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1977

### 10.01 Association of American Cancer Institutes (AACI) - General, 1977

Office of the President

*The University of Texas MD Anderson Cancer Center*

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GENERAL

(1977)

10.1

National Cancer Institute  
1977 Estimated Support to Comprehensive Centers\*

October 4, 1977

*could need amount money given to  
institutions where centers are located*

*250*

*10. 11/24/77  
Kerox  
Lewic  
Cory to  
Dr Copeland*

	Regular Research Grants	Program Project Grants	Core Grants	Training Grants	Control Grants	Contracts	Other Support	Total
Alabama	\$1,009,587	\$368,968	\$1,622,854	\$278,178	\$904,538	\$839,009	\$1,207,362	\$6,230,496
U.C.L.A.	2,267,468	1,737,726	1,020,266	935,582	207,571	2,335,290	583,773	9,087,676
Southern California Colorado Center	1,474,253	1,342,322	1,179,068	522,607	850,784	4,379,888	1,687,148	11,436,070
Univ. of Colo. - Boulder	266,225		390,940			295,874	70,125	756,939
Colo. Med. Ctr. - Denver	858,001	610,682		27,000				293,225
Children's Hosp. - Denver	35,439	386,943		190,709	51,619	719,031	172,380	2,602,422
Colo. St.	976,853	157,970			98,294			520,676
Yale	2,938,185	4,075,617	1,227,583	166,779				1,301,602
Georgetown U.	423,836		346,960	528,829	253,416	1,238,622	264,841	10,527,093
Howard U.	419,953		366,782			1,091,855	357,081	2,219,732
Univ. of Miami	484,079	351,202	1,089,431			95,222	365,378	1,565,470
Illinois Cancer Council				51,122	878,978	1,095,645	793,884	4,744,341
Univ. of Chicago Health Sci.	87,241				338,725	959	413,274	1,711,843
Univ. of Chicago	2,629,239	1,851,921	1,196,308	296,068	487,426	852,217	184,718	271,559
Northwestern U.	521,324		394,178	13,700	142,147	215,308	375,019	1,661,676
Rush - Presbyterian	88,940		431,004			502,293	455,666	1,477,903
Johns - Hopkins	2,683,399	2,264,963	2,110,378	483,893	887,397	2,728,504	946,587	12,105,121
Sidney Farber	2,190,840	2,122,430	2,110,196	261,168	1,431,183	873,704	592,846	9,582,367
Mayo Clinical	630,935	123,194	661,552	159,956		3,542,895	472,331	5,590,863
Memorial Hospital - N.Y.C.	43,015	3,812,130		227,985	482,256	2,256,351	852,533	7,674,270
Roswell Park	2,045,299	3,024,354	579,878	388,670	272,312	1,386,967	1,534,323	9,231,803
Sloan - Kettering	4,767,027	5,587,862	8,341,974	489,586		2,048,648	415,213	21,650,310
Duke Univ.	1,518,920	412,628	1,848,302	656,352	155,286	1,508,196	990,019	7,089,703
Ohio State	1,080,652	134,013	1,195,405	136,645	91,691	784,278	296,877	3,719,561
Children's Hop. of Phila.	517,534	681,842		27,800		299,080	358,477	1,884,833
Fox Chase	1,000,404	1,031,733	3,179,975	277,217		828,287		6,317,616
Univ. of Penn.	1,838,455	1,254,895	596,525	466,977		569,522	643,634	5,370,008
Univ. of Texas System Can. Ctr.	2,677,672	4,798,443	687,617	621,135	455,023	4,575,711	2,583,117	16,398,718
Fred Hutchinson	1,801,745	2,433,054	1,968,723	29,000	555,497	1,122,213	116,320	8,026,552
Univ. of Washington	1,122,434	143,800		474,852		136,800	262,241	2,140,127
Univ. of Wisconsin	2,676,980	3,924,388	1,355,171	1,413,008	506,527	549,395	1,473,106	11,898,575

*implies that  
money going  
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NOV 30 1977

Total Support to  
Comprehensive Ctrs. \$41,075,934 \$42,633,080 \$33,901,070 \$9,124,918 \$9,368,805 \$37,830,449 \$18,468,273 \$192,402,529

\* Represents total NCI dollars to institutions where centers are located

National Cancer Institute  
1977 Estimated Support to Specialized Centers

	Regular Research Grants	Program Project Grants	Core Grants	Training Grants	Control Grants	Contracts	Other Support	Total
Univ. of Calif. at Berkely	\$1,745,134	\$2,581,218	\$171,128	\$654,158	\$235,419	\$821,883		\$6,208,940
Univ. of Calif. at San Diego	2,110,222		72,695	344,752	66,345	169,219	426,497	3,189,730
Univ. of Calif. at Palo Alto			467,896		321,008		550,000	1,338,904
Salk Institute	2,017,618		464,048	141,414		351,462		2,974,562
Scripps Institute	1,449,072		158,573	211,213		1,319,929		3,138,787
Stanford University	3,260,412	2,669,918	879,509	514,439	26,257	1,334,511	493,355	9,178,401
Emory University	632,788		449,563			1,870,880	1,113,756	4,066,987
Univ. of Hawaii	518,080		550,075			995,089	279,007	2,342,251
Mt. States Tumor Inst.			129,422			261,639		391,061
Univ. of Kansas	432,679		337,514	27,873	134,031	1,314,722	1,038,083	3,284,902
Boston University	860,456	652,614	232,118	38,232	49,357	303,491	521,258	2,657,526
Worcester	771,733		641,002	13,200		195,000		1,620,935
Washington University (MO.)	1,522,624	1,142,836	401,211	560,725		156,986	733,102	4,517,484
Missouri Can. Prog. Inc.			222,847				66,239	289,086
Princeton University	507,803		107,386	353,105				968,294
Univ. of New Mexico	713,529	2,029,011	531,030	44,426		1,336,278	141,431	4,795,705
Columbia University	2,018,484	1,681,727	1,286,266	143,824	109,722	1,766,471	399,018	7,405,512
Hospital for Joint Diseases	168,889		248,032				416,921	
New York University	2,846,948	700,491	374,921	214,915	278,934	1,244,224	507,540	6,167,973
University of Rochester	1,550,939	483,376	1,343,037	288,638	506,165	726,161	859,639	5,757,955
Yeshiva University	2,102,160		2,291,922	767,074		553,354	367,207	6,081,717
American Health Foundation	63,121	602,737	1,296,986	32,076	1,163,372	531,592	288,708	3,978,592
Univ. of North Carolina	968,027	724,428	619,715	196,053		247,411	228,696	2,984,330
Wake Forest University	284,147		508,854			39,885	340,817	1,173,703
Case Western University	986,025		227,052	39,967	91,567	407,517	148,470	1,900,598
Can. Ctr. Inc. of Ohio			519,683			270,919		790,602
Univ. of Okla. - Health Sci. Ctr.	91,156		190,612			801,720	212,853	1,296,341
Penn St. U. - Hershey Med. Ctr.	1,234,256		127,214	52,712		1,145,185	149,052	2,708,419
Temple University	1,355,558	862,273	1,058,815	14,200		364,264	571,215	4,226,325
Roger Williams Gen. Hosp., R.I.	136,951	369,957	660,597	13,000			90,367	1,270,872
University of Tenn.	316,031		163,776	13,800		180,000	720,771	1,394,378
St. Jude's Children's Res. Hosp.	692,149	1,370,138	873,488	102,347	75,833	147,737	143,384	3,405,076
Univ. of Texas-Health Sci. Ctr.	524,642		312,589	216,975		135,790	104,444	1,294,440
Univ of Texas-Med. Br.-Galveston	592,117	300,837	301,431			391,062	198,491	1,854,940
Virginia Commonwealth University	967,550		286,815	13,000		217,110	447,526	2,035,914
Medical College of Wisconsin	249,939		386,282	38,824		643,272	107,017	1,425,334
University of Puerto Rico	10,985		758,575				468,709	1,238,269
Wistar	1,744,744	966,860	1,436,239	312,639		193,372		4,653,854

Total Support to  
Special Centers

\$35,446,968 \$17,138,421 \$21,088,938 \$5,363,581 \$3,232,925 \$20,438,135 \$11,716,652 \$114,425,620

October 4, 1977

National Cancer Institute  
1977 Estimated Support to all Cancer Centers\*  
Summary

	<u>ROI</u>	<u>POI</u>	<u>CORE</u>	<u>TRAINING</u>	<u>CONTROL</u>	<u>CONTRACT</u>	<u>OTHER</u>	<u>TOTAL</u>
Comp	41,075,934	42,633,080	33,901,070	9,124,918	9,368,805	37,830,449	18,468,273	192,402,529
Special	35,446,968	17,138,421	21,088,938	5,363,581	3,232,925	20,438,135	11,716,652	114,425,620
Total	76,522,902	59,771,501	54,990,008	14,488,499	12,601,730	58,268,584	30,184,925	306,828,149

Can you  
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of these to  
Owens  
&  
Zubrod?

\*Represents total NCI dollars to institutions where centers are located

old file  
AACI

10.1

November 1, 1977

David S. Yohn, Ph.D , M.P.H.  
Director, Comprehensive Cancer Center  
The Ohio State University  
357 McCampbell Hall  
1580 Cannon Drive  
Columbus, Ohio 43210

Dear Doctor Yohn:

Thank you for sending me the copy of Senator Kennedy's letter concerning the Laetrile hearings and possible clinical trials. We are indebted to Senator Kennedy and his subcommittee for their thorough investigation of this issue.

It is my understanding that the National Cancer Institute is planning to conduct a retrospective epidemiological study of records of patients with measurable disease treated only with Laetrile before further consideration is given to undertaking clinical trials. I strongly support the AACI's stand opposing clinical trials of Laetrile.

Sincerely,

R. Lee Clark, M.D.  
President

cc: Dr. Albert H. Owens, Jr.

OSU  
Comprehensive  
Cancer Center



R. Lee Clark, M.D.  
President  
The University of Texas System  
Cancer Center  
M.D. Anderson Hospital and  
Tumor Institute  
6723 Bertner Avenue  
Houston, Texas 77030

October 11, 1977

Dear Dr. Clark:

Enclosed for your information is a copy of a recent letter I received from U.S. Senator Edward M. Kennedy, Chairman of the Senate Subcommittee on Health and Scientific Research.

I call to your attention two items:

- (1) The findings of the above committee, outlined in paragraph two.
- (2) The apparent belief that the National Cancer Institute is planning controlled human trials.

In regard to the latter, we were recently asked to respond to a stance by the American Association of Cancer Institutes (AACI) opposing such trials. If indeed Senator Kennedy and his subcommittee have stemmed the laetrile tide on the basis that some form of MCI controlled laetrile trials will be forthcoming, it is premature to oppose any action that could settle this issue. Actually I am of the opinion we need an open mind. It is conceivable that laetrile could be additive in combination therapy.

Sincerely,

David S. John, M.D., M.P.H.  
Director

DSY/1hg  
Encs.

ROBERTO A. WILLIAMS, JR., M.J., CHAIRMAN  
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OCT 1 01977

# United States Senate

COMMITTEE ON HUMAN RESOURCES  
WASHINGTON, D.C. 20510

STEPHEN J. FRANKS, SENIOR COUNSEL  
AND STAFF DIRECTOR  
MEMORIE M. WHITMAN, CLERK

October 6, 1977

David S. Yohn, Ph.D., M.P.H.  
Director  
Comprehensive Cancer Center  
The Ohio State University  
357 McCampbell Hall  
Columbus, Ohio 43210

Dear Dr. Yohn:

Thank you for your letter informing me of Ohio State Senator M. Morris Jackson's decision to delay committee hearings on an Ohio House-approved bill (H.B. 650) which would have legalized production of Laetrile in Ohio and its sale as a pill or an injectable over-the-counter without a prescription.

I appreciate your interest in the Health and Scientific Research Subcommittee's investigation into the Laetrile issue and thank you for your role in making Senator Jackson and his staff aware of the Health Subcommittee's efforts in bringing all the facts to light in the Laetrile movement. Our hearing on July 12 was successful in focusing public attention on the unsavory and questionable backgrounds of those who are in the forefront of this movement. We were able to show quite clearly that these major Laetrile proponents had profited greatly from the physical and emotional suffering of cancer victims and their families. The court cases and convictions of some of these proponents were brought out and explained in great detail by those responsible for prosecuting these individuals. I feel that we were successful in showing that tremendous amounts of money can be made by those individuals who are adept at misleading cancer victims into thinking that Laetrile is the cure for their disease. We studied case histories of terminal cancer patients whose lives could have been saved or lengthened had they sought conventional cancer therapies rather than turning to Laetrile after being taken in by the persuasive advertising of those selling or manufacturing the substance.




One of the results of our hearing was to exact a commitment from the pro-Laetrile witnesses to agree to abide by the outcome of clinical trials to be conducted by the National Cancer Institute. The precise scope and details of these clinical trials are yet to be determined as there has been quite some discussion within the scientific community as to whether, how, when, etc., they should even be carried out. Still, I feel it was important that we were able to make their commitment to cooperate with the National Cancer Institute in these trials and to accept the findings of the National Cancer Institute a matter of public record.

At this time, there are no additional hearings planned on Laetrile. Now that we have successfully brought the issue out in the open, it is time to wait and see what will become of the tentative plans of the Cancer Institute regarding the clinical trials. I, of course, will be following these events carefully and will be advised of any developments. I am confident that the position of the Food and Drug Administration concerning the ineffectiveness of Laetrile as a cancer therapy will be upheld, but if it can be proven otherwise by these trials, I will be the first to admit I was in error. .

Again, thank you for your interest in the work of the Health Subcommittee. I appreciate your efforts in successfully helping to delay your state's hearings on this issue. It is a matter which should not be hastily dealt with.

Sincerely,



Edward M. Kennedy, Chairman  
Senate Subcommittee on Health  
and Scientific Research



association of american cancer institutes

js - returned  
9/28

~~10/1~~  
30th  
file

**OFFICERS**

*President*  
William W. Shingleton, M.D.  
Duke Comprehensive Cancer  
Center  
Durham, North Carolina

*Vice President*  
C. Gordon Zubrod, M.D.  
Comprehensive Cancer  
Center for the State of  
Florida  
Miami, Florida

*Secretary-Treasurer*  
Edwin A. Mirand, Ph.D.,  
D.Sc.  
Kosswill Park Memorial  
Institute  
Buffalo, New York

September 21, 1977

**MEMO TO:** Members of AACI  
**FROM:** Dr. E. A. Mirand, Secretary-Treasurer  
**SUBJECT:** Dr. Al Owens' Memo re Laetrile

Please respond to Dr. Al Owens' request  
concerning clinical trials of Laetrile by September 30.

Please send your response directly to:

Dr. Albert H. Owens, Jr., Director  
Johns Hopkins University Oncology Center  
Johns Hopkins Medical Institutions  
Baltimore, Maryland 21205

EAM:co  
Enclosure

**BOARD OF DIRECTORS**

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Memphis, Tennessee

# association of american cancer institutes

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*Secretary-Treasurer*  
 Edwin A. Mrazek, Ph.D.,  
 D.Sc.  
 Roswell Park Memorial  
 Institute  
 Buffalo, New York

September 20, 1977

**MEMORANDUM TO: Directors of All Member Institutions**

**SUBJECT: Clinical Trials of Laetrile**

At its last meeting, the Task 10 (Clinical Research) Committee passed a resolution which stated that they "find no basis for undertaking any clinical trial of Laetrile at the present time." They recommended that the Board of Directors approve this position and communicate it to the Director of NCI and the Director of NHI.

