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Professional Society Growth Obvious at Spring Meetings; AACR Looking To Broaden Its Base

The annual meeting of one of three oncologic societies which are held each spring was called the start of a "new era" by its incoming president; for another society, the growth resulting from its "new era" starting two years ago

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In Brief

Blumberg, Comis, Skalka Named Fox Chase VPs; Howard Temin Appointed To NCAB

HOWARD TEMIN, Nobel laureate from the Univ. of Wisconsin, has been appointed by President Reagan to fill the seat on the National Cancer Advisory Board left vacant by the death of Tim Lee Carter. . . . FOX CHASE Cancer Center has created three new vice president positions and has filled them with: **Baruch Blumberg**, former associate director for clinical research, as VP for population oncology (studies of disease incidence and patterns within a population, and development of a prevention program for primary liver cancer, Fox Chase said); **Robert Comis**, medical director and chairman of medical oncology, posts he will retain, VP for medical science; and **Anna Marie Skalka**, now head of molecular oncology at the Roche Institute of Molecular Biology and visiting professor at Albert Einstein College of Medicine, as director of Fox Chase' Institute for Cancer Research and VP for basic science. The center's other two vice presidents are **Francis McKay**, executive VP, and **Paul Engstrom**, VP for cancer control. . . . NCI STAFF changes: **Iris Schneider**, who has been director of staff operations, is assistant director for operations and planning. **Judith Whalen** has been named planning officer; **Barbara Murray**, who had held that position, has been appointed evaluation officer. **Rosemary Yancik**, assistant director of the Centers & Community Oncology Program in the Div. of Cancer Prevention & Control, will leave June 8 to become assistant director of the Office of Program Planning & Evaluation for NIH. Her boss there will be Jay Moskowitz. Yancik has been at NCI for nine years, all of it in the cancer control division. . . . **JOHN VENDITTI**, who spent his entire 39 years of government service with NCI, retired in May as chief of the Drug Evaluation Branch in the Div. of Cancer Treatment's Developmental Therapeutics Program. He has joined Micro-BioTest Inc. of McLean, VA, as vice president and director of research (phone 703/848-2450).

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ASCO Still Growing, AACR Levels Off, ONS Remains Ahead Of All

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manifested itself in standing room only turnouts for most of the sessions; and the third and smallest of the three reported an all-time high membership total while meeting with its British counterpart society and Princess Diane.

In terms of the most members among oncologic societies, a fourth one meeting this spring, the Oncology Nursing Society, is the winner and still champion, with more than 11,000 on its rolls (*The Cancer Letter*, May 15). The American Society of Clinical Oncology, with 6,700 members, claimed it is the largest "professional oncologic society," a claim the professionals in ONS would challenge. The American Assn. for Cancer Research claimed that with its 4,300 members it is the largest "scholarly" oncologic society, a claim the scholars in ASCO might question but probably won't, since most of them also are AACR members.

The Society of Surgical Oncology made no claims based on its 800 member total. That is the highest ever for that group; the large and spirited delegation which turned out for the London meeting was satisfied with the state of their society, the encouraging and/or provocative reports they heard, and the fact that many of them met the future queen of England at the closing reception.

The surge in ASCO membership, to the exact figure of 6,788, was fueled by the decision two years ago to invite members of the American Society for Therapeutic Radiology & Oncology and the Society of Surgical Oncology to join. The new total represents a 10 percent increase over last year.

It's a somewhat different story with AACR. Robert Handschumacher, secretary treasurer, noted that although the 4,300 membership is a record total for the organization, the growth "is leveling off," increasing only two to three percent over last year. The positive cash balance of \$58,000 in 1985 will be reduced by about \$15,000 this year. "With the current income stream, we expect to be down \$45,000 next year," Handschumacher said. "That is a signal for a dues increase next year." He called for efforts to broaden AACR's membership, echoed by new President Enrico Mihich.

