MAYO AS A CANCER CENTER

problems and prognosis

by Charles G. Moertel

Note: Charles G. Moertel — Director of Mayo's Comprehensive Cancer Center, chairman of its Department of Oncology — reported to peers at a recent monthly staff meeting. We believe this blunt, sometimes hammerlike, among-ourselves overview is a most appropriate beginning for this special cancer issue. In addition to Mayo responsibilities, Doctor Moertel is chairman of the Gastrointestinal Tumor Study Group of the National Cancer Institute, a director of the American Society of Clinical Oncology, a member of the editorial board of the journal Cancer, *and he serves on the Oncologic Drugs Advisory Committee of the Food and Drug Administration. Author (with colleague Richard J. Reitemeier) of the text* Advanced Gastrointestinal Cancer: Clinical Management and Chemotherapy, *Charles Moertel received the M.D. from the University of Illinois in 1953, interned at Los Angeles County General Hospital, began a Mayo residency in internal medicine in 1954, becoming a consultant in 1958.*

DURING THIS YEAR of 1977, almost 700,000 Americans will be afflicted with, and 385,000 will die of, cancer. We at this meeting number 200. During our lifetimes, 60 of us will develop cancer and, unless substantive progress in treatment is made, 35 of us will die of it. Two out of every three of our families will be afflicted with cancer. Cancer as a cause of death in this country is second only to heart disease. From the standpoint of emotional impact of a disease it is second to none.

Reasons for such public reaction to malignant disease are in small part irrational fears and 19th Century taboos, but in the main they are very realistic. Cancer strikes heavily at segments of our population where people are psychologically ill-prepared to accept even the possibility of a fatal disease. It kills more of our children, teen-agers, and young adults than any other disease, passing heart disease by a wide margin. It strikes at women not only in childhood and young adulthood, but dominates as a cause of death among mothers and homemakers. It is the most frequent cause of death in women under age 60. Only in the very advanced age groups does heart disease show a clear dominance.

If you take a poll on Main Street and ask the people what single accomplishment they would most wish from medical research during the remainder of this century, you know the answer — loud, clear, in near-unanimous vote: "a cure for cancer!" I have very little patience with those committed to other interests who cry that cancer is being "overemphasized" in public research funding. This is beyond doubt the public will, and

for very good reason.

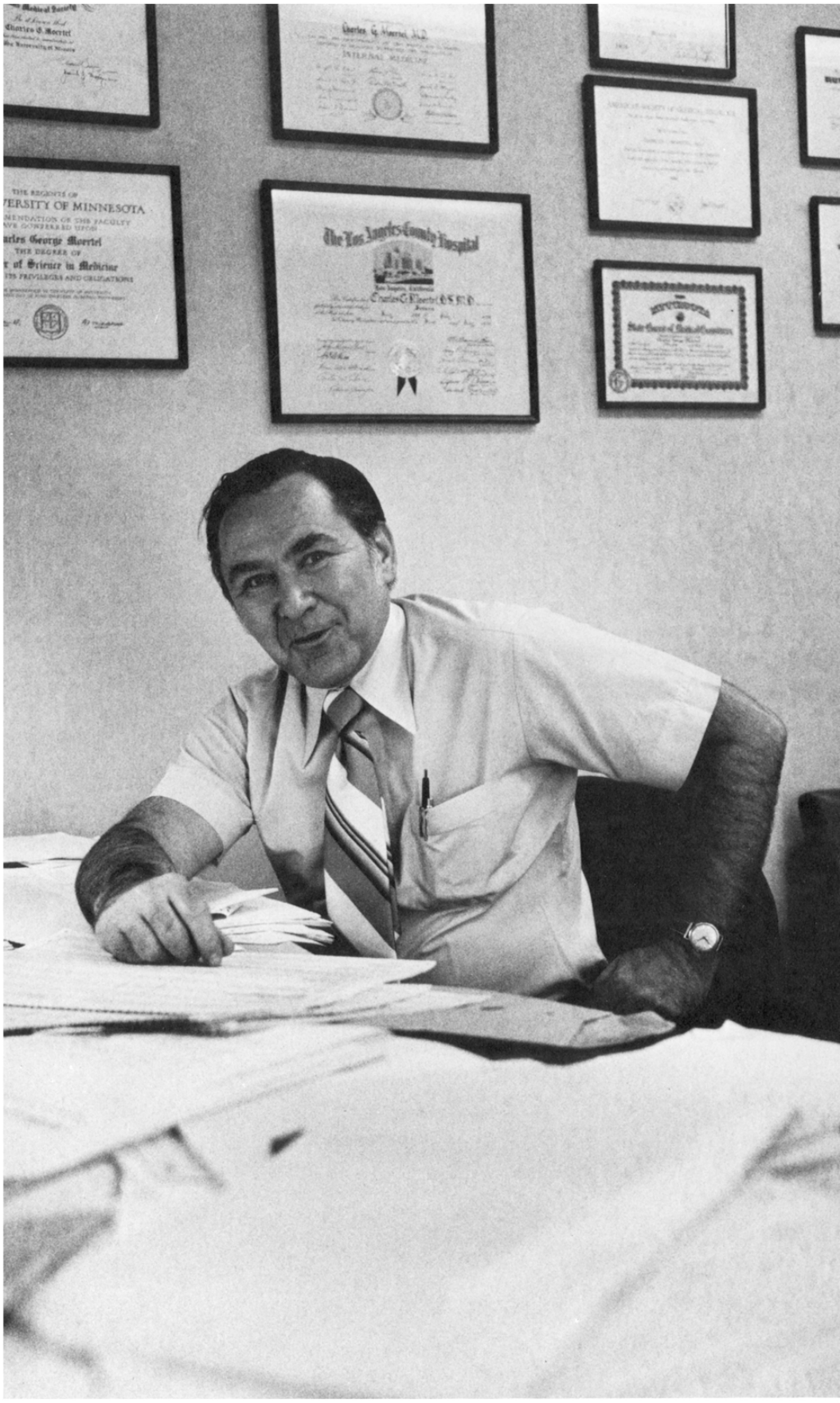
For decades cancer has been a pervading theme of Mayo Clinic practice. Doctor Will Mayo died of it. A few years ago we polled patients, asking why they came to Mayo Clinic. The single reason overshadowing all others was "cancer," either treatment of it or fear of it. Like it or not, cancer is in a large measure the life-blood of Mayo Clinic practice.