On September 18, the Board of Directors approved this recommendation and directed me to poll the membership for the purpose of achieving as broad a representation as possible.

Therefore, please complete the questionnaire below, add comments as you wish, and return them to me. Several individuals have already urged that the AACI take a stand against a Laetrile trial. I shall act on the basis of all replies received by September 30.

**BOARD OF DIRECTORS**

Albert H. Owens, Jr., M.D.  
*Chairman*  
 Baltimore, Maryland

Glen H. Bealer, M.D.  
 Rochester, Minnesota

R. Lee Clark, M.D.  
 Houston, Texas

Lewis L. Coriell, M.D.  
 Camden, New Jersey

~~XXXXXXXXXXXXXXXXXXXX~~

G. Deenan Hammond, M.D.  
 Los Angeles, California

Henry C. Frost, M.D.  
 Madison, Wisconsin

vin H. Namer, M.D.  
 Memphis, Tennessee

Albert H. Owens, Jr., M. D.  
 For the Board of Directors

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> I oppose a clinical trial | <input type="checkbox"/> I oppose AACI taking this stand           |
| <input type="checkbox"/> I favor a clinical trial             | <input checked="" type="checkbox"/> I favor AACI taking this stand |

COMMENT:

*Albert H. Owens, Jr.*  
 \_\_\_\_\_  
 Name

*NCI - Cancer Institute*  
 \_\_\_\_\_  
 Institution

AACI MEETING

Twin Bridges Marriott Hotel  
Washington, D. C.

July 20, 1977

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& meet pg

Attendance: Dr. William Shingleton, Dr. Al Owens, Dr. Edwin A. Mirand with Mr. Donald Putney and Mr. David Siegel

Mr. Putney and Mr. Siegel reviewed, in depth, AACI Contract (#N01-CO-75334) with NCI and progress made to date on Tasks 1-12 supported from AACI-NCI contract and from AACI funds. The following action and suggestions were made:

I. Tasks supported from AACI-NCI contract:

- (A) Task #1 (Project #1) - This task should be continued and Mr. Harrington should ask for more funds, particularly since NCI expressed a desire to have more cancer center profiles done.
- (B) Task #6 (Project #2 - Management and Organizational) - Mr. Putney said East coast conference has been finalized. West coast conference contract modification has been requested to permit this conference to be held in Spring of 1978. Mr. Putney felt he needed another year to complete handbook. Mr. Putney stated the handbook will cover four chapters:
- 1) governance and structure
  - 2) financial management
  - 3) operations
  - 4) legislation and regulations

Mr. Putney felt Dr. Clark jumped the gun with his CICA Handbook on Centers but, upon looking at his handbook more closely, the one associated with this project would serve a different purpose. Dr. Shingleton felt we should ask support for this project for another year to the level of approximately \$60,000 but didn't feel we needed any more conferences.

- (C) Task #10 (Project #3 - Clinical Research Management) - Dr. Shingleton felt this project was most important and should be ongoing and felt Dr. Zubrod was doing an excellent job.
- (D) Task #12 (Project #4 - Cancer Control & Rehabilitation) - Approval of draft questionnaire has been obtained and will be used as a basis to develop a prototype classification and cataloguing system of central activities to be tested at nine centers who are members of AACI.

Dr. Robbins wishes to extend support for this project for another year and Dr. Shingleton agreed we should proceed to ask for such support.

There was comment that Task #1 might be merged with this task but there appears to be no real foundation for this comment supposedly related by Dr. Bird of NCI to Dr. Robbins.

(E) Task #7 (Project #5 - Cancer Literature Retrieval) - Mr. Putney felt there was a real problem with this task. Neither Dr. McGovern nor Dr. Knotts have spent any of the \$16,000 for this project. No progress has been reported. Dr. Shingleton felt we should not wish to extend support for this project and that Mr. Siegel proceed immediately to find out the difficulty as to why no progress has been made to date.

(F) Task #6 (Project #6 - Project Coordination & Fiscal Management) - The question as to whether NCI should support the newsletter of AACI came up. Mr. Putney felt NCI should not be asked to support completely the AACI Newsletter for it would interfere with AACI freedom to put whatever we wish into the Newsletter.

Mr. Putney also felt the cost for headquarters for fiscal agent to manage AACI-NCI contract should be borne by AACI. Both Dr. Shingleton and Dr. Mirand felt this would be ideal but the cost could not be borne by AACI at this time. Mr. Putney complained that although Mr. Siegel's services were being paid from AACI-NCI contract, his services to AACI were not and felt they should be since he is spending a great deal of time on this project.

II. Review of tasks not supported from AACI-NCI contract but receiving seed money from AACI. Suggestions and comments on these tasks are as follows:

(A) Task #2 (Data Processing Requirements) - Funded \$2,000 from AACI. Mr. Siegel said Dr. Alvin Freiman from Sloan-Kettering is going to re-state the task and submit a budget to be included in the next AACI-NCI contract proposal.

(B) Tasks 3, 4, 5 (Nomenclature, Classification Staging and End Results Reporting) - Funded \$2,000 from AACI. Mr. Siegel stated both Drs. Hickey and Laszlo are redefining this task and will be resubmitting a proposal to be included in the next AACI-NCI contract proposal.

(C) Task #8 (Patient Management & Planning Techniques) - \$2,000 funded by AACI. Dr. Shingleton felt we should not ask for funds for this task in next AACI-NCI contract request. Also, he advised Mr. Siegel to contact Dr. Spratt as soon as possible on what progress he has made on this task to date.

Also, Dr. Shingleton advised Mr. Siegel to move immediately in contacting Dr. Nate Berlin in redefining Task #9 (Research Management and Planning).

Dr. Shingleton requested that Mr. Putney and Mr. Siegel prepare immediately an AACI-NCI contract renewal request to be reviewed by Drs. Shingleton, Owens, and Mirand. This should be submitted no later than a week before September 18 so that they could react to it before being seen by the Board of Directors of AACI on September 18, 1977 for final approval prior to submission to NCI.

Environmental Carcinogenesis Conference: Mr. Putney and Mr. Siegel related that the conference expenditures were \$9,000 and there is to date \$2,520 balance of non-federal funds. Mr. Putney felt this balance might not be real since publication costs might be underestimated. It was felt by all that he should contact Pat Leon at M. D. Anderson about this. Dr. Owens felt we should hold on to unspent funds until final figures of expenditures are realistically available.

Additional AACI Task: Dr. Shingleton reported a meeting this morning with Mr. W. T. Brock from Organization Resources Counselors, Inc. (ORC, Inc.) at 1625 I Street, N. W., Washington, D. C. 20006. Mr. Putney, Dr. Zubrod, Dr. Owens and Dr. Saunders were in attendance. Dr. Shingleton stated ORC, Inc. represented 55 companies interested in getting AACI to assist them in environmental carcinogenesis projects. Dr. Shingleton felt AACI could set up a new task on environmental carcinogenesis and he would advise the Board of Directors on September 18 about this task to get their approval for any AACI-ORC, Inc. interaction. In the meantime, to get this interaction going between AACI and ORC, Inc. he will set up an Ad Hoc Committee primarily to explore the worthiness and impact of this interaction. Dr. Shingleton felt this could be a real benefit to AACI members by AACI acting as a clearinghouse that would advise ORC, Inc. on what members of AACI would be interested in receiving funds from industries for environmental carcinogenesis projects.

Dr. Shingleton requested Dr. Mirand to send Mr. Wayne T. Brock 60 copies of AACI brochures, updated membership list, and copies of Tasks booklet (CO-OP).

Status of AACI with Blood Commission: Dr. Owens asked about status of AACI liaison with Blood Commission. Dr. Shingleton stated we should hold off in taking Dr. Berlin's suggestion to sever our liaison with them until it is discussed at the next Board of Directors meeting.

Meeting concluded at 4:15 p.m.

CROSS REFERENCE

SEE FILE 17.1 Grant Grant

FOR PERTINENT INFORMATION DESCRIBED BELOW:

LETTER ✓ MEMO \_\_\_\_\_ OTHER \_\_\_\_\_

FROM Mr. Shingleton TO W.H. Mr. Pedrickson

DATE July 5, 1977

SUBJECT Resolution regarding HEW's decision to  
reduce the number of Review groups involved  
in grants.

THE UNIVERSITY OF TEXAS SYSTEM CANCER CENTER  
M.D. ANDERSON HOSPITAL AND TUMOR INSTITUTE  
HOUSTON, TEXAS U.S.A. 101

President : R. Lee Clark, M.D., M.Sc.

Thirty years ago the state of Texas established a Southwest regional center for cancer research and education, as well as a hospital for the demonstration of the best care for the cancer patient, giving priority to the citizens of Texas who had no facilities for cancer treatment in their own communities. The name of that institution is The University of Texas M.D. Anderson Hospital and Tumor Institute.

The programs instituted were to complement studies in progress at other health science divisions of The University of Texas, which at that time consisted of The Branch at Houston. The U.T. M.D. Anderson Hospital is now responsible for the coordination of cancer-related activities of the entire University of Texas health sciences system, which includes the Health Sciences Centers in the cities of Galveston, Dallas, San Antonio and Houston, the combination being designated as The University of Texas System Cancer Center (Figures 1 and 2).

#### I. PRINCIPLES UPON WHICH THE INSTITUTION WAS FOUNDED

The elaboration of the Anderson Hospital philosophy has led to the establishment of a teaching model specifically aimed at more widespread quality care for cancer patients and of direct benefit to the entire medical community of Texas and of surrounding states. The basics of this Anderson Hospital philosophy can be stated briefly :

##### STAFF :

1. daily interaction among the basic and clinical research scientists and the bedside clinicians
2. mutual goals of education and improved cancer care
3. fulltime careers with adequate remuneration and security
4. a working environment free from economic competition with each other or for patients, essential for the team approach to the care of the cancer patient
5. exposure to a broad spectrum of disease in all stages, greatly facilitated by the lack of financial barriers to patient admission.

##### ADMINISTRATION :

6. an administration designed to carry out policies determined by the professional staff, within the framework of the regulations set by the Board of Regents of The University of Texas and by accrediting agencies
7. a director responsible to the Board of Regents through the Chancellor and responsible for the execution of the stated missions of research, education and service, with full-time staff responsible to him
8. a free-standing unit within The University of Texas System with a separate budget to be defended before the State Legislature



## EDUCATION :

9. programs for the continuing education of regional physicians and paramedical personnel
10. programs for undergraduate, graduate, specialty and paramedical education
11. graduate programs in the biomedical sciences.

The policy theme of Anderson Hospital is the team approach to cancer patient care, meaning the surgeon, the radiotherapist, the chemotherapist, the immunotherapist, and the pathologist participate in decisions regarding the best therapeutic regiments for individual patients. There is a continuing review of this institutional philosophy in research and educational programs, also.

This philosophy can be illustrated in a simplified diagram (Figure 3) showing how the three basic programs of research, service and education blend and reinforce each other. There is actually no starting point in the information flow, but for the sake of simplicity we begin with a theory of potential practical application to better cancer therapy, conceived by any person or team in the entire complex. From the theoretical concept and protocol design flow the laboratory investigations, trials in animal models and clinical trials on an institutional or inter-institutional basis, hopefully leading to a better therapeutic approach that can be offered to practicing physicians for their patients, as well as for the patients in the cancer center hospital. All activities produce information which is recorded for distribution through the educational process to students at every level and for feed-back into the system, stimulating further theoretical design and investigation. Scientists and clinicians learn from each other while sharing their learning experiences with students, who in turn are stimulated to become part of the system and make further contributions.

There is a free-enterprise medical system based on fees-for-services in the United States. The majority of cancer patients in the nation are treated by medical practitioners in private practice. The three activities of the cancer center - education, research, and patient care - consequently, require as vital parts of the program and scope of influence numerous affiliations with academic institutions, regional hospitals and physicians, and state and national service agencies that supplement cancer center programs and exchange students. In turn, each functional regional cancer program becomes part of a nationwide "machinery" of geographically distributed and interrelated cancer centers, contributing and sharing information that is added to the total world knowledge about cancer and its control (Figure 4).

As the philosophy developed for the Anderson Hospital, it was believed that such a cancer center must include facets, or modules, that could function autonomously but also as an integrated whole. These modules of activity include :

### Patient Care

Hospital  
Clinic  
Housing for outpatients  
Radiological Institute & Radioisotope  
Laboratory

<u>Clinical Research</u>	Laboratories Hospital beds
<u>Basic Research</u>	Laboratories Animal Facilities Rooms for seminars
<u>Educational Activities</u>	Classrooms Auditoria Library Audio-visual aids Publications

These modules were incorporated into three organizational units :

- Anderson Hospital (294 beds)
- Anderson Outpatient Clinic (600 outpatients daily)
- Tumor Institute (established as an entity by the Board of Regents of The University of Texas in 1953)

## II. GENERAL INFORMATION

### A. PHYSICAL FACILITIES

Total Net Square Footage 706,727

Anderson Hospital, Clinic, Tumor Institute  
Anderson-Mayfair Patient Hotel & Preliminary Evaluation Clinic  
Rehabilitation Annex (110 ambulatory beds)

<u>Total Research Laboratory Space</u>	<u>120,095 sq.ft.</u>
Biology	16,303
Biochemistry	11,259
Biophysics	7,985
Virology	12,433
Developmental Therapeutics	14,792
Other Cancer Research	41,712
Research Animal Space	15,611
Laboratory Space Per Senior Investigator	1,250 sq.ft.

<u>Total Patient Care Space</u>	<u>220,483 sq.ft.</u>
Inpatient	88,932
Outpatient Clinics	15,011
Clinical Support Services (clinical labs, diagnostic radiology, etc.)	116,540

<u>Other Space (for all 3 institutions)</u>	<u>366,149 sq.ft.</u>
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Physical Plant Maintenance  
Administration  
Cafeteria  
Etc.

### B. PERSONNEL

Full-time Clinical Staff	123
Part-time Clinical Staff	37
Volunteer Clinical Staff	21
Full-time Scientific Staff	121
Part-time Scientific Staff	13
Volunteer Scientific Staff	1

Full-time Nurses	329
Part-time Nurses	12
Full-time Technical Staff	415
Part-time Technical Staff	42
Full-time Administrative and General Staff	73
Part-time General Staff	2
Total Full-time Staff	1,061
Total Part-time Staff	106
Total Volunteer Staff	22
Total Consultants	153
All other categories (full-time)	1,775

#### C. UNIVERSITY AFFILIATIONS

The University of Texas System Cancer Center  
 UI Medical Branch at Galveston, Texas  
 UT Health Science Center at Houston

- Dental Branch
- Medical School
- School of Public Health
- Graduate School of Biomedical Sciences
- Speech and Hearing Institute

UT Health Science Center at Dallas, Texas  
 UT School of Nursing  
 UT M.D. Anderson Hospital and Tumor Institute at Houston  
 (responsible for coordinating cancer activities in all above units)

#### Other University Affiliations

Baylor College of Medicine  
 The Rice University  
 University of Houston  
 Texas A & M University, Bryan, Texas  
 Texas Southern University  
 Houston Community College  
 Texas Women's University  
 Alvin Junior College

#### D. HOSPITAL AFFILIATIONS

Hermann Hospital  
 St. Joseph's Hospital  
 Center Pavilion Hospital  
 Veteran's Administration Hospital

Member - Association of American Cancer Institutes

#### E. OTHER

Institute of Hemotherapy (blood components)

## F. PATIENT INFORMATION

Ambulatory beds (rehabilitation)	110
Beds assigned to cancer patients	294
Total inpatient admissions	7,329
Total inpatient days	95,007
Average length of inpatient stay	12.95 days
Total outpatient visits	224,185
Total new cancer patients	6,524
Total cancer patients	20,288

## G. GENERAL SUPPORT FACILITIES

### Food Service

Cafeteria - average of 1,800 people served daily (7-day week)  
average of 1,500 meal-equivalents daily (7-day week)

Research Dietetics - 42 bed clinical research unit (9 protected environment)

- "germ-free" nutritional care consistent with research protocols
- accurate records of dietary intake
- metabolic kitchen (laminar air flow construction)
- steam autoclave for food and utensils
- flash freezer
- computer terminal for complex dietary calculations

### Infection Control

- coordinates health-related requirements of and services to employees
- job injuries and health care
- new employee examinations
- periodic check of food handlers
- monitors (with nursing personnel assistance) patients for isolation, when needed, for communicable diseases.