During the next year, Mihich said, AACR

will publish a new journal on molecular biology of cancer "which we hope will attract new members." That publication, the effort to broaden the membership, and the plan announced by outgoing President Alan Sartorelli to purchase a building for AACR's headquarters represents the start of a "new era" for the organization, Mihich said.

Sartorelli announced that the board of directors had agreed to start the planning for acquisition of a "small building" in Philadelphia. AACR has been working in space rented at Temple Univ. for several years. That space is inadequate, Sartorelli said; besides, Temple has not offered any assurances about continued availability of the quarters there; "we might be forced to move."

A professional fund raising organization has been retained, with a goal of \$2 million to purchase a building within three to five years. Meanwhile, the staff is negotiating for interim rental quarters in Philadelphia.

AACR's journal, "Cancer Research," thought to be in some financial trouble when NCI decided to drop its contribution to the publication's cost, came through its first year without that support in fine shape, Handschumacher reported. Various cost reductions, revenue from page charges and an increase in subscription rates combined to produce "an exceptional year," he said. The journal finished the year with \$149,000 balance. Because of an expected increase in the number of pages, and other cost increases, a \$45,000 deficit is projected for next year, however.

Executive Director Margaret Foti, who is also managing editor of the journal, said the transition to two issues a month was "smooth and economical." She reported on another aspect of AACR's "new era"--retirement as long time cover editor of Michael Shimkin, replaced by a cover editorial board chaired by Sydney Weinhouse; the retirement in January, 1989, of Peter Magee as editor (Foti invited nominations and statements of interest from persons interested in the position); and the retirement after next year of Handschumacher as secretary treasurer.

The AACR symposium, "Costing Out Cancer Research," evoked this comment from symposium chairman James Holland:

"Cancer in this society is the chief public health concern. . . We are spending this year only one tenth of one percent of the total federal budget on cancer research. I don't know that that is enough. . . . Even if what industry and the states spend doubles

the federal amount, that is still only three tenths of one percent."

Symposium speaker Gerald Mueller, a past AACR president, said, "We're not successful in getting our message across to the public and to Congress. . . We're at the point where the demand for research funding exceeds the supply of available money. We have to pursue new sources." Mueller also criticized peer review, both at NIH, where he said the compression of priority scores has distorted the system, and at the American Cancer Society, where he participates on review of grants.

William Brinkman, an executive with Bell Laboratories, said in response to a question from Harris Busch that AT&T spends \$2 billion out of \$33 billion gross revenues on research and development. Brinkman was the other symposium speaker.

Asbestos Removal "Nonsense"

John Weisburger commented from the audience that "in our lifetime we have gone from zero to great understanding of cancer. If AIDS had started 30 years ago, we would have been helpless. Now we are attacking it very well. By informing people about smoking, we have reduced the number from 50 percent to 28 percent of adults who smoke. If that had not happened, we would have 100,000 more cases of lung cancer each year. Congress has approved spending \$3 billion to remove asbestos from schools. That's nonsense. We're spending a lot of money on air pollution and water pollution in the name of cancer prevention and it will do no such thing."

Phillip Periman concluded the discussion with this comment from the audience: "We have a great product. In 1961 no one with metastatic cancer was cured. Now it is common in all our practices. . . This Society needs to adopt the squeaky wheel approach. We should not worry about the total amount being spent on cancer research. Whatever it is, it is not enough."

AACR members approved without discussion or dissent a resolution presented by the Public Affairs Committee calling on the federal government to "end forthwith" its "unethical practice" of subsidizing tobacco farmers at a cost of more than \$200 million a year.

ASCO members rejected, after spirited debate, a bylaws amendment that would have reserved at least one seat on the board of directors for a "full time practicing clinical oncologist."

David Fisher, Connecticut, arguing in

support of the amendment, said that there are 200 radiotherapists and 200 pediatric oncologists in the Society and 4,000 practicing oncologists (actually, there are about 1,000 radiotherapists in ASCO). "There has been only one practicing oncologist on the board, while we have had three radiotherapists. There are other societies for radiotherapists, and for pediatric oncologists, but there is no other for practicing clinical oncologists. Let's not make the mistake that will lead them to split off (and form another society)."