Last year we saw some 21,000 total cancer patients, over 7,000 of these with newly diagnosed cancer. Of these, 5,000 had cancer surgery. More than 5,000 had consultations in the Department of Oncology and almost 4,000 received oncologic therapy. More than 50,000 individual treatments were administered. But these figures don't begin to encompass our total practice.

Of our permanent staff, 196 can be identified as having a major or total commitment to cancer. And even *this* is still only the tip of the iceberg. It does not include the substantial practice time devoted to the cancer patient by anesthesiology, physical medicine, dermatology, neurology, laboratory medicine. Every time an internist takes a history, examines the breast, examines the pelvis, examines the rectum, he's practicing cancer medicine.

As we look to the future, rational or not, cancer will be the single most publicly visible , most publicly acceptable justification for recognition of the Mayo Clinic as a tertiary care center in our region.

In spite of these facts, which seem self-evident, Mayo Clinic was curiously slow to recognize the importance of cancer to the sustained vitality of our institution.



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Less than a decade ago, in testimony before the Congress preceding passage of the National Cancer Act, the assistant secretary for health listed the major cancer institutions in this country. Among many others he named the University of Minnesota, the University of Wisconsin, the University of Iowa. The Mayo Clinic was conspicuously absent from his list, and he was right — We had no right to be on it.

Nothing remotely related to cancer was going on in our basic research laboratories; only a handful of us were doing any clinical research; there was less than $25,000 in extramural funding — and *no* intramural funding!

Oh, we were delivering good routine cancer care. But the public doesn't want routine cancer care — and they shouldn't. Because most such patients die. Consider what happens with routine care in the most common groups of cancers - gastrointestinal. Cancer of the esophagus, 97 percent die. Cancer of the stomach, 90 percent die. Cancer of the liver and biliary tract, 95 percent die. Cancer of the pancreas, 99 per cent die. Even in the area of surgical triumph, large bowel cancer, almost two-thirds will die.

If we go to our next most common group, lung cancer, the results are even worse than this. "Routine" cancer treatment is bad cancer treatment and the public wants to bring their problems to an institution where they at least have the hope of something better.

In about 1970, cancer research at Mayo Clinic began to grow. First we got major NCI funding for chemotherapy of gastrointestinal cancer; then for breast cancer; then for lung cancer. We demonstrated to the National Cancer Institute that we could perform high quality clinical research more cost-effectively than any other institution in this country.

In 1971 we obtained a clinical cancer support grant under direction of Doctor Murray Silverstein: some half-million dollars a year. These were really developmental funds; we tried to get cancer research programs started in a number of areas in which no research had gone on before. Some of these areas fell flat on their research faces. Many more were successful and these flourished to the point that they were able to obtain their own independent funding. From these small beginnings, our research programs have grown to become the most dominant area in Mayo research, at least from the standpoint of dollars. This year the total extramural funding for cancer research is $7,318,000. This makes up 27 percent of Mayo's total research budget and 43 percent of Mayo's total extramural funding. This outside funding pays for the research activities of 70 members of our permanent clinical staff and 31 members of our basic laboratory staff. One out of every six consultants has a cancer research outlet paid for by extramural funds.