### Medical Social Service

- assistance to patients to ascertain outside sources of funds and other types of help
- counseling to alleviate anxieties
- long-term provision of helpful information for patients and family members

### Pharmacy

- purchase, storing, and dispensing drugs, pharmaceuticals, etc.
- maintenance of storage and utilization of medications in nursing units
- education
  - cooperate with University of Houston and Texas Southern University clinical pharmacy laboratory programs
  - cooperation with St. Luke's Hospital and Texas Children's Hospital to expose pharmacy residents to a 2-week training experience in IV additive program
- intravenous additive program - approximately 1,000 bottles daily

- e. Unit dose system = reduction in number of medication errors
- f. distribution of information regarding experimental drugs
- g. shipment of drugs to cooperating members of Southwest Oncology Group
- h. parenteral hyperalimentation (amino acids, carbohydrates, electrolytes)

#### Laundry

- a. Central facility for Anderson Hospital and Affiliated Hospitals
- b. 60,400 square feet
- c. ability to process 10 million pounds of laundry annually, using single shift

#### Nursing

- a. patient care
- b. in-service and continuing educational programs
- c. aid in development of research techniques and participate in clinical research programs
- d. 10 nursing units (does not include rehabilitation annex nursing unit)
  - post-operative care units
  - clinics
  - operating rooms
  - central sterile supply
- e. recruitment programs

#### Admissions

- a. bed assignments
- b. surgery scheduling
- c. patient transportation
- d. new patient registration - computer assisted

#### Appointments

- a. all return clinic appointments
- b. in-service training
- c. processing of physicians' orders for tests and services

#### Medical Records - three sections

- a. stenographic pool - transcribes physician reports
- b. location and filing of test results and reports; on-line computer system for current patient information and location of medical record within the hospital
- c. review unit - monitors record organization and currency.

#### Insurance

Assistance to patients with various insurance forms

#### Systems Engineering

Development and implementation of management information systems

#### Chaplaincy

- a. spiritual care of patients and family members
- b. post-graduate training for clergy

## Epidemiology

Computerized, coded abstracts for 270,000 patients with cancer in the state of Texas cover a period of 26 years; this represents total population-based coverage for 1 million Caucasians, 1 million Negroes, and 2 million Hispanics.

### 5 objectives

1. Initiate, develop, and analyze epidemiological and other basic cancer research
2. teach biostatistics and epidemiology of cancer and the details of cancer registry operations to physicians, tumor clinic secretaries, and program directors.
3. develop methods for evaluation of all charts
4. give biostatistical assistance to clinical and research personnel in the hospital and in the community
5. prepare information and statistics about cancer.

## H. DEPARTMENTS

Anesthesiology

Biochemistry

Biology

Biomathematics

Clinical Chemistry & Laboratory Medicine

Developmental Therapeutics

Diagnostic Radiology

Epidemiology

Gynecology

Medical Communications

Medicine

Oral Oncology

Pathology

Pediatrics

Physics

Publications and Information (Public Affairs)

Radiotherapy

Rehabilitation Medicine

Surgery

Virology

Research Medical Library (55,500 volumes of which 19,502 are in departmental collections ; 1,005 periodical subscriptions)

## I. BUDGET

Total budget for fiscal year 1974 - 1975 US \$ 46,918,530.00  
(includes administration, general service auxiliaries, and physical plant operations)

Experimental cancer research	\$ 4,406,227
Cancer treatment and rehabilitation	16,425,003
Clinical cancer research	12,306,168
Cancer control	1,704,218
Professional education	3,211,845

## J. TRAINING

Presently in training :

Clinical Fellows & Project Investigators	108
Post-doctoral Fellows & Research Project Invest.	64

In addition, clinical training is supplied for

- Medical Students
- Dental Students
- Nursing Students
- Allied Health Science Students

Tutorial Laboratories for 70 students from the University of Texas Graduate School for the Biomedical Sciences

Summer research programs for high school and college students.

### Continuing Education

- Annual Clinical Conference
- Annual Symposium in Fundamental Cancer Research

### Allied Medical Educational Programs

- Medical Technology
- Radiologic Technology
- Cytologic Technology
- Histologic Technology
- Dietetic Traineeships
- Blood Bank Technology

Program participation with other institutions

- Cancer Record Registry Operation & Statistics
- Chaplaincy Training
- Hospital Administration
- Respiratory Therapy
- Medical Records Librarian
- Medical Social Service
- Nursing (Undergraduate and Graduate)
- Pharmacy
- Physical Therapy
- Occupational Therapy

## K. PUBLICATIONS

- Cancer Bulletin - since 1948
- Research Report - biannual; total research effort of Anderson Hospital
- Annual Monograph - papers presented at Annual Clinical Conference since 1960
- Annual Monograph - papers presented at Annual Symposium on Fundamental Cancer Research - since 1958
- General Report - biennial report of total institutional activities
- Year Book of Cancer - author-submitted abstracts (with editorial comments) of approximately 350 scientific and clinical articles
- Newsletter - since 1956; distributed to physicians in Texas bimonthly
- Book of Health - for the public; first edition - 1953  
second edition - 1962  
third edition - 1973

Current Articles on Neoplasia - more than 18,000 current cancer references annually

L. MEDICAL COMMUNICATIONS

More than 200,000 slides, photos, prints, and negatives per year.

More than 600,000 clinical and research lantern slides in audio-visual library

61 feature and short teaching films

More than 400 videotapes have been produced

10<sup>4</sup> scientific exhibits have been prepared for scientific meetings

Complete production facilities for photography, medical art, television (color and black & white); motion pictures

Microwave equipment for programming within the institution, throughout the Texas Medical Center, and on commercial and educational stations in the Houston, Texas area

M. RESEARCH PROGRAMS AND PROJECTS

167 research programs & projects currently in experimental cancer research

303 research programs & projects currently in clinical cancer research

N. DIAL ACCESS

In cooperation with the Southern Medical Association and the National Cancer Institute, the Regional Dial-Access System is available to the physicians of Texas and of 16 other states as well as the District of Columbia.

301 pre-recorded tapes of 6-8 minutes duration; subject matter - medical lecture - consultations, toll-free long distance calls. Origin - March 1, 1970; as of 17 August 1975, 26,240 requests for information.

O. TECHNICAL FACILITIES

This information is available if needed.

III. HEADQUARTERS OF EACH TEAM

A. Most teams originate in the clinic, where each new patient is seen and evaluated to determine the best therapeutic procedure to initiate.

B. Teams for the care of cancer patients are variable according to the number of patients cared for and the types of cancer to be treated.

Special study sections are formed depending on an area of joint interest among the clinicians and basic scientists :

- Study Sections
1. Thyroid
  2. Breast
  3. Colon-Rectal Cancer
  4. Immunology
  5. Genetics
  6. Chemotherapy



7. Lung
8. Melanoma
9. Pediatric Tumors
  - a. osteogenic sarcoma
  - b. rhabdomyosarcoma
  - c. Wilms' tumor
  - d. neuroblastoma
  - e. leukemia-lymphoma
10. adult lymphoma
11. clinical research procedures
12. oral cancers

C. Consultations with referring physicians as team members who are responsible for follow-up and rehabilitation care.

#### IV. PROJECTED EXPANSION

##### A. PHYSICAL FACILITIES

Total Gross Square Footage		611,500 sq.ft.
New Lutheran Hospital	270,500	
New Clinic Building	317,500	
New Radiotherapy Unit	23,500	
2-floor addition to existing Research Area		100,000 sq.ft.
New Lutheran Chapel		8,500 sq.ft.
New Facilities at Environmental Science Park, for research on animals and chemical carcinogenesis		<u>40,000 sq.ft.</u>
	TOTAL	760,000 gr.sq.ft.

Complete Remodeling of Existing Hospital and Clinic

##### B. PERSONNEL

Professional Staff	240
Clinical Residents & Fellows	131
Nurses	472
Other Staff	3,013

##### C. PATIENT INFORMATION

New hospital beds (single rooms)	340
New clinic capacity	1,200
Clinical research center (2-floor research addition to back up CRC)	42 bed (new)

##### D. NEW CANCER CLINICAL RESEARCH CENTER - 42 beds

1. The central core facility for clinical investigation
2. Special staff of nurses, pharmacists, and dieticians
3. Designated area of patient rooms in the hospital, including germ-free laminar air flow rooms
4. Unification of clinical investigative efforts of the staff from 7 clinical departments and 5 basic science departments
5. Scattered beds throughout the hospital utilized as needed
6. Unique opportunity for early application of important research findings to patient care; bridges the gap between basic and

clinical research, between acquisition of fundamental knowledge and its early application to cancer problems

Research Staff - Biochemistry, Biology, Biomathematics, Virology, Immunology

Clinical Staff - Clinical Chemistry, and Laboratory Medicine, Developmental Therapeutics, Pediatrics, Radiotherapy, Surgery, Medicine, Pathology

CLINICAL CANCER RESEARCH CENTER

Estimated costs for 42-bed research nursing unit, based on 90 % occupancy.

<u>Service</u>	<u>Annual Patient Days</u>	<u>Annual Cost</u>	<u>Per Diem Cost</u>
Nursing Personnel	13,797	\$ 1,088,560	\$ 78.90
Nursing supplies	"	233,000	16.16
Pharmacy	"	845,850	61.31
Dietetic Services	"	327,516	23.74
Laboratory	"	1,281,189	92.86
X-Ray	"	53,808	3.90
Other	"	319,814	23.18
		<u>\$ 4,139,760</u>	<u>\$ 300.05</u>

CANCER CLINICAL RESEARCH GRANT

I. BIOLOGY OF CLINICAL CANCER

- A. Genetic Control of Carcinogenesis
- B. Endocrinology
- C. Cell Biology
- D. Predictive Indices

II. MEDICAL THERAPY

- A. Clinical Pharmacology
- B. Chemotherapy
- C. Nutritional Therapy

III. IMMUNOLOGY

- A. Clinical Immunology and Immunotherapy
- B. Combination Immunotherapy
- C. Immunological Studies of Patients with Solid Tumors

IV. PROTECTION OF HUMAN SUBJECTS

- A. Controlled Environment
- B. Diagnosis and Management of Infection

V. APPLIED CANCER RESEARCH TECHNOLOGY

- A. Investigation of the B and T Cell Lineage in Lymphoid Neoplasms
- B. Sepsis and Endotoxemia in Cancer Patients
- C. A Study of CEA and Related Glycoproteins
- D. Electron Microscopy Applied to Tumor Diagnosis

VI. SUPPORT ACTIVITIES

- A. Research Pharmacy
- B. Research Dietetics

- Research Nursing
- Administration

SUMMARY OF DEPARTMENT OF CLINICAL CHEMISTRY AND LABORATORY MEDICINE

Major Sections

Hematology

Clinical Chemistry

Immunobiology

Immunology-Immunochemistry

Cytogenetics/Ultrastructure

Auto Processing (Robertson Memorial Laboratories)

Robertson Memorial Laboratories

Laboratory is highly automated

Laboratory computer data system

a. processing

b. analysis

c. 13,000 square feet (will expand to 30,000 sq.ft.)

d. 1974 - almost 2 million tests

Hematology-Hemotherapy

1. Blood

2. Blood components

a. packed red cells

b. fresh frozen plasma

c. cryoprecipitates

d. platelets

3. estimated for the 42-bed clinical research center per month

a. 265 blood units

b. 928 platelet units } approximately one-half of total  
hospital requirements

Clinical Chemistry

Computer system

1. functions 24 hours/day, 7 days/week

2. interfaced with analytical instruments for multiphasic testing

a. two Coulter Counters Model S

7 hematological tests per blood sample

2 samples per minute

b. three automatic optical platelet counters

2 counters analyze venous samples

1 counter analyzes finger-puncture sample

c. Technicon SMA 12/60

12 chemical tests per blood sample

60 samples per hour

d. fast centrifugal analyzer

mixes micro-samples of blood serum with reagents

continuous optical chemical reaction monitoring

(example : enzymes)

29 samples analyzed simultaneously

e. DuPont Automatic Clinical Analyzer

performs emergency test procedures & gives results in less  
than ten minutes

analyzes micro-samples (10-50 microliters of serum)

glucose

urea nitrogen creatinine

bilirubin

uric acid  
lactic acid  
total glucose in serum  
total protein & chloride in spinal fluid  
Also during the day the following are analysed in batch mode :  
serum iron  
iron binding capacity  
acid phosphatase  
amylase  
uric acid  
radioimmunoassay

## RESULTS

### Microbiological Service

Multiple micro-tests to identify gram-negative bacteria  
anaerobic chamber and gas chromatography to identify anaerobes  
automated antibiotic test system  
100% cultures (85% of total bacteriological procedures)

### Study Period - 12 month period

20 patients  
100% cultures (in duplicate), equals 1.5 tests / 1 patient  
100% sensitive  
100% of patients had enteric bacteria, pseudomonas, etc.  
100% of patients had significant anaerobes  
100% of patients had "opportunists"

100% detection of growth (with visual inspection, smears, sub-cultures)  
100% of enteric, 1/3 of pseudomonas, 1/3 of S. aureus  
100% of 3/4 of pseudomonas, clostridium, all strains  
100% of bacteroides

100% of S. aureus had not been discovered after 3 days

100% high to increase the speed of detection of :

100% bacteremia and generalized infections with  
100% multicentric detection system  
100% gas liquid chromatography  
100% inoculated media  
100% patient blood  
100% fever of unknown origin

100% lysate test for detection of epstein in blood  
100% of study : 97 patients more than 1/2 positive with  
100% blood culture evidence of sepsis  
100% immunological tests for detection of antigen and antibody

## SUMMARY OF DIETETIC SERVICE

### Area of responsibility

nutritional care of patients consistent with objectives of  
research protocols  
provision for the physician-investigator of accurate information  
relating to dietary intake of research patients and of the  
nutritional component of the study  
sterile nutritional care for patients in 20 protected  
environments.

### Metabolic Kitchen

\$ 114,000 total cost of equipment

1. laminar air flow room with range to permit aseptic food preparation
2. steam autoclave to sterilize food and utensils
3. flash freezer for storage of prepared foods for later use
4. other standard kitchen equipment

Computer terminal to assist in complex dietary calculations and to maintain complete dietary intake records.

- 195 items on menu (each item cultured periodically in laboratory)
- 53 minutes required to assemble 20 trays per meal
- 8.33% average weight loss per patient in protected environment for a period of 10 weeks.