Seymour Cohen, New York, said the debate "sounds like the civil rights debates in 1952. The practicing oncologists are a majority and have no representation. The mechanism is not working."

Saul Rosenberg, California, and Sydney Salmon, Arizona, led the opposition. "The same argument could be made for all constituencies of ASCO," Rosenberg said. "It smacks of trade unionism and could lead to fractionation," Salmon added.

Denman Hammond, chairman of the Childrens Cancer Study Group, opposed the amendment and pointed out that on ASCO's CME forms there is no category for pediatric oncologists. "I'm an 'other.'"

"But a significant other," ASCO President Samuel Hellman added.

The amendment, which required a two thirds majority, was defeated, 138 to 133. Of the more than 4,000 members who attended the annual meeting, less than 300 were at the business meeting--perhaps an indication of why practicing oncologists have been under-represented on the board.

The members approved an amendment to ASCO's constitution, adding the exchange and diffusion of information on the psychosocial impact of cancer to the other purposes of the Society. They also approved a bylaws change holding harmless ASCO employees, board members and officers from litigation resulting from their duties; the Society's insurance will cover those potential costs.

Mytomycin C and Radiation Improves Head/Neck Cancer Therapy: Sartorelli

AACR and ASCO outgoing presidents are given the opportunity of addressing their respective societies on any subject they choose. AACR's Alan Sartorelli chose to report unpublished five year results of the study at Yale Comprehensive Cancer Center,

where he is director, of mitomycin C and radiotherapy for head and neck cancer.

They are impressive. The randomized trial of 120 patients with cancers of the oral cavity, larynx and nasopharynx "took a concept from laboratory to clinic," Sartorelli said. The concept was that mitomycin C would kill the hypoxic cells in tumors while radiation kills the oxygenated cells.

At five years, 87 percent of the patients receiving the combination were recurrence free, compared to 67 percent of those receiving only radiation. That is statistically significant, Sartorelli said.

There was no statistically significant difference in overall survival. However, when deaths from causes other than head and neck cancer were subtracted, the difference was statistically significant.

In subsequent research, Sartorelli and Sara Rockwell, who has worked with him on these studies, found that the anticoagulant, dicoumarol, significantly increases the toxicity of mitomycin C to hypoxic cells, while decreasing its toxicity to normal cells. Clinical trials have begun at Yale to assess the effectiveness of these agents combined with radiation.

In a related study, they are investigating another antibiotic, porfiromycin, similar to mitomycin C in its toxicity to hypoxic cells but considerably less toxic to normal cells. Research in lab animals indicates that porfiromycin used with radiation therapy is significantly more effective in killing hypoxic cells than mitomycin C.

"These findings encourage us to continue the development of a bioreductive agent targeted against hypoxic cells, to use as part of a curative regimen to treat a variety of solid tumors," Sartorelli said. At a press conference, he emphasized, "We're not just talking about head and neck cancer. This might work against all solid tumors."

Collaborating with Sartorelli and Rockwell in these studies are James Fischer, Clarence Sasaki, Rose Papac, Susan Keyes and Yung Son.

Samuel Hellman was the first radiation oncologist elected president of ASCO, which was organized by and is still dominated by medical oncologists.

In his presidential address, Hellman traced the development of surgical, radiation and medical oncology. "While a certain degree of chauvinism is natural, I fear that . . . we have sometimes lost track of the primary

mission: not to prevail over the other specialty but to cure cancer with the least morbidity possible. . . It is worth remembering that our current treatments leave much to be desired. They are all too often associated with significant toxicity and their efficacy is hardly guaranteed. It is, therefore, our goal to change these treatments. It is our business to put ourselves out of business."