For some idea of how this money is used we can look at the single largest segment as it is expended in the Department of Oncology.

Last year the department had over $2.5 million in research expense. Only 2 percent of this was Mayo dollars, and almost all of the 2 percent came from special-purpose funds collected by the department or specifically designated to it. Approximately $1,000,000 was spent for salaries of staff, desk attendents, nurses; $450,000 paid for institutional overhead. We pay for our own statistical services, our own editorial and photographic services, our own travel; three-quarter of a million dollars went for routine laboratory and x-ray studies.

This type of research activity not only enhances our image as a research center — it also provides substantial financial assistance to our patients when they need it. It provides a research outlet for our staff that does not take them away from patient care. What would happen if all of this funding would evaporate overnight? Nothing — except that the same people would take care of the same patients, offering standard treatment on a fee-for-service basis.

Now: What is this Comprehensive Cancer Center creation?

Back in 1971, Congress passed the National Cancer Act. This provided specifically for establishment of 15 Comprehensive Cancer Centers in this country, each to function along the lines of existent categorical centers: Memorial Sloan-Kettering, Roswell Park, M. D. Anderson. Later, more spe-

cific guidelines were established by the NCI Advisory Group. Funding was set aside and competition was thrown open for which would be the 15 centers. Late in 1972 our Board of Governors decided that Mayo should enter the arena. They asked me to be the director and told me to prepare a grant to meet a deadline in six weeks. A lot of us worked hard at this and, somehow, we got the grant in. We didn't have too much going for us, but we got through the site visit and the grant was approved.

Shortly thereafter, Doctor Jesse Steinfeld, former USPHS Surgeon General, joined Mayo as chairman of the Department of Oncology and, for about a year, I held the title director of clinical cancer research. (Doctor Steinfeld left Mayo after a year to take a post elsewhere.)

About a year ago, a renewal grant was approved for a little less than $2,000,000. Our funding for the renewal grant started March 1, 1976, and a few weeks ago we had yet another site visit, this time by the National Cancer Advisory Board and the President's Cancer Panel. This is a new wrinkle and pertains to our continued designation as a Comprehensive Cancer Center. Rumor has it that we did well. (Editor's note: we did.)

But, what *is* the Mayo Comprehensive Cancer Center?

There was a lot of pressure to establish a separate institute in a separate building. We resisted this, I think wisely. We did not wish a center autonomous from the Mayo Clinic. Rather, we wished a center integrated within the Mayo Clinic. To do this we established two overlapping administrative structures: one for policy decisions paralleling our Clinic committee system and relating with it; the other, for day-to-day administration, following our institutional departmental structure.

The policy structure is made up of five committees: Rehabilitation Committee, Educational Committee, Committee for Outreach and Community Relations, Laboratory Research Committee and Clinical Research Committee. Each of these committees had multidepartmental membership, and each chairman is a member of the Cancer Center Executive Committee.

I should say a few words about the research committees. These are responsible for allocation of developmental funds — seed money that is available from the Comprehensive Cancer Center Grant or from the Eagles' Cancer Telethon. This is not an exclusive club; every department with established activity in cancer research is represented on these committees, and developmental funds are released only if approved by them. Anyone in the institution can submit a competitive application for these research funds. Applications are judged primarily on quality of the proposed research and on pertinence to cancer.

Engrafted on the policy organization we have the Department of Oncology, which follows traditional Mayo departmental organi-

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zation. There are four divisions in the department: our newest, the Division of Developmental Cancer Research, chaired by Doctor John Kovach; the Division of Medical Oncology, chaired by Doctor David Ahmann; the Division of Therapeutic Radiology, chaired by Doctor John Earle; the Division of Surgical Oncology, chaired by Doctor O. H. Beahrs, plus our Cancer Center statistical unit directed by Doctor Abraham Silvers. Facilities, personnel and services are shared by many throughout the institution, so we have many joint appointments.

Our top priority over the past three years was to develop programs in basic science in cancer within existing laboratory research departments, where very little cancer research had existed in the past. The institution endorsed this priority and 13 new PhD investigators — all exciting young scientists — with a major interest in cancer have been appointed to the Departments of Immunology, Microbiology, Molecular Biology, Pathology and Anatomy, and Pharmacology. The Comprehensive Cancer Center provided some $600,000 for their support, but, of course, the institution committed much more than that.