### SUMMARY OF NURSING SERVICES

#### Major responsibilities

1. Initiation of nursing research projects to improve the management of research patients
2. Study of psychological effects on cancer patients confined in laminar air flow units
3. Education of patients (and family members) in use of new continuous liquid infusions drug delivery systems.
4. Maintenance and coordination of protocols demanding continuous or interrupted infusions (sometimes at multiple sites) including complex combination chemotherapeutic agents, antibiotics, blood products, and hyperalimentation fluids. Monitor results.
5. Quality control to keep catheter infection rate to a minimum
6. Accurate, detailed records

#### Major Expendable Items

\$ 23/patient/day in protected environment  
(20 patients - \$ 368 per day; \$ 168,000 per year)

### SUMMARY OF HYPERALIMENTATION PROJECT

- 5 research beds
- 70 patients per year
- 26 days = average duration of hyperalimentation
- \$ 75 per day per patient for solutions (\$ 25 per liter - 3 liters per day per patient)
- \$ 176,500 per year = total cost of unit (\$ 75/day x 26 days x 70 patients)
- \$ 28,000 per year for addition of albumin (12 grams/day for average of 8 days - \$ 50/12 grams)

#### Metabolic Monitoring

	<u>Annual cost</u>
Serum electrolytes } (3 x/week)	\$ 8,400.00
Fasting blood sugar }	4,200.00

Protein electrophoresis	2,800.00
Serum albumin	1,400.00
SMA 12/50	5,600.00
Magnesium	2,940.00
CBC (complete blood count platelets, differential)	(1 x/week) 7,840.00
Prothrombin time	1,400.00
Phosphorous	2,100.00
Calcium	2,800.00
	<hr/>
	\$ 39,480.00

#### Equipment

Amino Acid Analysis	80,360.00
Nitrogen Analysis	14,110.00
Micro pH Unit	4,250.00
7 Molter pumps \$ 595.00 each	4,165.00
Laminar Air Flow Hood	1,500.00
	<hr/>
	\$ 104,385.00

#### Supplies

Amino Acid Analysis	4,284.00
Nitrogen Analysis	6,400.00
Crystalline Amino Acids Mixing, filters, etc.	20,000.00
Hyperalimentation solutions, preparation, cultures, etc	172,987.00
Office Supplies	1,000.00
	<hr/>
	\$ 204,671.00
Equipment maintenance	\$ 3,000.00

### SUMMARY OF PROTECTED ENVIRONMENT UNIT

#### Laminar Air Flow Rooms

For treatment of advanced malignant diseases

1. patients immunoincompetent, resulting from
  - a. disease
  - b. treatment
2. highly susceptible to infection
  - a. neutropenia-major cause (especially in acute leukemia)

Two-fold increase in chemotherapeutic antitumor agents equals ten-fold increase in tumor cell destruction, but creates higher degree of myelosuppression.

#### Microbiological Studies

- 2 major sources of infection
  1. hospital environment
  2. patient's endogenous microbial flora
- 2 methods of control
  1. protected environment
  2. prophylactic antibiotics, bacteriostatic soap preparations, topical antibiotics

### Comparative Studies

Patients maintained in the protected environment-antibiotic regimen

1. fewer died before completion of therapeutic trial
2. median remission 55 weeks compared to 36 weeks for controls
3. median survival 34 weeks compared to 23 weeks for controls

Randomized trial for acute leukemia patients (randomized when unit became available)

1. three types of regimens
  - a. protected environment + oral antibiotics
  - b. protected environment + systemic antibiotics
  - c. systemic antibiotics only
2. results
  - a. number of episodes of infection per patient
    - .94 for those not in protected environment
    - .60 for those in protected environment
  - b. overall remission rates
    - 44 % for those not in protected environment
    - 74 % for those in protected environment
  - c. for those on systemic antibiotics, overall remission was
    - 42 % for those not in protected environment
    - 62 % for those in protected environment

### Costs

1. basic laminar flow system	\$ 16,900.00
2. drapery controls + sterile water supply	2,100.00
3. shipping and installation (Houston)	<u>2,700.00</u>
	\$ 21,700.00

Additional costs to hospital (above basic hospital costs)

1. operational cost per patient per <u>day</u>	10.00
2. sterile supplies per patient per day	20.00
3. food and packaging per patient per day	5.00
4. prophylactic antibiotics per pt. per day	30.00
5. microbiological supplies per pt. per <u>month</u>	100.00
6. maintenance costs per unit per <u>year</u>	750.00

### Additional Personnel (for 8 units)

1. supervising physician or microbiologist
2. research dietitian
3. 3 medical technicians (for microbiological monitoring)
4. 1 laboratory assistant (for preparation of media)
5. 6 kitchen helpers (feed service)
6. 1 nurse (central sterile supply)
7. 1 housekeeping employee (to clean rooms at regular intervals)
8. 1 nurse per 4 units per shift (optimal)

### Essentials

1. separate kitchen for food preparation to avoid contamination with gram negative bacteria
2. microbial monitoring of unit and patients

## SUMMARY OF PHARMACY

### Demand for services - Hospital (300 beds)

Due to the patient population and the intensity of therapy, the quantity of drugs and fluids necessary for the patients in M.D. Anderson Hospital and Tumor Institute is comparable to the patient demand in a general hospital of approximately 900 beds.

### Demand for services - Clinical Research Center (42 beds)

#### Facilities

1. satellite pharmacy (11th floor) 675 square feet
2. dispensing station (12th floor) 81 square feet
3. both in surgically clean area

#### Services

1. distribution of routine medications
  - a. each dose packaged and labeled, ready for administration
  - b. intravenous medications
    - (1) prepared in sterile atmosphere
    - (2) approximately 1,000 bottles daily (for entire hospital)
    - (3) 85 % of above (2) contain 1 or more additives
2. preparation of special, non-commercial drugs and fluids
  - a. oral liquid forms of non-absorbable antibiotics (for sterilization of intestinal tract)
  - b. topical ointments, solutions, gels (antibiotic, anti-fungal)
  - c. parenteral hyperalimentation (amino acids, carbohydrates, electrolytes)
3. clinical pharmacy
  - a. provide information to physicians and nurses regarding cancer and non-cancerous diseases
    - (1) drug-drug interactions
    - (2) drug-food interactions
    - (3) drug effects on laboratory tests
  - b. patient education (for strict compliance with research protocol)

#### Personnel

1. for specific product formulation, packaging, sterilizing, etc.
2. clinical pharmacist (for consultation to physicians, nurses, etc.)
3. research pharmacist (for hyperalimentation formula preparation).



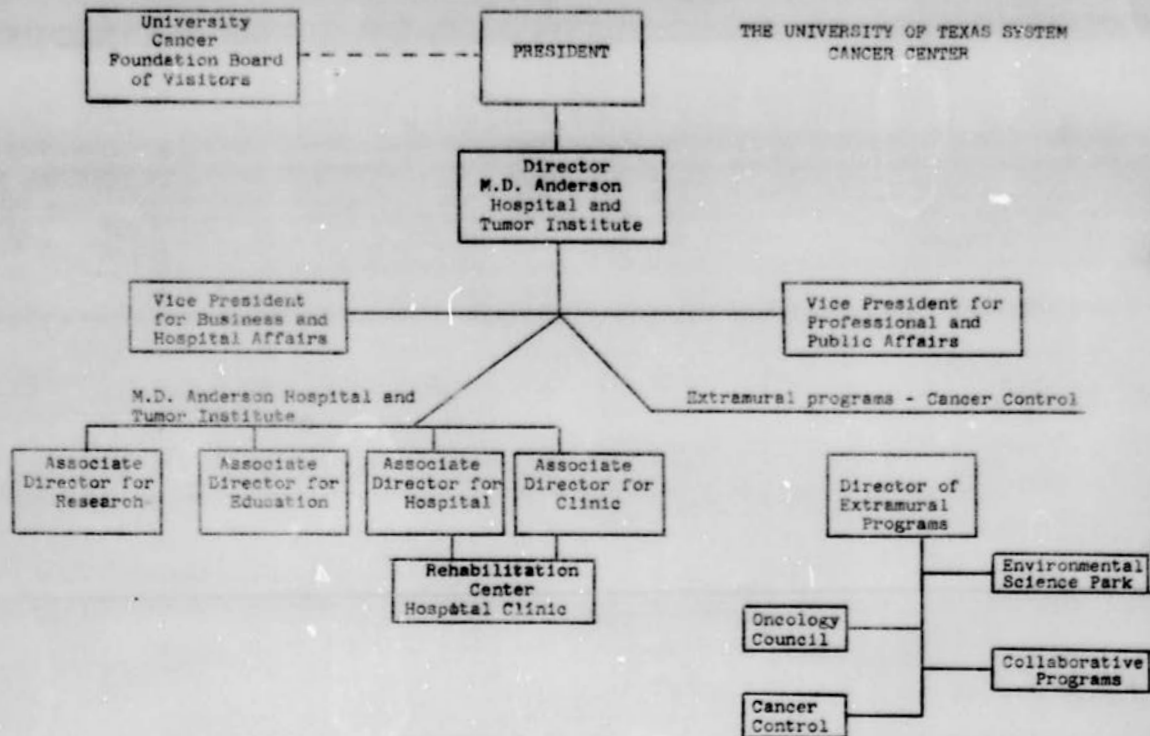


Figure 1.

THE UNIVERSITY OF TEXAS SYSTEM

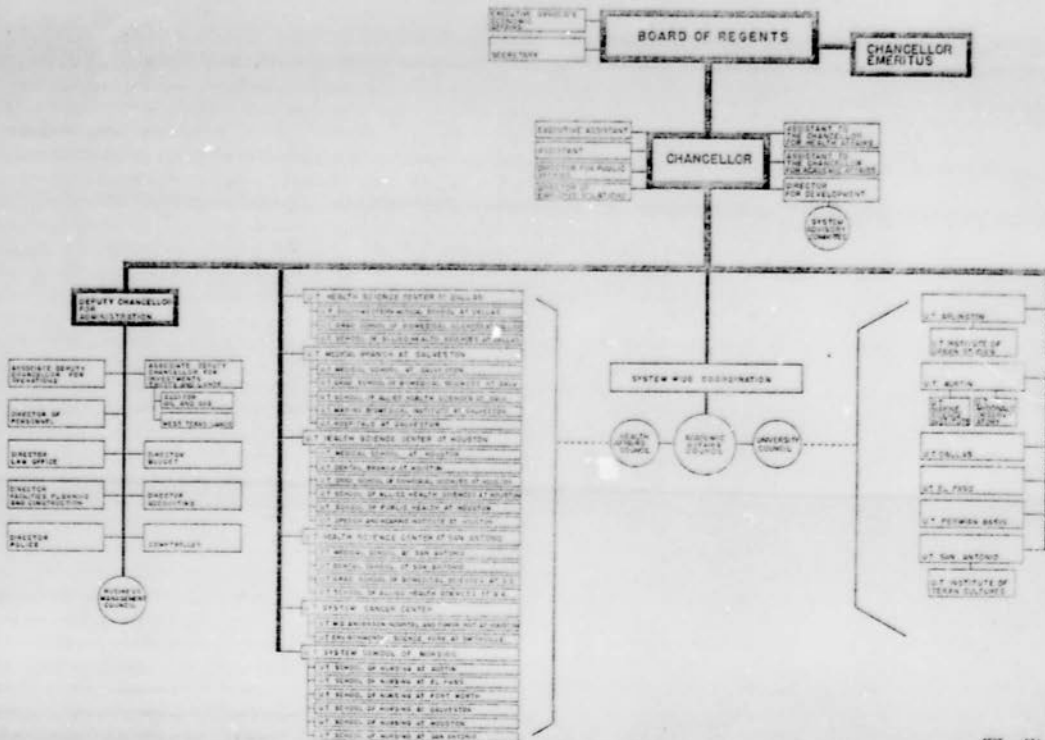


FIGURE 2

COMPREHENSIVE CANCER CENTER  
INFORMATION FLOW

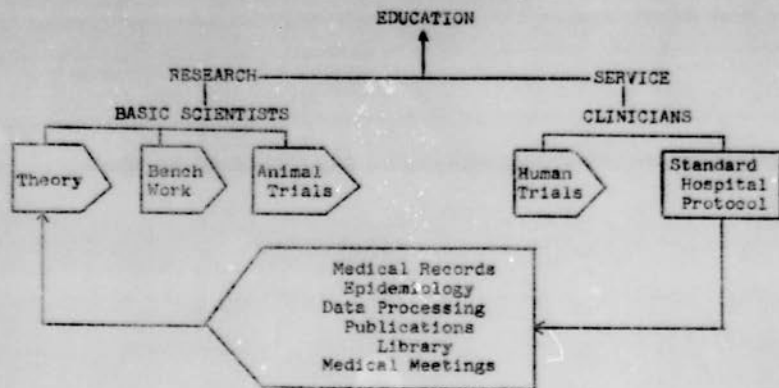


Figure 3

EDUCATION

NATIONAL & INTERNATIONAL DATA BANKS

OTHER CANCER CENTERS

Comprehensive  
Cancer Center

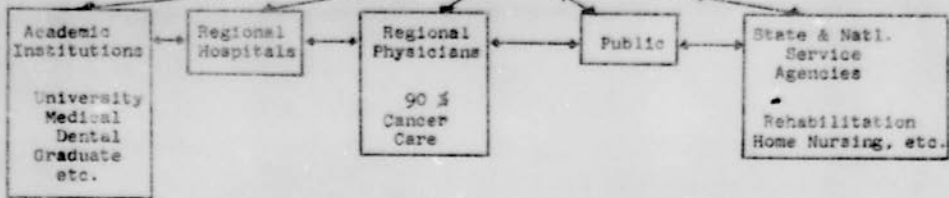


Figure 4

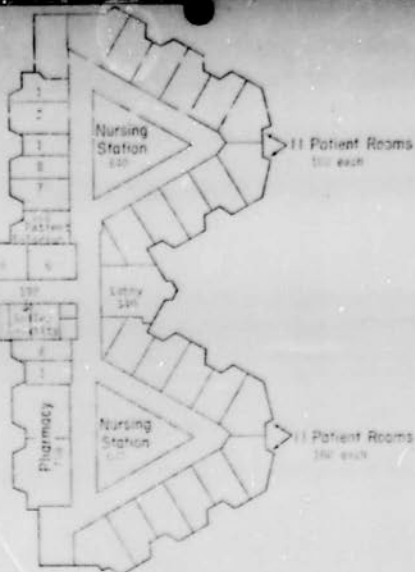
### Backup Support Areas

- 1- Offices --5-450
- 2- Library and Conference --3-625
- 3- Meditation --56
- 4- Tub Rooms --2-120
- 5- Treatment --165
- 6- Nutrition --192
- 7- Storage --145
- 8- Clean Utility --2-280



11th FLOOR

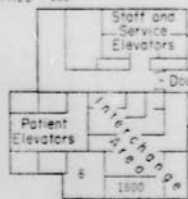
Square Footage  
For Areas



### CENTER QUARTAL RESEARCH GUIDE

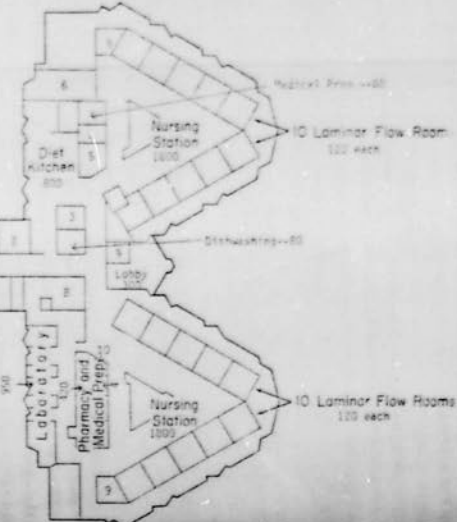
### Backup Support Areas:

- 1- Equipment and Storage --2-210
- 2- Housekeeping and Kitchen Storage --2-240
- 3- Diet Office --80
- 4- Clean Utility --2-200
- 5- Nurse Office --100
- 6- Library and Conference --1-450
- 7- CSS Storage --288
- 8- Soiled Linen and Utility --176
- 9- Consultation --3-110
- 10- Doctors' Office --100



12th FLOOR

Square Footage  
For Areas



YEARS

	1	2	3	4	5	TOTALS
<b>I. BIOLOGY</b>						
A. Genetics	\$ 66,704	52,440	54,774	56,953	50,285	290,156
B. Endocrinology	186,220	162,223	166,908	176,826	184,535	876,712
C. Cell Biology	447,239	341,900	360,210	379,776	397,429	1,926,554
D. Predictive Indices	156,281	96,510	96,984	102,605	108,350	560,730
<b>TOTALS</b>	<b>\$ 856,444</b>	<b>653,073</b>	<b>678,876</b>	<b>716,160</b>	<b>749,599</b>	<b>3,654,152</b>
<b>II. MEDICAL THERAPY</b>						
A. Clinical Pharmacology	\$ 285,970	207,778	223,199	234,639	247,243	1,198,829
B. Chemotherapy	131,972	117,160	121,427	127,398	124,445	632,382
C. Nutrition	413,451	320,551	330,259	341,364	352,042	1,757,667
<b>TOTALS</b>	<b>\$ 831,393</b>	<b>645,489</b>	<b>674,885</b>	<b>703,401</b>	<b>733,730</b>	<b>3,588,878</b>
<b>III. IMMUNOLOGY</b>						
A. Clinical Immunology & Immunotherapy	\$ 423,028	391,043	410,450	433,477	446,865	2,104,863
B. Combination Immunotherapy	144,736	92,545	96,486	99,368	103,335	526,970
C. Immunological Studies of Solid Tumors	76,560	70,945	75,312	77,559	80,675	381,051
<b>TOTALS</b>	<b>\$ 644,324</b>	<b>554,533</b>	<b>582,248</b>	<b>610,904</b>	<b>630,875</b>	<b>3,022,884</b>
<b>IV. PATIENT PROTECTION</b>						
A. Controlled Environment	\$ 241,378	188,402	194,219	201,041	207,760	1,032,800
B. Diagnosis & Management of Infections	372,242	325,267	339,785	354,594	369,525	1,761,413
<b>TOTALS</b>	<b>\$ 613,620</b>	<b>513,669</b>	<b>534,004</b>	<b>555,635</b>	<b>577,285</b>	<b>2,794,213</b>
<b>V. APPLIED RESEARCH TECHNOLOGY</b>						
<b>TOTALS</b>	<b>\$ 194,201</b>	<b>144,128</b>	<b>151,571</b>	<b>158,821</b>	<b>167,471</b>	<b>816,282</b>
<b>IV. SUPPORT ACTIVITIES</b>						
A. Research Pharmacy	\$ 395,519	420,630	445,502	475,323	500,103	2,237,077
B. Research Dietetics	161,156	159,344	167,356	176,516	184,987	849,359
C. Research Nursing	715,684	742,988	771,064	820,742	850,976	3,901,454
D. Administration	89,295	89,305	94,000	98,417	103,108	474,125
<b>TOTALS</b>	<b>\$ 1,361,654</b>	<b>1,412,267</b>	<b>1,477,922</b>	<b>1,570,998</b>	<b>1,639,174</b>	<b>7,462,015</b>

GRAND TOTAL : \$ 21,338,424

COMPREHENSIVE CANCER CENTER FOR THE STATE OF FLORIDA  
AT THE UNIVERSITY OF MIAMI SCHOOL OF MEDICINE/  
JACKSON MEMORIAL MEDICAL CENTER

101

C. Gordon Zubrod, M.D., Director

1.1 Description of Center

1.1.1 History

Prior to the designation of the Comprehensive Cancer Center the large number of University cancer related activities were scattered amongst every department of the medical school and every clinical service of its three hospitals - The Jackson Memorial Hospital (JMH), the Veteran's Administration Hospital (VA) and the University of Miami Hospitals and Clinics (UMHC). There was no focal point to serve as protagonist for interdisciplinary interactions in cancer research, training and patient care. There existed a medical oncology division under Dr. Howard Lessner within the Department of Medicine with activities going on in both JMH and VA. A planning grant starting June 1, 1972, under the leadership of Dr. Lessner, brought together the many interested parties. This effort resulted in a successful application for a comprehensive center, with a three year care grant starting June 1, 1973. Dr. Lessner initially recruited a fine nucleus for the Center: Mr. Michael Siegel, Executive Officer; Mrs. Beth Strunk, in charge of the registry and nursing education; Dr. Michael Troner, Chief of VA Oncology service. During the first year of the grant an Executive Committee was appointed, a number of developmental projects were supported, monthly seminars were arranged and the JMH cancer registry was reorganized. In June 1974 Dr. Gordon Zubrod became Director of the Center and Chairman of a newly established Department of Oncology. Additional new staff members appointed in 1974 included Dr. Alfred Ketcham, Chief of Surgical Oncology, Dr. Oleg Selawry, Vice-Chairman of the Department and Deputy Director of the Center for intramural activities; Dr. John Healy, Jr., Deputy Director for extramural activities and chief of cancer rehabilitation; Mr. Lawrence Strum, Communications Officer. In 1975 there were additional departmental appointments: Dr. Francisco Tejada, assistant to the Director; Dr. Samuel Gunn and Dr. Thelma Gould (who had previously been in the Department of Pathology) in charge of educational programs; Dr. Sally Beuttel, assistant to Dr. Healy; Ms. Viola Harrell, Physicians Assistant; Mrs. Sandy Bagwell, Nurse Clinician. In June 1975 Dr. Lessner transferred the medical oncology division from Medicine into the Department of Oncology and brought with him Dr. Michael Troner and two newly appointed assistant professors, Dr. Richard Kaplan and Dr. Michael Silverman. Recently, Dr. Everette Sugarbaker joined Dr. Ketcham in surgical oncology. Joining the department in October, is Dr. Charles Vogel who will head up clinical pharmacology and the breast cancer team.

In 1972 the Center was awarded a construction grant of \$ 525,000, matched by \$ 700,000 from the Public Health Trust of Dade County, to renovate one of the older buildings of JMH for a 28 bed oncology unit with space for offices and outpatient clinic. Construction

was postponed while the Trust weighed negotiations for space in the Cedars of Lebanon Hospital, but this did not come about. In the meantime, the new clinical tower (West Wing) of JMH neared completion and as the clinical services are relocated into the new wing and into the most modern of the existing buildings, South Wing and Central Wing, the Center will be given 36 beds for an Oncology Service. This service will be situated in close juxtaposition to several of the surgically oriented oncology activities (surgical oncology, thoracic surgery and gynecologic surgery) bringing together 110 beds designated to cancer. There are no outpatient facilities in the West Wing, but a joint Cancer Center outpatient clinic will be placed in appropriate hospital space to be freed up as the West Wing opens. A request will be made to use the construction funds for the renovation of this area which will include enough offices, examining rooms, waiting space, treatment rooms, etc., to house the joint clinics involving the several services dealing with cancer patients. The present oncology clinics are departmental functions, scattered in time and place. With adequate quarters it will be possible to have joint or simultaneous clinics of the interested departments, common facilities and specifically trained nursing teams, resulting in greater speed, efficiency and compassion in work up and continuing care of outpatients.

In July 1975 the JMH Medical Board created an oncology service, with Dr. Zubrod as Chief of Service. Dr. William Harrington, Chairman, Department of Medicine, graciously transferred 9 of his beds on the 5th floor of Woodard to start the oncology service. This area has been partially renovated, an entirely new nursing staff of RN's, LPN's, and Nurse Practitioners recruited, and at present houses medical oncology patients. Transfer of the unit to the 36 new beds is scheduled for March 1, 1976.

A request to the space committee of the School of Medicine for laboratory research accommodations for the new department has been granted. It will consist of 3700 square feet on the second floor of the Medical Research Building. Movement of present occupants and slight changes in the labs will take 5-6 months, which matches nicely the scheduled needs for Drs. Vogel and Tejada.

#### 1.1.2 Assumptions on which the Center is building its organization and operating characteristics

Our concept of a comprehensive center is that it is the focal point for cancer activities bringing leadership and innovation into interdisciplinary interactions, within the University, and in the surrounding medical community, to the end that incidence, morbidity and mortality from cancer will be reduced. To bring this about required a small nucleus of key staff, who can spend virtually full time on the planning, financing, initiation and monitoring of the critical moves requisite for interdisciplinary collaboration. Of equal importance as key members of the Center is the part time participation in the affairs of the Center of many individuals from other departments and other institutions. It is only by this means that the complexities of interdepartmental cooperation can be brought to bear upon cancer research, education and patient care. The chief means of such cooperation will be through the all important disease oriented teams. These are described in detail



in Section 4. Externally, it is necessary for the staff of the Center to work closely with the many individuals and agencies in the community interested in cancer patients so that objectives can be defined, decisions reached jointly and coordinated actions undertaken. The role of the Center in the community is leadership, education, and demonstration and especially, marshalling support and resources. Its role is not that of delivery of health care.

### 1.1.3 Policies on Research

#### 1.1.31 Laboratory research

The policy of the Center will continue to be that which has worked so well to date, namely, the Center will depend heavily on the strengths of the many departments of the School of Medicine and of the main campus. In addition, there will be continued encouragement of scientists from the Papanicolaou Institute, Nova University and Florida International University to take part in the research interests of the Center. The major role of the Center, in brief, is to create the climate and opportunity for the scientists in the University and nearby, for interchange and collaboration on problems of importance to cancer research, both with one another, and with clinical investigators.

The major route to such collaboration is through participation in the activities of a disease oriented team. There are other devices for collaboration that are used as prelude to formation of a team and they generally come under the heading of small working groups with joint interests in some new opportunity arising from research, or a problem coming from the bedside.

The Center does not intend to recruit large numbers of laboratory scientists, but will add on a few areas where leadership in a new direction is needed. In the past the Center has partially supported the salary of a scientist recruited by another department, when the programmatic area was of great importance to the Center's interdisciplinary program. Examples are Dr. Philip Glade, an immunologist in Pediatrics and Dr. Richard Donelson, an epidemiologist in the Department of Epidemiology and Public Health.

The developmental projects are of great importance to the Center. The experience with developmental projects has been rewarding from several aspects. The technique of a formal invitation to all scientists of the University to submit new ideas in cancer research for possible "seed" funding, uncovered the interest of a number of scientists, most of them recent recruits, and some splendid new projects. The research subcommittee of the Executive Committee worked hard in reviewing the more than forty submissions, utilizing critical reviews by many scientists from other departments. This engendered a number of interdisciplinary interchanges which will have permanent value. Indeed in some instances it led to joining forces in new collaborations. This process of periodic invitation and intensive review will be continued once or twice a year. The developmental projects are planned for an average two years of support, by which time the scientist should have his own support.

### 1.1.32 Clinical Research

As indicated above, clinical research is funded from a multitude of NCI sources, and required substantial effort in coordination by the Center. This coordination will be brought about through the disease oriented teams. This will permit attention to the substance and methodology of the research, and yet is compatible with multiple funding sources. It is up to the team to coordinate the various objectives spelled out by the granting divisions of NCI, and to avoid the competition for patients which always occurs without formal coordination.

## 1.2 Components and Resources

### 1.2.1 Department of Oncology

The establishment of the new department proved to be an important step toward a number of the Center's goals. In the first place it provided a rallying point and an esprit de corps for the full time staff of the Center. Secondly the staff were quickly housed together in Centre House and it became known and available to all as the home of the Comprehensive Cancer Center. Thirdly, departmental status brought the Center into the mainstream of University actions, avoiding the separation and isolation so deadening for interdisciplinary goals. Finally it had many practical benefits such as the right to make faculty appointments, to have its own hospital service at JMH, and to have a voice on all policy committees of the medical school.

### 1.2.2 Participation of other Departments

At first interdepartmental participation in the Center was achieved through membership on the executive committee. In the past year the committee has been expanded so that all cooperating departments are represented, as well as JMH and VAH. A list of members of the executive committee appears on the following page. Interdepartmental collaborative teams also have been fostered through joint participation in research projects, especially program projects, and in developing core service laboratories. A number of dual appointments have been extended to faculty or other departments in recognition of their interest and participation in the Center's programs. A big step forward was made when the curriculum for the second year became the responsibility of the Oncology Department. Several other key departments (Pathology, Pharmacology, and Microbiology) agreed to pool their teaching hours in oncology in order to assure a single unified oncology course. In addition most of the clinical departments and epidemiology will participate in the second year course. Finally and most importantly, the best means of achieving interdisciplinary cooperation is through the disease oriented teams described below.

### 1.2.3 The Jackson Memorial Medical Center

JMH is one of the most active county hospitals in the United States. It serves Dade County, and is under the control of the Public Health Trust, a quasi-autonomous function of the county government. There is a contract between the Trust and the University that makes JMH the major teaching hospital for the medical school, and establishes

the faculty as the sole professional staff for JMH. There are approximately 1,115 beds, and at any one time there are about 100 cancer patients in hospital. In addition there are active oncology clinics in a number of departments with approximately 1000 visits of cancer patients per week. The cancer registry for the past year shows 1684 admissions to JMH beds. The pressure for improved research and patient care is particularly keen in Florida because the state is number one in the nation in per capita cancer incidence and mortality. The JMH consists of a large number of small older buildings and a few larger more modern units (see photograph of campus on following page). As mentioned, a new clinical tower (West Wing) will open soon and the two large modern buildings will be renovated and the various services coordinated mainly in the three buildings. There is planning for an additional clinical tower within the next five years. The Center has received strong support from the Trust and from the staff of JMH in developing the physical facilities essential for high quality, interdisciplinary care.

#### 1.2.4 Other Hospitals and Institutions Relating to the Center

##### 1.2.41 University of Miami Hospitals and Clinic

The University maintains a small private hospital consisting of 70 beds and an extensive private outpatient clinic. This building also contains the Clinical Research Unit. All clinicians participate in a vigorous private income plan, on a geographic full time basis, with all fees going to the University. Most of the ambulatory private patients are seen at UMHC, but admissions can occur either there or at JMH. Large numbers of cancer patients are sent to Cancer Center physicians for consultation. The UMHC also contains a special Pediatric Oncology Clinic, underwritten by the Deed Club, for both private and staff patients.

##### 1.2.42 Veterans Administration Hospital

On the campus is a 500 bed hospital which is almost completely coordinated with the medical activities of the University. Reflecting the age group served, there are large numbers of cancer patients. Last year there were 1,082 cancer discharges from the hospital and over 400 cancer visits per week in OPD. Because the VA as a national policy does not have separate oncology departments, the cancer activities are carried out under the traditional existing format. In surgery Dr. George Irvin (formerly of NCI) is chief of service, and Drs. Ketcham and Sugarbaker are working out their plans on his service. Similarly Dr. Eliseo Perez-Stable is chief of medicine and Drs. Lessner and Troner take care of medical oncology patients, including a large outpatient activity. Because both the JMH and the VAH are staffed by University faculty, the patients from the VAH, through the disease oriented teams, have equal access for the research and educational activities of the Center.