Hellman continued, "We are not primarily chemotherapists, radiation therapists, or cancer surgeons. Rather, we are oncologists using the most effective treatments available today. It is to be hoped that we will be flexible and adapt and learn how to use the most effective treatments available tomorrow. Our specialty is not, for the most part, any therapeutic discipline but rather oncology itself. Thus it is appropriate for the American Society of Clinical Oncology to be led by a practitioner of any of the therapeutic disciplines, since it is the study of oncology that binds us together rather than the disciplinary lines that separate us."

Brian Henderson, in his Rosenthal Foundation Award lecture at AACR on "Estrogens as a Cause of Cancer," referred briefly to a small and yet unpublished study which indicates that regular exercise by teenage girls may help guard against breast cancer.

Henderson, director of the Univ. of Southern California Comprehensive Cancer Center, described results of several years of USC studies showing how endogenous and exogenous estrogens appear to lead to development of cancers of the endometrium, breast and testis.

Since ovulation exposes women to excess estrogen, interrupting or delaying onset of ovulation decreases that exposure, Henderson said. A Los Angeles study of 200 women has shown that those who participated in strenuous exercise such as team sports, swimming, tennis, ballet or running, for as little as three hours a week as teenagers had significantly lower risk of breast cancer.

"Exercise during adolescence tends to decrease ovulation," Henderson said later at a press conference. "Heavy exercise stops ovulation. It slows the transition between nonovulation and regular ovulation. If a woman can achieve nonovulation for three years, she can cut her lifetime risk of breast cancer by half."

Henderson noted that in California, physical education is required only through

the first year of high school. Most boys continue it because of peer pressure, but girls may or may not. "We may need some changes at that level."

Oral contraceptives are "clearly very safe," Henderson continued. "The only question is use around menopause and menarche. But between ages 19 and 42, there is no effect on breast cancer, and they do reduce risk of ovarian and endometrial cancer."

Janet Rowley, who has achieved world wide acclaim for her work on cancer and genetics at the Univ. of Chicago, told ASCO members in the Karnofsky Lecture that cytogenetics will play a key role in future therapies.

After discussing recent findings of Webster Cavane and colleagues at the Ludwig Institute in rhabdomyosarcoma, in which he examined gene expression in sarcomas that were diagnostic problems and has classified them as one type or the other, or neither, Rowley said:

"This example is but one of several that illustrate the power of collaborative studies between clinicians, pathologists, cytogeneticists and molecular geneticists. This example also illustrates what I think will be a major difference in the historical development of cytogenetics in leukemia and lymphoma compared with solid tumors. In the former, we had to wait almost 25 years from discovery of the Ph¹ chromosome to the molecular analysis of this translocation; in the study of solid tumors, although there has already been a long period of cytogenetic analyses carried out in a few laboratories, the major flowering of solid tumor cytogenetics has occurred simultaneously with enormous scientific interest in the molecular analysis of the tumors and the two have been mutually complementary in a remarkably productive fashion...

"I have tried to cover many areas that illustrate the contributions of cytogenetics and now molecular cytogenetics to our understanding of the biology of these neoplastic cells," Rowley concluded. "The ultimate measure of success, however, will be in the applications of these new insights in developing new, more effective treatments of cancer. At present, cytogenetic results in patients with acute leukemia have been translated into clinical practice in several ways. First, it is clear in both ANLL and ALL that certain chromosome abnormalities are asso-

ciated with a dismal prognosis and these patients are now often considered for more aggressive therapy, including bone marrow transplantation, relatively early in their disease course. In the future, you will treat particular subtypes of tumors each in a uniquely defined way that is most appropriate for the specific genetic defects present in that tumor. I firmly believe that this will lead to a new era in therapy that is simultaneously more effective and less toxic."

Peter Blumberg, chief of the Molecular Mechanisms of Tumor Promotion Section in the Laboratory of Cellular Carcinogenesis & Tumor Promotion, part of NCI's Div. of Cancer Biology & Diagnosis, described his studies on protein kinase C as the receptor for the phorbol ester tumor promoters in the Rhoads Memorial Lecture at AACR.