A second high priority effort was fostering of multidisciplinary care of the patient. Clearly, this provides optimum care for the cancer patient — there is really no room any more for the parochial prima donna here. We established a number of disease-oriented groups: breast cancer, lung cancer, melanoma, sarcoma, gastrointestinal, gynecologic. All have representation by internists, oncologists, radiation therapists, surgeons, surgical pathologists and immunologists. These groups worked together to define the ideal clinical practice procedures and to design their clinical research protocols. This endeavor was remarkably successful, and essentially all of these groups have developed programs to the point where they have been able to achieve independent funding.

Other areas of emphasis are Cancer Rehabilitation directed by Doctor J. C. Ivins, and Cancer Outreach and Community Relations under Doctor David Carr. I could spend hours discussing the accomplishments of these two groups alone: ostomy programs, laryngectomy programs, production of magnificent patient educational materials, a 'Cancer Answers' newspaper column, the Cancer Information Service, Cancer Reviews (held a few weeks ago with 200 regional physicians in attendance) — these to name but a few.

As we picked our way, we stumbled now and again, of course. We will again. But, overall, we have done not badly.

What's ahead?

Now that we have strong and growing programs of basic science in cancer and an active, productive program on a clinical level, we wish to bring these two areas into close working relationship. Cancer research and treatment in the future will inevitably become more sophisticated and more complex. The wave of the future in cancer management must bring the fruits of the basic science laboratory to the bedside of the patient.

We at Mayo *must* be able to meet that challenge. And we are trying.

Within the past six months we have established laboratories for cancer pharmacology and for radiation biology; we hope that these will establish strong working relationships with both the cancer clinician and the basic scientist. Our institution committed funds for development of these laboratories — but this commitment has been already in large measure replaced by extramural funding.

Developmental funds in our Comprehensive Cancer Center Grant are also committed to the concept of bringing basic laboratory scientist and clinician together. We have funded a project of Doctor Robert Scott to bring the Department of Pathology and Anatomy to clinical leukemia research; a project of Doctor Bryan Neel to bring Microbiology to clinical head and neck cancer; a program of Doctor Frank Prendergast to bring Pharmacology to Medical Oncology. These are the types of projects that will be funded in the next three years.

Over the next three years we also hope to further develop our Cancer Center statistical unit in cooperation with the Department of Epidemiology and Statistics. This will require additional staffing, computer support, development of mechanisms of data exchange with other cancer centers. Again we received a substantial institutional commitment for funding of this effort; again this commitment has already been almost totally replaced by extramural

funds.

Specific problems? Of course. Many.

We in oncology are sorely in need of new and expanded physical facilities. Over the past decade our practice has been increasing by 20 percent each year. Doctor Ahmann has been remarkably successful in recruiting superior new staff; I expect Doctor Earle to do as well — but we don't have any place to put them. Half of our medical oncology practice is conducted on the 5th floor of Mayo Building, half of it in the basement of the Damon Parkade. Administrative and logistical problems are almost intolerable. Our hope? To bring our entire consulting practice and our medical oncology treatment unit into adequate facilities in Mayo Building.

Another problem we must face is our responsibility to physicians and patients in our region, particularly those in areas to the West. The whole country is saturated with different types of cancer centers — except for North Dakota, South Dakota, Montana, Wyoming, and Nebraska. There are thousands of national cooperative cancer treatment groups — but, again, not one in the North Central region. Thus, physicians and patients in this region are literally cut off from contact with the National Cancer Program.

As you know, however, there are excellent multispecialty medical clinics in this region (we've trained a lot of people practicing out there), and almost all of these clinics have trained medical oncologists and therapeutic radiologists. We propose to attempt to assist the major clinics in this region to upgrade their cancer treatment by the establishment of a North Central Cancer Treatment Group. This group would be sponsored by the National Cancer Institute, working through the Mayo Comprehensive Cancer Center. The group would work together on chemotherapy and radiation therapy protocols conducted at a community level. We would provide a mechanism for them to receive funding and drug supplies, scientific guidance in developing their protocols, data handling, and statistical support (though our patients would not be involved in their studies). This would in no way hamper Mayo programs since these patients simply live too far away to allow them to be treated practically on chronic chemotherapy or radiation therapy programs here.

This, then, is a bird's eye view of the Mayo Comprehensive Cancer Center. Obviously there are many more facets than time allows me to discuss. But I hope I have convinced you that the primary purpose of the Center is to bring the best possible cancer care to today's cancer patient *and* to tomorrow's cancer patient; that the Center is a mechanism for enriching the practice of a large proportion of our staff through integration of basic research, clinical research, and clinical practice; that the Center is a fiscally sound operation that provides no threat to us, today or tomorrow; and that a strong Comprehensive Cancer Center will help to ensure the continued identity of Mayo Clinic as among the finest tertiary care centers anywhere.

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