##### 1.2.43 Variety Children's Hospital

This is a private pediatric hospital about three miles off campus that admits children with cancer in numbers equalling those of the University. Hematology-Oncology is headed by Doctor Sergio de Lamerens, formerly of St. Jude's. The relationship with the University has been largely through Leukemia Group B but this arrangement is ending. There have been many meetings between

staff members of the Center and Variety to find a better instrument than Leukemia B for joint collaboration.

#### 1.2.44 Mt. Sinai Hospital

Located on Miami Beach, it is an outstanding institution where many cancer patients are seen. They have superb radiation, many fine surgeons and a beginning medical oncology unit. Interactions are mostly on a scientist to scientist basis, but broader arrangements are under discussion mostly through participation in disease oriented team activities.

#### 1.2.45 The Pannicolaou Cancer Research Institute

The Institute is a privately financed activity, close to the University under the leadership of Dr. Julius Schultz. The staff includes a number of fine scientists and there is increasing collaboration in laboratory research. This will grow further by means of opportunities presented through the disease oriented teams. Its faculty hold joint appointments at the School of Medicine.

### 1.3 Organization of the Center

#### 1.3.1 General Organization

The Center is best conceptualized as the hub of a large wheel, with many radial connections to the individuals and groups interested in cancer, both within and without the walls of the University (see Chart 1).

#### 1.3.2 Internal Program

The functional nucleus of the Center is the department of Oncology (see Chart 2.). The Department supplies one full time staff of the Center, with direct responsibility for organizing, financing and monitoring the complex interdisciplinary operations of cancer research, care, education and control. The major policy setting group of the Center is the Executive Committee whose membership includes senior representatives of the departments and hospital services deeply involved in cancer problems. It has several sub-committees that concentrate on specific problems. The operating arms of the Center are two fold -- administratively : the divisions of Department; scientifically : the disease oriented teams. Basic research does not have a formal administrative or operating structure within the Center, because both preclinical and clinical departments are strong in laboratory aspects of research and we believe that the function of the Center is to catalyze the interactions between basic scientists and clinical scientists, thus taking advantage of the existing University strengths. Another catalytic function of the Center is to identify promising new leads and young investigators interested in cancer research and encourage their growth through modest developmental support. (See Volume II).

#### 1.3.3 External Program

The Center in its external program has a wide variety of interactions with individuals and organizations in the community. While this is most intense in our local area, the Center staff is exploring the state wide cancer problem and the resources available

to Florida, to reduce incidence, morbidity and mortality. A survey of the entire state is underway, and by involving a large number of individuals dedicated to cancer control, we hope to gain both an action momentum and a series of networks through which the control activities will flow. This is not a solo performance by the Center, but involves a joint collaboration with the University of Florida and University of South Florida, American Cancer Society, the county medical societies, many community hospitals, the State Department of Health and Rehabilitation, the Health Services Agency and many other individuals and institutions. The policy making body is the scientific Advisory Committee, and the operating arm is the Division of Cancer Control under Doctor John Healey.

#### 1.3.4 Centralized Services of the Center

One of the effective functions of a Center is to provide centralized services essential for carrying out the objectives of the Center but unobtainable through current devices. In the past year, the Center has initiated several such services and planned others. These include an immunologic surveillance lab; a biochemical and endocrine marker service; a statistical and data management unit; an expanded cytology unit. These services are provided by other departments, with the encouragement and partial funding from the Center. In addition services are planned in the future for cell kinetics and pharmacokinetics, but the service aspects will be highly limited off shoots from corresponding program projects.

#### 1.3.5 Relations with Clinical Trials Groups

Clinical trials in the University are carried out through a diverse series of funding maneuvers. These include seven cooperative groups, four organ site programs, a number of contracts and project grants, control grants and contracts. Many of these funding devices predated the Center. They exist as programs in which the Center has a vital interest yet pose problems of competition for patients, and the imposition from outside the Center of directions and standards that often the Center finds less than optimal. The staff of the Center has engaged in innumerable meetings about these clinical difficulties and major gains in coordination have occurred.

#### 1.4 Financing

The direct support of the Center comes from the core grant, other grants and contracts, the University, private sources, especially from the Woman's Cancer Association (WCA) of the University and the Deed Club. Indirect support derives from the University and the Public Health Trust. The latter is substantial because it provides the costs of the patient care for indigent patients, and the means whereby private patients can be admitted and studied. Its equivalent in dollars is conjectural, but of the order of \$ 6,500,000. The Woman's Cancer Association of the University this year pledged one million dollars to the Center, to be paid as rapidly as their fund raising efforts allow. The gift this year was \$ 100,000. The Deed Club contributes \$ 50,000 per year to pay off the debt incurred in the construction of the pediatric oncology unit and in addition covers all patient expenses for children who are not otherwise covered.

## 1.5 Evaluation of the Performance of the Center

### 1.5.1 Direct Evaluation

It is imperative that each Center make a formal evaluation of what it has accomplished. The best end point would be reduction in incidence, morbidity and mortality from cancer in the area served by the Center. While this end point probably cannot be applied in less than 5-10 years, the recent presentation by Dr. Schneiderman showing the predictive value of one year mortality statistics, may change this cliché. Because our Center is so recent, evaluation at this time can only be in terms of the ten criteria of comprehensive centers published by the NCI (see Section 3). Our future evaluation procedure has been developed by Dr. Sally Beuttel, and is an adaptation of Jarrett's Key Factor Analysis. Measurable goals for each of the 10 criteria have been defined, and the center will be scored on its performance by non-biased observers. Preliminary qualitative estimates indicate the Center has a high score on each of the criteria except for the organized cancer detection program. We have had to proceed cautiously because segments of the medical community regard detection centers at the University as an intrusion into the private practitioners' role. After many discussions a proposal for multi-component screening has been carefully constructed by Dr. Troner and is awaiting action by the Cancer Control Division.

### 1.5.2 Indirect Evaluation

While indirect as evaluation indices, the Center has been accorded the following :

Listed by Dr. John Yarbro (in his final presentation to NCAB) as one of the 5 centers that "have developed an organizational stability, scientific level of expertise and rate of growth which guarantees, at least to me, that these institutions will be with us for many years to come as successful multi-disciplinary programs". The other four centers were Sidney Farber Center, Boston; Fred Hutchinson Center, Seattle; Wisconsin Center, Madison; and Mayo Foundation Center, Rochester, Minnesota.

Chosen by NCI as one of four Comprehensive Centers to be studied for impact of Comprehensive Centers on clinical cancer care.

Chosen by Association of Community Cancer Centers as one of four comprehensive centers to be a demonstration model of interaction between the Center and a community cancer center (Jacksonville).

## 1.6 Major Accomplishments in Past Year

### 1.6.1 Administrative

Development of an organization able to achieve objectives of Center  
Creation of Department of Oncology.

Opening of Center offices.

Establishment of Oncology service at JMH and opening of Woodard V.  
Recruitment of new professional staff.

(Doctors Alfred Ketcham, John E. Healey, Jr., Oleg Selawry, Francisco Tejada, Sally Beuttel, Everette Sugarbaker, and Charles Vogel, also a Physician's Assistant, Viola Harrell and a Research Nurse, Sandy Bagwell)

and administrative staff :

(Mr. Michael Siegel, Mr. Lawrence Strum, Mr. Robert Powell, Mrs. Beth Strunk)

Transfer of Drs. Samuel A. Gunn and Thelma Gould from Pathology to Department of Oncology.

Consolidation of Medical Oncology Division into Department of Oncology, with transfer of Drs. Howard Lessner, Michael Troner, Michael Silverman, and Richard Kaplan.

Start of survey of cancer resources in State of Florida.

Establishment of unified cancer curriculum for second year medical students.

Development of disease oriented teams for cancers of lung, colon and rectum, prostate, pancreas and central nervous system.

Enlargement of the Professional Education Program.

Establishment of a Joint Communications Network with ACS.

Publication of the largest in-state health newsletter in Florida.

Staged largest public education event in history of School of Medicine.

### 1.6.2 Laboratory Research

In the original grant, several laboratory research projects were selected by the reviewers for core support for the first three years of the grant. These took the form of relatively full support, rather than as "seed" support for developmental purposes.

These projects have resulted in the following observations :

Dr. Sheldon Greer has studied selective tumor radiosensitization through enzyme inhibition, permitting incorporation of 5-bromo deoxyuridine into tumor DNA. Similar systems have been used to demonstrate enhanced repair after ultraviolet irradiation.

Dr. Karl Muench has made an extensive study of tryptophanyl - tRNA synthetase in chronic lymphocytic leukemia lymphocytes. The structure of the enzyme has been determined and shown to have different sequences than E. coli enzymes.

Dr. Rudolf Werner has shown the existence of two pools for thymidine nucleotides - de novo pool and a salvage pool. The salvage pool is available for replication at all times, while the nucleotides from the de novo pool must first pass through another compartment before utilization is possible.

Dr. Jerry McCullough has studied the enzymatic steps involved in DNA synthesis in normal skin, in primary tumors of skin; in carcinomas metastatic to skin and in psoriatic skin. The changes in DNA synthesis interposed by cyclic AMP and various anti-tumor drugs have been examined.

Dr. Henry Menn has made a number of studies of adenylyl cyclase in psoriatic and normal skin, and in basal cell and squamous cell carcinomas.

Dr. Gerald Weinstein has studied the effect of MTX and lipid soluble analogues upon DNA synthesis in human skin, both normal and psoriatic. He has also studied a number of immune parameters in patients with psoriasis and with mycosis fungoides.

Dr. Hervy Averette has studied cell population kinetics in tumors of the female genital tract, and has related these to the chemotherapy strategy for advanced gynecologic cancer.

For this renewal of the core grant, the Center has established the policy, that only new, truly developmental projects will qualify. In selecting the best seed projects, the Center canvassed the entire faculty both of the medical school and the main campus. Some forty letters of intent were submitted, and screened by the research subcommittee and eventually 15 projects were chosen to be part of this application.

#### 1.6.21 Basic Research

Control of Tumor Growth (Fuller and So)	2
Immunologic Research (Rosenberg and Silverman)	2
Tumor Markers (Wu and Martelo)	2
Molecular Nature of Cancer Process (Muench and Russell)	2
Cancer Cell Membrane (Fletcher)	1

#### 1.6.22 Applied Research

Control of Complications of Cancer (Rosomoff, Charyulu)	2
Scanning Research (Mende, Kaplan and Pressman)	3
Hyperthermia (Button)	1
Total	15

### 1.7 Future Growth and Plan

#### 1.7.1 Phases

The growth of the Center can be thought of in three phases. Phase I is the first three years of the grant and includes the initial organization of the Center's activities and the recruitment of staff to carry them out. This should be largely completed between January and June 1976.

The second phase will last about five years and its objective is the full implementation of the intramural and extramural activities mentioned in this summary, and additionally specified immediately below. Phase III is the long range ideal plan for the Center for 1980 and beyond, and refers mainly to the move into the new clinical tower to open about that time.

Plans during Phase II (1976 - 1981)

This discussion presents the implementation of planned activities beginning in 1976.

#### 1.7.2 Laboratory Research

The Center will continue to identify the top scientists in the broad environment of the campus and through its leadership and innovation, provide the climate for vigorous collaboration with one another and with clinical investigators. The mechanism of identification will be periodic repetitions of the survey and review, recently carried out for potential developmental projects. The means of collaboration



will be through an extensive increase of participation by laboratory scientists in the planning and activities of the disease oriented teams. The major emphasis on so-called basic areas will concern :

**Immunology** - transfer factor, role of B and T cells, tumor associated antigens, GVH serum factors

**Membrane Glycoproteins**

**Biological Markers** - SEA, fibrinolysins, hormonal and non-hormonal biochemical entities

**Molecular deficits in cancer cells induced by viruses, chemicals, radiation and repair.**

**Chemotherapy** - molecular basis of combination chemotherapy, cyclic AMP effects.

### 1.7.3 Clinical Research

There are a hundred or more clinical research projects ongoing. The future needs are not so much in the stimulation of new projects but in strong support for those of highest quality, and the coordination of complementary projects by the disease oriented teams. There will of course be some natural growth of new endeavors as a result of team interactions and as laboratory leads are applied to clinical situations. An important growth area will be in studies of multimodal management of cancer. The emphasis at the Center will be on the common solid tumors. The essential interdisciplinary rounds and decision making are difficult at present because of the physical separation of the oncology services of medicine, surgery, and the surgical subspecialties and radiation both for inpatients and ambulatory patients. The physical juxtaposition of 110 beds from 4 services in the clinical service reorganization will foster interdisciplinary management. An even greater stimulus will be the opening of the multi service oncology clinic. 1976 will see a huge upsurge of interdisciplinary management and clinical investigation, as the disease oriented teams increase the pace of their activities and as the new physical resources become available. The content of clinical research cannot easily be summarized and the section on core operations should be consulted for details. By 1976 all of the major disease oriented teams should be operating and they will determine their own directions and scope. The following generalizations may be made : whenever feasible, clinical investigations in therapy will aim at curative attempts in situations of known high mortality. This will involve excisional or debulking surgery, radiation of presumed residual local disease and combination chemotherapy of presumed occult metastases. The emphasis will be on this type of multimodal therapy in "early" disease where prognosis is poor, such as in breast cancer with axillary nodal metastases.

Extensive efforts will be made in each disease to identify markers for monitoring success in therapy, and early identification of relapse. These markers will be sought amongst biochemical, endocrine and immunologic possibilities, as well as in non-defined biological factors such as the tumor produced fibrinolysins. Not only will breast cancer be studied from the viewpoint of the predictive biologic assays, but these will also be sought amongst other endocrine dependent tumors.

Drug development will be an important area of research. While the Center will do its share of new drug studies as part of the NCI program, the emphasis will be on innovative use of cell kinetics, pharmacology and immunology in defining the best way in which to use or combine the highly active agents already available. In order to carry out all of the above, considerable planning has been done for some of the research supportive activities required. The future will see the establishment of several support groups for biochemical and endocrine markers, for immunologic markers, and for assay of hormonal binding proteins. In addition, groups are in the process of formation for back up in cell kinetics and clinical pharmacology.

Early diagnosis will receive a good deal of emphasis by the disease oriented teams. This will be partly through innovative research on cytology and partly by use of markers taken directly from fluids or blood coming from the tumor or organ bearing the tumor. The cytology effort is being enormously aided by Dr. Alan Ng, who has just come from Case Western Reserve to join the Department of Pathology. The tumors receiving intensive initial emphasis will be those that at the present time are diagnosed far too late - cancers of pancreas, brain and lung.

There will be a fair amount of applied research developing from research interests of University scientists. These include new measures of pain control, microwave hyperthermia, artificial bladder, artificial and electronically operated sphincters for bladder and rectum, new methods of liver scanning, quantitative bone scanning, bone marrow transplant, prevention of radiation damage to rectum, etc.

Finally, on the oncology service and in the oncology clinic there will be considerable study of innovations in use of nurses, nurse clinicians, physician assistants, pharmacists and ward managers, in arriving at the best operation of cancer care both for well-being of patients and to keep the physicians as free as possible for truly professional responsibilities. Such measures should materially shorten time to diagnosis and definitive therapy, and shorten hospital stay and clinic time. Psycho-social and physical rehabilitation of cancer patients will receive growing emphasis through the help of Dr. Raphael Good of the Department of Psychiatry and Dr. Healey.