Blumberg's findings have clarified the role of phorbol esters in the early events of tumor promotion. He and his coworkers identified a central step in the series of events that can produce a cancerous cell, the stimulation of protein kinase C. The key was identification of a receptor protein for the phorbol esters.

Study of the abnormal changes caused by phorbol esters has clarified the understanding of normal processes in the cell. "By studying the special case of tumor promotion induced by the phorbol esters, we have also uncovered mechanisms that govern the more general control of cellular growth and differentiation in a broad range of cell types," Blumberg said.

Bernard Weinstein, director of the Columbia Univ. Comprehensive Cancer Center, described his studies on molecular mechanisms of carcinogenesis and their implications for cancer prevention and treatment in the Clowes Memorial Award Lecture at AACR.

"A major principle in studies on mechanisms of carcinogenesis is that the process proceeds through multiple discernible stages, including initiation, promotion and progression," Weinstein said. "It is likely that the transition between these stages is driven by different environmental and endogenous factors and involves different biochemical mechanisms and genetic elements. Several types of chemicals initiate the carcinogenic process by yielding highly reactive species that bind covalently to cellular DNA. Our group has elucidated the details of this

process with two groups of compounds, aromatic amines and polycyclic aromatic compounds, emphasizing how these agents distort the conformation of DNA and its functions during DNA replication and transcription.

"Our studies on tumor promotion have concentrated on the mechanisms of action of the potent tumor promoter 12-O-tetradecanoyl phorbol-13 acetate (TPA). Studies from our group and other laboratories indicate that TPA and related compounds produce their effects by activating a specific cellular enzyme, protein kinase C. This produces a cascade of events which include alterations in the function of membrane associated ion channels and receptors, alterations in gene express and, ultimately, changes in cellular differentiation and proliferation. . .

"Work is in progress to develop inhibitors of PKC since this could offer a novel strategy of chemoprevention and tumor therapy."

A report on presentations at the Society of Surgical Oncology meeting in London will appear in a future issue of The Cancer Letter.

LAK/IL-2 Synergistic Agents Needed, ASCO Hears; One Prospect Turns Up

Interleukin-2--administered alone, in combination with lymphokine activated killer cells, with cyclophosphamide, with monoclonal antibodies, or in various combinations with the above took up a major portion of ASCO scientific sessions and the day long educational symposium at the May meeting in Atlanta. Included were updates on the NCI intramural studies by Steven Rosenberg, who started it all; the NCI sponsored intramural studies which are attempting to confirm Rosenberg's results; and a variety of reports from other institutions on their own independent studies.

Rosenberg and most of the others reporting on IL-2 trials agreed on one thing: IL-2, promising as it is as a single agent or given with LAK cells produced in vitro, to reach its ultimate effectiveness may have to be used in combination with drugs or biological modulating agents. Rosenberg said that IL-2's synergy with cyclophosphamide and monoclonal antibodies is impressive and urged that the search for other synergistic agents continue.

One candidate for that role surfaced at a private meeting during the AACR portion of the week, sponsored by a European chemical firm. The meeting was called to hear reports

on various preclinical and phase 1 studies in the U.S. and Europe of flavone acetic acid. A lab study at Frederick Cancer Research Facility, in which FAA added to LAK/IL-2 was compared with LAK/IL-2 alone, got everyone's attention.

Robert Wiltrout, who is with NCI's Biological Response Modifiers Program, said that mice with renal cancer received either no treatment, IL-2 alone, IL-2 with LAK cells, IL-2 with FAA, or LAK/IL-2 with FAA.

In the untreated controls, all were dead after about 10 days; in the two treatment groups without FAA, all had expired at about 59 days; and in the two groups with FAA and either IL-2 or LAK-IL-2, about 60 percent were still alive after more than five months.

Is this something that will take an already exciting treatment and push it into the major breakthrough category? Wiltrout, who had a poster at AACR on FAA augmentation of natural killer activity by FAA, was cautious, and other NCI investigators and executives emphasized that it is far too early for that kind of expectation.

