of the Hoag Cancer Center, which has about 1,300 new cancer patients a year.

The three story, 65,000 square foot addition, connected to the hospital by a tunnel, houses outpatient radiation therapy and chemotherapy, clinical trials, and a tumor registry, and provides comprehensive home care, counseling services, educational programs, and a variety of support programs for cancer patients and their families.

"Most community hospitals deal strictly with patient care," said Robert Dillman, medical director of Hoag Cancer Center. "Hoag's commitment to research and education is unique. We're doing therapies in a community hospital setting that many universities are still trying to do."

Hoag Cancer Center presently offers more than 100 cancer clinical trials. Research in biological therapy is carried out with interleukin-2, intensive chemotherapy with stem cell recovery, interferons, colony stimulating factors, monoclonal antibodies, and tumor necrosis factor.

Hoag's education program is designed to reach health professionals and the community. Professional education includes a weekly oncology education conference where the latest cancer management information is presented and discussed by appropriate experts in oncology practice and research.

Community education, including screening, educational videos, and programs at Orange County businesses, focuses on cancer control, prevention, early detection, and risk reduction.

Hoag Cancer Center sponsors support groups designed to help cancer patients and their families cope with the disease. A home based hospice program supports terminal cancer patients in their homes. Other support services include social and rehabilitative services, home IV, and chaplaincy services.

The new center includes a 17,000 square foot radiation therapy facility which houses a Varian Clinac 2500C linear accelerator, one of only three in the U.S. The program also utilizes a 6/100C linear accelerator which, like the 2500C, has a computer based record and verifying system connected to a database which contains all pertinent patient information.