#### 1.7.4 Radiation Therapy

This area required special comment. Radiation therapy is not a department, but a service administered by the Department of Radiology. It has splendid modern equipment and space, and has excellent leadership under Dr. Komanduri Charyulo. On the campus there is a separate Radiation Therapy Group in VAH, and although there is considerable interchange between the staffs, the VAH service is one of the few that is not directly associated with the University service. It has the effect of dividing resources and staff, although clearly all would benefit if there was consolidation. In addition, on the edge of the campus the Cedars of Lebanon Hospital has a third group with separate staff and equipment. Dr. Charyulo is a superbly trained radiation therapist who started out as a physicist under Raman and then took much of his clinical training

at Minnesota. In addition his service is well organized with hospital physicists and computerization of isodose curves. He is extraordinarily cooperative and collaborates in ideal fashion with other disciplines. As the Center activities grew, and the disease oriented teams increased their pace, it became apparent that his staff was insufficient to meet expanding needs. Clearly his staff needs to be increased both for clinical services and for research. Negotiations are under way with JMH and the University to obtain additional salaries. The Center should play an immediate implementing role in funding and helping to recruit the additional staff, with transfer of the financial responsibility to JMH at the completion of the negotiations.

#### 1.7.5 Epidemiology

The relations between the Center and the Department of Epidemiology and Public Health are close. Dr. John Davies is chairman; Dr. Richard Donelson was recruited with partial support from the Center and Dr. Frank Briesse has recently come from the University of Colorado. Funds have been obtained in the O3 negotiations of the core grant to establish a central data gathering and processing unit serving the Center, under Dr. Briesse's direction. This already is being implemented and all phases of the registry, and automated retrieval of clinical information will receive attention during the current year of the grant. Mrs. Strunk of the Center staff reorganized the JMH registry; is looking into the registries of UMHC and VAH and works closely with Dr. Briesse and Donelson in further automation. All three have been working closely with Dr. Ron Wright of Pathology who is in charge of tumor nomenclature for the University, and with Dr. Hickey's group of AACI. The Center's data retrieval will be completely compatible with AACI national system, as well as with the SEER program. Similarly, plans are going forward to mesh the Center's staging systems with those approved nationally by the Joint Commission and the AACI. A number of meetings have been held with outside groups, including the ACS and the Department of Health and Rehabilitation to consider the feasibility of a state-wide registry. A meeting was held on August 15th with all interested parties and with Dr. Diane Fink to take the next practical steps in the establishment of a state-wide registry and a number of avenues will be pursued. If the Center is to evaluate its impact on the incidence and mortality of cancer in Florida more accurate numbers than now exist will be required.

Epidemiological research in the State of Florida will increase sharply in the next two years. The joint plans that will go forward include examination of frequency of lung cancer in phosphate miners, exposure to carcinogens and cancer incidence in agricultural workers, especially those in the timber industry where a strong carcinogen has been identified; examination of a small pocket of esophageal carcinoma and study of cancer incidence and mortality in a new migrant population - the Cubans in Cuba and Miami.

#### 1.7.6 External Programs

Progress has moved rapidly in getting cooperation on a state-wide basis and in developing the systems for collaboration. This has resulted in the current survey of cancer resources in Florida, which will be available about January 1, 1976 as the basis for choosing implementation programs through the Cancer Control Division. In the work to date however, there have emerged several areas where immediate implementation should be considered. These will be presented by the Center, ACS and the State Department of Health and Rehabilitation to Dr. Diane Fink, for possible early implementation by the Cancer Control Division.

As a general policy of the Center, the force of the external program should be the identification of cancer control opportunities, where the total resources throughout the state can be brought to bear on a reduction in cancer incidence, morbidity and mortality. These conditions now exist in four areas - lymphomas, pediatric neoplasms, cancer of the breast and cancer of the uterine cervix. In the latter three instances there exist special opportunities in Florida for immediate action.

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Executive Committee

<u>Name</u>	<u>Department</u>
Hervy Averette, M.D.	Obstetrics & Gynecology
Sally Beuttel, Dr. P.H.	Oncology
Norman L. Block, M.D.	Urology
Kosanduri Charyulu, M.D.	Radiation Therapy
Jacob Colsky, M.D.	Medicine
Bernard Fogel, M.D.	Office of the Dean
Sheldon Greer, Ph.D.	Biochemistry
Samuel Gunn, M.D.	Oncology
John E. Healey, Jr., M.D.	Oncology
Alfred Ketcham, M.D.	Surgery
Kjell Koch, M.D.	Pediatrics
Howard Lessner, M.D.	Oncology
August Miale, M.D.	Nuclear Medicine
Wallace E. Miller, M.D.	Orthopedics & Rehabilitation
Oleg Selawry, M.D.	Oncology
Mr. Michael Siegel	Oncology
Michael Sigel, Ph.D.	Microbiology
Mr. Larry Strum	Oncology
Beth Strunk, R.N.	Oncology
Francisco Tejada, M.D.	Oncology
Michael Troner, M.D.	Oncology
Gerald Weinstein, M.D.	Dermatology
Mr. Jay Weinstein	Jackson Memorial Hospital

INTRA- AND EXTRAMURAL INTERRELATIONS OF THE COMPREHENSIVE CANCER CENTERNATIONAL CANCER INSTITUTEFLORIDA STATE DEPARTMENT OF HEALTHFLORIDA CANCER COUNCILDADE COUNTY DEPARTMENT OF HEALTHMEDICAL SOCIETIES

State  
 Dade County  
 Other Counties

OTHER PROFESSIONAL SOCIETIESUNIVERSITY CANCER CENTERS

Nova University  
 University of Florida  
 University of South Florida

ASSOCIATION OF COMMUNITY  
 CANCER CENTERS

Jacksonville

VOLUNTARY CANCER GROUPS

American Cancer Society  
 Candlelighters  
 Woman's Cancer Association  
 Deed Club  
 Leukemia Society of America  
 Ostomy  
 Reach to Recovery

UNIVERSITY OF MIAMISCHOOL OF MEDICINEHOSPITALS AND INSTITUTIONS

Jackson Memorial Hospital  
 Mt. Sinai Hospital  
 University (Miami) Hospitals  
 Papanicolaou Institute  
 Veteran's Administration Hospital

DEPARTMENTSONCOLOGYDISCIPLINES

Immunology  
 Medical Oncology  
 Pathology  
 Radiology  
 Radiotherapy  
 Surgery  
 Biostatistics  
 Epidemiology

ORGAN SITES

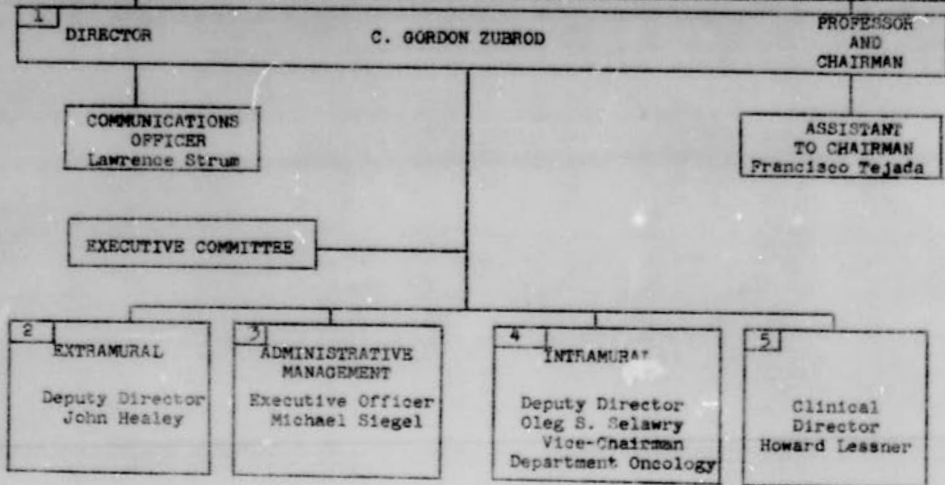
Breast  
 Lung  
 Gynecologic  
 Gastrointestinal  
 Genitourinary  
 CNS

OTHER CANCER PROJECTS

Marker & Receptor Lab  
 Immunology Lab  
 Cytopathology Lab  
 Cell Kinetics  
 Pharmacology  
 Communications  
 Library Resources

COMPREHENSIVE CANCER CENTER  
FOR THE STATE OF FLORIDA

DEPARTMENT OF ONCOLOGY  
U.M. SCHOOL OF MEDICINE



10.1  
PROFILE

ROSWELL PARK MEMORIAL INSTITUTE

Director: Gerald P. Murphy, M.D., D.Sc.

History

The Roswell Park Memorial Institute, a comprehensive cancer center under the auspices of the New York State Department of Health, originated in 1898 when the Governor of the state signed a bill establishing the "New York State Pathological Laboratory of the University of Buffalo." This act created the world's first laboratory with a staff devoting full time to the study of cancer. The initial bill provided for "the equipment and maintenance of a laboratory devoted to an investigation into the causes, nature, mortality rate and treatment of cancer." This step also marks the first instance in history in which a government directly interested itself in cancer research and sponsored a research group for investigation into the disease.

Under Chapter 29 of the New York State Laws of 1909, and later again under Chapter 128 of the laws of 1911, the institution's name was changed to the State Institute for the Study of Malignant Disease at Buffalo. The laws specified that "the Institute shall conduct investigations in the cause, nature, mortality rate, treatment, prevention, and cure of cancer and allied diseases." In 1946, the Institute was renamed to commemorate the work of Dr. Roswell Park, founder and first director of the Institute. Although the name of the institution has changed, the cancer mission of the Institute has remained constant throughout its seventy-six year history serving as a center for cancer research, treatment and education.

The long history of the Roswell Park Memorial Institute illustrates a clear progression toward a comprehensive approach to control of cancer. By 1911 the staff recognized the need to develop a hospital where laboratory findings could be given clinical application. In 1946 the Institute embarked upon an intensive education program for medical students and local hospital residents. Efforts in clinical education were supplemented with graduate training in basic sciences in 1955 through establishment of a Division of the University of Buffalo Graduate School at the Roswell Park campus. As early as 1913 members of the staff recognized the need for an experimental farm, and today the Institute maintains three satellite laboratories for animal breeding and experimentation involving chemical carcinogens and biologically hazardous materials.



## Objectives

The objective of the Institute continues to undergo reassessment and interpretation. In recent years the Institute has expanded its responsibilities beyond the crisis stages of treatment through development of an Ambulatory services center for outpatient examination, a Comprehensive Cancer Patient Rehabilitation Center, an office of Public Education to stimulate activities in prevention and detection, and an office of Cancer Control to assist in the dissemination and utilization of knowledge developed within a comprehensive cancer research center.

Throughout each of the elements of cancer prevention, detection, treatment, education, and rehabilitation, however, runs the common commitment to investigative research. The Institute is dedicated to clinical and basic science research that expands the boundary of "the state of the art." Whereas service agencies are concerned primarily with the efficient demonstration or application of recognized procedures, Roswell Park as a research institution emphasizes investigative efforts that reflect the hypotheses of intermediate insights and findings of concurrent research. This commitment to research is reflected in the utilization of clinical protocols in patient care services and the Institute's active participation in numerous national and international scientific investigations.

The current goals of the work of the Institute include:

1. Prevention
  - a) to reduce the effectiveness of external agents that produce cancer,
  - b) to modify individuals to minimize the risk of cancer development,
  - c) to prevent transformation of normal cells into cells capable of forming cancers,
  - d) to prevent the progression of precancerous cells to cancers, the development of cancer from precancerous conditions, and the spread of cancers from primary sites.
2. Detection, Diagnosis, and Prognosis
  - a) to assess the risk of developing cancer in individuals and in population groups,
  - b) to assess the presence, extent, and probable course of cancer in patients.
3. Treatment and Rehabilitation
  - a) to cure cancer patients and to control the progress of cancer,
  - b) to improve the quality of rehabilitation of cancer patients.

These goals are under active pursuit through joint efforts in scientific research, clinical investigative trials, and educational activities. Roswell Park Memorial Institute's philosophy is the same now as in 1898, "that basic research correlated with clinical research is essential if answers to the fundamental problems relating to the nature, etiology, and management of all cancers are to be a reality."

## Environment

From its early beginning as three small rooms for scientific research at the University of Buffalo Medical School, Dr. Park's laboratory has grown to a multi-million-dollar institution combining a modern 329 bed hospital and some of the best-equipped cancer research laboratories in the world. An additional clinical capacity for 210 beds has been provided for future program development through acquisition of the Carlton Nursing Home and this facility will be connected to the main hospital complex by an enclosed corridor.

The two key elements contributing to the research environment of the Institute are:

- 1) the presence of a full-time scientific and clinical staff dedicated solely to cancer research
- 2) the active interaction of diverse disciplines and skills in a multi-disciplinary approach to investigative research.

In 1911, the Institute became a state institution and has operated under the jurisdiction of the New York State Department of Health since 1927. In 1913, legislative action permitted the Institute to receive gifts and bequests. A non-profit corporation, the RPMI Division of Health Research Incorporated, was formed on July 22, 1953, to receive gifts and research grants which an institution as a state facility could not usually accept. Today, millions of dollars are received each year in gifts and grants from individuals, private foundations, and organizations such as the U.S. Public Health Service, the American Cancer Society, the National Science Foundation, the National Institutes of Health and other agencies.

The broad concept of the Roswell Park Memorial Institute as a cancer research center of major significance dates to the early 1950's. At that time the Institute evolved from a hospital and outpatient clinic with incidental research interest to a great institution devoted primarily to research.

The previous two decades have been marked by a tremendous expansion program involving staff as well as physical facilities. The staff has grown from 268 participants in Institute programs to a full-time staff of over 2100 workers including nearly 300 physicians and Ph.D's engaged in cancer research. During this period, seven major laboratory complexes have developed on the main campus and at three satellite facilities. The Basic Science Research Building contains more than 50 laboratories for research in fields such as chemistry, physics, biology, and experimental animal surgery. New efforts are symbolized by the Cancer Cell Center which opened recently to house research programs involving a concerted study of the cancer cell and its interaction with its host.

The environment of the Institute added an additional dimension through the establishment of active commitments to clinical and basic education and the creation of a Graduate Division of the State University of New York at Buffalo on the Roswell Park Campus.

This achievement of preeminence in the field of cancer research was recognized in 1971 when the Institute was designated as a comprehensive cancer center under the National Cancer Act of 1971.

The statute that established the Institute properly stressed its research and investigative function. The Institute's admissions policy clearly states that its purpose is not the terminal care of cancer patients, but the active treatment and study of patients with all forms of malignancies. Although diagnosis and successful treatment are recognized functions of the Institute, the admission of patients who could be treated equally well elsewhere is discouraged. For this reason, staff members are chosen not only for their proficiency in special fields, but also for their training in the techniques for scientific research.

Each professional member of the Institute staff also is committed to the educational responsibilities of the institution. More than 100 staff physicians and research scientists hold faculty appointments at Western New York colleges and universities and at institutes of learning as far afield as Boston, Massachusetts and Columbia, Missouri.

The intellectual environment of the Institute stresses cooperative and multi-disciplinary participation in research and clinical treatment. Examples of the collaboration between basic and clinical researchers within the Institute walls include:

- a) a program in clinical pharmacology
- b) a viral oncology program to identify the role of viral agents in cancer \*
- c) programs combining research in basic immunology and clinical immunology
- d) joint laboratory and clinical trials on cancer of the prostate
- e) a germ-free unit and the study of application of this state to clinical therapy
- f) studies on erythrocytes and their significance in different malignant and benign states.