"A lot of things could be happening," Wiltrout told *The Cancer Letter*. "If we pushed either (IL-2 or LAK) to the limit we might get the same result (in mice). The attractive thing about the combination is that you don't have to give as much of either one."

Wiltrout said the IL-2/FAA combinations would be tested in other tumor systems. "If we get similar results, then we may have something."

The striking results in mice demand that the combination be tested in humans, and in fact NCI had already started planning for such studies before Wiltrout spoke in Atlanta.

Flavone acetic acid was synthesized by Lipha Chemicals Inc., a French firm, more than 10 years ago. Its development is an example of the cooperative efforts fostered by NCI's liaison office in Brussels, headed by Omar Yoder. It was first tested in the NCI screen at the Institut Jules Bordet, and based on its high activity against a variety of tumors, went into phase 1 studies, first in Europe and then in the U.S. Phase 2 trials have started in Europe for breast cancer and colorectal cancer.

Development of the compound in Europe has been done entirely without U.S. money, except for the initial screening. Major contributions in its testing and developing have been

made by academic researchers such as Thomas Corbett of Wayne State Univ., Mastrizo D'Incalci of Instituto Mario Negri in Milan, Stanley Kaye of the Univ. of Glasgow, and Louis Malspeis of the College of Pharmacy in Columbus, Ohio.

Rosenberg's updated results:

Now with 127 evaluable patients who have received LAK/IL-2, there have been nine complete responses, 18 partial responses (50% or more tumor regression), and 13 minimal responses (25-50% regression). One of the complete responses was in a patient with colon cancer and one in a patient with non-Hodgkin's lymphoma. The others were in renal cancer and melanoma.

Four lymphoma patients received the treatment, and three had good responses. There also were responses in lung, liver and skin cancer.

A 29 year old melanoma patient is still free of disease two and a half years after treatment. A 41 year old man with colon cancer, who had had pulmonary metastases, an AP resection and had failed chemotherapy, was the patient with a complete response in that disease.

More than half of the complete responders have not yet recurred; median time has not yet been reached but the median by actuarial analysis is 10 months. "The point is, this can be very durable," Rosenberg said.

Rosenberg described improvements in the technology involved in producing and administering LAK cells which he said has reduced the cost of one treatment cycle to \$3,000-4,000, one third to one fourth of the cost previously. "The automated system for LAK cell generation dramatically reduces equipment and personnel requirements," he said. Lymphocyte separation, washing of cells and pumping them into plastic bags is all automatic, eliminating the need for laminar air flow hoods, centrifuges, roller bottle preparations of cell culture. Generation of LAK cells in serum free media also helped bring the cost down.

On the toxicity, Rosenberg said the regimen "is not a dangerous treatment. It can be administered safely, and you can easily treat the toxicity. It can be administered now more safely than many other treatments." There have been four treatment related deaths, two after myocardial infarctions and two from infections.

Other IL-2 reports at ASCO will appear in the June issue of The Cancer Letter.

NCAB Okays CCOP Awards; ACCC To Seek \$21 Million Line Item

The National Cancer Advisory Board approved funding of 50 Community Clinical Oncology Programs last week, completing the first phase in the recompetition of "CCOP II." Included in the awards were 46 funded by priority scores, with the payline at 228. Four exceptions were funded.

The Board rejected NCI staff's request to overturn the disapproval of the application of an existing CCOP. Staff felt the disapproval was the result of inadequate communication between program staff and reviewers, and that in fact the CCOP not only should have been approved but should have had a score high enough for funding.

Board members were reluctant to reverse the review committee's decision, although there is precedent for that action and it is clearly in the Board's mandate. Even with reversal, some argued, how could NCI fund an application that did not have a priority score?

NCI has not shut the door on funding a few more CCOPs with FY 1987 money. The institute usually goes into the last couple of months of the fiscal year (August and September) with some unobligated money. Division and program directors compete for it. When Director Vincent DeVita announced two weeks ago that \$1 million had been added to the CCOP budget, bringing it to \$11.5 million, he said that would be all "unless we can find more."

Another 10 CCOPs could be funded, bringing the total to 60--three more than finished in CCOP I--with an additional \$2 million. That would lift the payline into the 250s and pick up more of those who were good performers and were being counted upon by their research bases to continue with their invaluable additions to patient accrual.

Meanwhile, the Assn. of Community Cancer Centers has asked Congress for a line item for CCOPs in the 1988 fiscal year appropriations of \$21 million. That would guarantee funding 60 CCOPs; if that many are not funded with 1987 money, the additional awards could be made from the present applications.

NCI has planned for a substantial increase in CCOP awards in the second and third years, as they swing into full implementation of their cancer control protocols. If the number stays at 50, the program will cost an estimated \$18 million in year three. With 60 CCOPs, the cost in the second year would just about

equal the \$21 million ACCC is trying to get.

The evaluation of the program, carried out by the Statistical Analysis and Quality Control Center of Fred Hutchinson Cancer Center found that they could and did become valuable contributors to clinical cancer research and could provide protocol treatment to patients in community settings at least as effectively as it can be done anywhere. But the evaluation failed to show that the "diffusion hypothesis" works.

The diffusion hypothesis is that by introducing the most up to date cancer management into the community in the form of research protocols, practicing community physicians would apply the same management principles to all their patients and the diffusion of up to date cancer treatment into the community would be enhanced.

First the good news. The evaluation found that by the third year of the program (the fourth year was not included), 4,761 patients had been placed on protocols by CCOPs, representing 30 percent of the total accrual of the major cooperative groups. "Moreover, most of the CCOP organizations were successful in that they accrued more than the expected minimum of 50 patients per year. Their eligibility and evaluability rates were high (95-98%) and were comparable to those of other research base members.

"The CCOPs also used more protocols and registered more patients in both years 1 and 2 than did the 15 comparable community institutions serving as controls for the evaluation. The evaluation was unable to determine whether there was an overall increase in the total accrual to NCI approved protocols specifically due to CCOP. Because a decline in the Cooperative Group Outreach Program accrual over time was noted for the research bases affiliated with CCOPs, it is possible that CCOP accrual replaced accrual to CGOP to some extent. However, decreased funding from university members and therefore overall cooperative group accrual had been declining prior to CCOP and was part of the impetus for the program."

Is patient care changed as a result of CCOP (diffusion hypothesis)?

"The conclusions relating to the CCOP role in diffusion of state of the art cancer

into community practice are complex. The evaluation abstracted medical records to obtain patterns of care determined by an expert committee for four diseases: breast, colon, rectum and small cell lung cancers. These diseases were followed for three years.

"In general, the evaluation found that patients on protocol received more appropriate care than those off protocols. However, far fewer than 100% of the patients on protocol had the more appropriate patterns of care, indicating that patterns of care for patients both on and off protocol have room for improvement.

"Patients of physicians who use protocols received a more intensive level of care than those of nonprotocol using physicians, not necessarily more appropriate care. This result is biased by the fact that most protocol using physicians were medical oncologists. If the analysis was limited to medical oncologists and to patterns that did not involve chemotherapy, patients of protocol using physicians did tend to have more appropriate care. At the CCOP level, institutions with higher accrual were associated with more appropriate patterns of care. However, comparisons of CCOP patients with control patients did not detect any evidence of diffusion. This could be because the intervention was in place for too short a time to bring about diffusion, or because increasingly the protocol involvement of community physicians is not an efficient method for the diffusion of state of the art patterns of care, at least in communities that already have some level of protocol involvement."

The evaluation, in addition to the assessments described above, also attempted to determine the characteristics of the successful CCOP. Details of that finding, along with other ancillary information gleaned in the study, including data from the patterns of care and community physician surveys, will be reported in subsequent issues of *The Cancer Letter*.

NCI CONTRACT AWARDS

Title: Preparation and purification of viral components
Contractor: Bionetics Research, \$1,009,196

The Cancer Letter — Editor Jerry D. Boyd

Associate Editor Patricia Williams

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