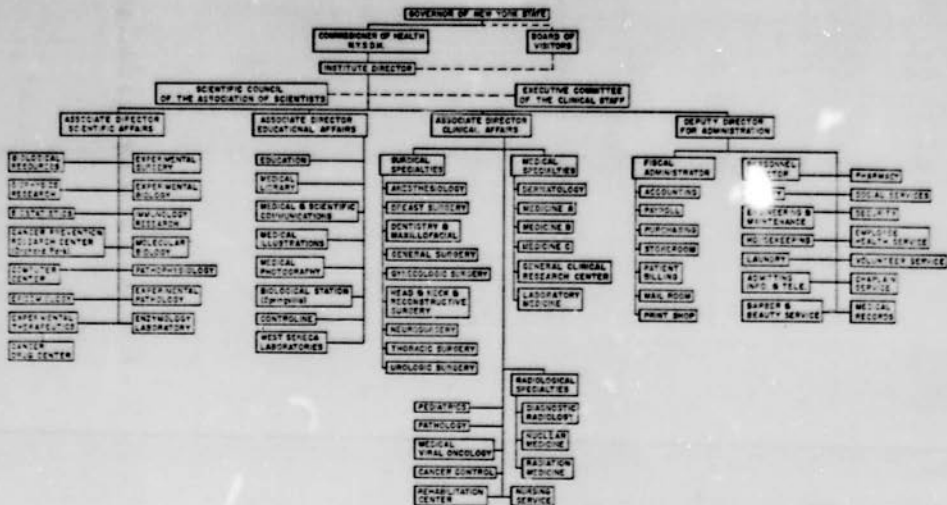
Collaborative clinical cancer trials permeate the active clinical research program at the Institute. A list of current cooperative trials would require virtually a catalogue of clinical services offered in departments throughout the Institute.

The extent of Institute involvement in cooperative clinical cancer trials is illustrated by the Institute's active participation in the following inter-institutional study groups: Eastern Cooperative Oncology Group, Acute Leukemia Group B, Central Oncology Group, Lung Task Force, Testicular Task Force, National Bladder Cancer Project, National Prostatic Cancer Project, Gastrointestinal Tumor Study Group, National Pancreatic Cancer Project, and National Large Bowel Cancer Project.

#### Organization

Chart I illustrates the current organizational structure of the Roswell Park Memorial Institute. Four fundamental areas of activity are identified: scientific affairs, educational affairs, clinical affairs, and administrative affairs.

ROSWELL PARK MEMORIAL INSTITUTE ORGANIZATION CHART



The following departmental summaries indicate the programmatic area of organizational unit within the Institute.

### Scientific Affairs

Roswell Park conducts basic cancer research in seven major laboratory complexes on the main campus and at three satellite facilities. The Basic Science Research Building contains laboratories for research in fields such as chemistry, physics, biology, and experimental animal surgery. The Center for Crystallographic Research is the only center in the United States devoted to the study of interatomic arrangement in biological substances. The Cell and Virus Center was established for study of the role of viruses in the causes of cancer. The Grace Drug Center brings together physicians and basic research scientists in the development of life-prolonging drugs. The Cancer Cell Center houses research investigations involving study of the cancer cell and its interaction with the host. The Institute maintains an experimental laboratory in Springville for large animal research and radiation. The Orchard Park Laboratory supports carcinogen investigations and farm research. A mouse-breeding center is situated in West Seneca.

Over 600 research investigations are currently underway throughout the 14 basic science departments.

### Biological Resources

The major goals of the Department of Biological Resources includes (1) characterization of humoral factors involved in the regulation of erythropoiesis and granulopoiesis; (2) growth of human normal and malignant cells in long-term cultures in steady-state tissue culture environment; (3) increase knowledge concerning the helper activity of human leukemia tissue as a potential value in assaying for etiologic agents involved in human leukemia; and (4) determination of conditions for the replication of hepatitis B virus.

Clinical and experimental plasma and urine samples are bioassayed for erythropoietin activity in the Department as a service to intra and extra-mural investigators for purpose of diagnosis and analysis of both hematopoietic and renal malignancies.

In addition, the Department provides the breeding of inbred strains of mice at its West Seneca Laboratories. It is also involved in running an Animal Service and Biohazard Monitoring Service at the Institute.

The Animal Service at the Institute assists senior investigators in obtaining research animals. All animal orders, supplies, and equipment are processed through this department. In addition, the department provides assistance to investigators with information on the care of animals. The department provides information to investigators aimed at improving the methods of care, nutrition and disease control of experimental animals.

The Biohazard Control Program has three major objectives: 1) to assure that the work conducted at Roswell Park does not endanger the safety or health of our employees, patients, and visitors; 2) to provide for the integrity of research data; and 3) to assure that the Institute does not become a source of danger to the surrounding community. These objectives are carried out: by providing educational information and advise to scientists and support personnel regarding all aspects of biological and physical safety, particularly as it relates to experimentation with potentially hazardous chemical carcinogens, oncogenic viruses, and animals; by routine monitoring of all areas of the Institute, to identify any problems or hazards which may be present or incipient; and, by the implementation of specific projects aimed at reducing the hazardous potential of a particular work area or specific procedure.

The West Seneca Laboratories provide an important service to the research scientists at Roswell Park by maintaining large colonies of genetically standardized mice. These highly inbred strains of mice are maintained under hygienic circumstances, and are tested frequently for ecto-and endo-parasites, ectromelia, polyoma infection and other murine viruses. Routine bacteriological examinations are made of water, food and bedding. A total of 223,414 mice were produced at West Seneca during the fiscal year 1974-1975.

#### Biophysics Research

The Department of Biophysics is concerned with research into the atomic and molecular mechanisms of the reactions taking place in living cells. Molecular architecture-conformation and configuration-and intramolecular contact geometry are studied at the atomic level by X-ray crystallographic methods. These studies allow the mechanisms of biochemical reactions to be inferred. Electron microscopy and optical diffraction techniques are also used in this kind of work. Radiation damage is studied in molecules of interest in cancer research by electron spin resonance spectroscopy. The chemical physics of biological high polymers, especially proteins and nucleic acids, is being studied, under normal and abnormal conditions.

#### Biostatistics

The Biostatistics Department provides consultation and assistance on the design and analysis of laboratory and clinical research studies. A strong effort has been made to collaborate with investigators from the early planning stages of the research through the preparation of final reports. Computational help, protocol review and criticism, preparation of statistical tables and other supplemental services have been provided when they are needed.

In addition to collaboration with other RPMI departments, the Biostatistics Department has become increasingly involved with research programs involving both methodological and substantive investigations in a number of areas.

## Computer Center

The Computer Center has two major sections, Computing Services and Computing Research. The Computing Services section consists of several service shops providing computer time, data preparation, and programming on a consultative basis. The mission of the Computing Research section is the development of new computing methods and techniques which facilitate research into the causes and treatment of cancer.

## Enzymology Laboratory

The function of the laboratory of Enzymology is to carry out research programs involving enzymes that are of importance in the development and etiology of cancer. In practice the program is limited to the study of hydrolytic enzymes, more specifically; nucleolytic and proteolytic enzymes. The clinical application of trypsin inhibitor (trasyolol) is already widespread.

## Epidemiology

The primary objective of the Epidemiology Department is to develop, a catchment area population data base that will facilitate the rational planning, organization, management and evaluation of cancer control activities and programs carried out by the Institute. In pursuit of this primary objective, the Department is working with other units in studying health care delivery to and in the community, and suggesting and facilitating improvements in such delivery. A second objective is to apply epidemiological methods to the problems of etiology, treatment and rehabilitation of cancer patients. Thirdly, the Department is providing methodological and technical assistance to other research units and clinical departments in attempts to identify factors relevant in the etiology of malignant tumors.

In addition, the Department initiated a series of courses in the principles of epidemiology and cancer control as part of the graduate teaching program of the State University of New York at Buffalo. The activities of the Department now include a program of formal courses and faculty guidance for students registering for graduate degrees in cancer epidemiology.

## Experimental Biology

A current major interest of the department involves studies on the control of the proliferation of normal and tumor cells. In addition to examination of membranes in living systems, studies on the complicated membrane-associated processes are being aided by the use of artificial phospholipid membrane vesicles. Investigations on cellular proliferation have also involved examination of the molecular mechanisms which control the time at which both normal and mutant cells initiate chromosome replication.

The Biochemical Genetics Section, is involved in mapping the human genome and understanding the genetic control of human gene expression in normal and tumor cells.

### Experimental Pathology

Work within this department is concerned with the physical and biological bases of certain disease processes.

Much experimental work points to the importance of the physico-chemical nature of the cell periphery in determining the metastatic behavior of cancer, cellular infiltrations in inflammatory and malignant processes, the morphogenetic movements of cells, the ability of cells to recognize self and non-self, the adsorption of drugs to cell membranes. The role of host immune-status in some of these processes, particularly metastatic phenomena, is also being actively investigated.

A large proportion of the work in this department pertains to surface phenomena in living cells, in artificial membranes, and in interactions involving both of these living and non-living systems, as they relate to some of the processes listed above. An attempt has been made to bring a wide range of multidisciplinary approaches to bear on these problems.

### Experimental Surgery

The Department of Experimental Surgery is a multidisciplinary research unit utilized by qualified investigators of Roswell Park Memorial Institute interested in performing surgical procedures and/or evaluating related therapies in experimental animal models.

In the past fiscal year, 41 investigators have participated in projects in the department. Their investigations have included organ allografts, direct organ cannulizations, isolated and intact organ perfusions with continuous and pulsatile flows, tumor inoculations and chemical induction of tumors, chemotherapy drug screening, radioactive uptake studies on specific tumors, organs and/or tissues, screening of immunosuppressive agents in transplantation, enzyme studies, biochemical bioassays, and histological evaluations including both light and electron microscopy.

### Experimental Therapeutics and J. T. Grace, Jr. Cancer Drug Center

The Department has the responsibility of developing this Center toward its goal of excellence in pharmacology and therapeutics, with particular emphasis on the development of new therapeutic means to control cancer, on the establishment of a strong program in clinical pharmacology in cooperation with clinical departments at this Institute, and on the further development of unique opportunities for basic research and advanced training in various areas of biochemical pharmacology that are related to cancer therapeutics.

### Immunology and Immunochemistry Research

This department's research program is concerned with immune response at the molecular and cellular levels. Part of the program is concerned with the extraction and characterization of specific tumor antigens, with changes in cell surface components that occur during carcinogenesis, and with the development of antibodies that can be used in suppressing tumor growth through either direct or indirect action.



Related studies are being made of various kinds of cell surface antigens in relation to the immune response.

The various specific projects undertaken by this department can be arranged for purposes of classification under a number of general areas: Chemical Carcinogenesis, Tumor Cell Antigens, Anti-Plasma Cell Antibodies, Humoral and Cellular Antibodies and Tumor Suppression or Enhancement, Histocompatibility Antigens, Lymphocytes (Studies related to Cancer), Structural Studies of Immunoglobulins, Structural Studies of Antibody Combining Sites, Antibody Heterogeneity and Specificity, Cellular Immunity, and Antigen Binding Sites of Tumor Cells. In practice, there are frequently extensive overlaps between areas.

#### Molecular Biology

Research effort in the Molecular Biology Department is concerned with the organization and function of the mammalian genetic regulatory apparatus. Because this problem is so large, we have elected to approach it by choosing model proteins and then attempting to identify and analyze genetic variants altered in the final realization of their activities.

The Department of Molecular Biology has contributed to the field of molecular biology at four levels. The most general is in respect to the fundamental understanding of the organization and function of the mammalian genetic regulatory apparatus.

More immediately, the increased understandings of some physiological mechanisms that are emerging as a by-product of the work have some potential for human application.

The studies on animal models of disease, exemplified by the beige analog of Chediak-Higashi Syndrome, should contribute to our understanding of specific disease processes, in this case an abnormality of lysosome function.

The most direct significance of our research, and the area likely to have the first human application, will be in applying the genetic concepts and laboratory techniques of the animal experiments to the search for readily identified genetic factors predisposing to cancer, specifically in the area of the relation of glucuronidase to bladder cancer and AHH to lung cancer.

#### Orchard Park Laboratories

The Orchard Park Laboratories investigate the immediate causes of human cancer and fundamental phenomena underlying the development of malignant disease. To understand how cancer is induced in man, we must have a great deal more information on how various stimuli participate in cocarcinogenic or anti-carcinogenic events.

A major project includes development of less hazardous cigarettes so that the incidence of lung cancer might be reduced. Expanding emphasis is being given to studies on the way in which combinations of plant constituents can combine to yield carcinogenic foodstuffs.

Other studies are disclosing how carcinogenic processes take place.

## Springville Laboratories

The Springville Laboratories are devoted to the study of the etiology, pathophysiology and therapy of neoplastic and related diseases. Research is pursued in depth from the level of molecular biology to clinical investigation, including the regulation of normal growth and its alteration in neoplasias, developmental biology and pharmacology, biochemistry of neoplastic cells, radiation biology, hematology, synthesis and evaluation of new chemotherapeutic agents, pathophysiology, experimental and clinical pharmacology and physiology.

The relative isolation of the laboratory in Springville allows pursuit of studies involving biohazards which are more safely handled away from population centers and hospitals, e.g. high level radiation, toxins, infectious micro-organisms.

The Springville Laboratories maintain the following:

1. Colonies of inbred strains of mice, guinea pigs, rats and beagles.
2. Primate colony including chimpanzees, baboons, various species of macaque and a breeding colony of stumptailed monkeys.
3. Experimental fowl colonies carrying genotypes affecting limb development.
4. Facilities for maintaining large animals such as horses, sheep, goats, cattle and mini-pigs.

### Clinical Affairs

The clinical services at the Institute include the division of medicine, pathology, radiology, and surgery. Subspecialty departments include dermatology, diagnostic radiology, radiation therapy, anesthesiology, breast surgery, dentistry and maxillofacial prosthetics, general surgery, gynecology, head and neck surgery, neurosurgery, thoracic surgery, and urology. Laboratory services include clinical biochemistry, clinical hematology, immunohematology, immunology, clinical microbiology, and a cardiopulmonary laboratory. Many services are provided through interdepartmental efforts and combined modality treatment.

Each of the clinical services at the Institute participates actively in clinical research investigations. Representative work at the Institute includes continued development and use of cancer screening tests to define and detect early cancer, chemotherapeutic and surgical treatment of patients with selective radiotherapy, development of promising anti-cancer compounds and investigation of immunotherapy as an adjuvant in the treatment of solid tumors. The extent of Institute involvement in cooperative clinical cancer trials is illustrated by the Institute's participation in the Eastern Cooperative Oncology Group, the Acute leukemia Group B, the Central Oncology Group, the Radiation Therapy Oncology Group, and special national task forces in research on gynecological cancer, lung cancers, testicular cancer, bladder cancer, prostatic cancer, gastrointestinal cancer, pancreatic cancer, and large bowel cancer. In the previous year Health Research Inc., a division of Roswell Park, has received 169 grants and contracts to conduct basic science and clinical research on cancer.

### Anesthesiology

The department of Anesthesiology functions in a clinical, consulting, research, and educational capacity in four areas. These are:

1. The administration of anesthesia for surgical procedures.
2. Supervision of the Recovery Room.
3. Organization and supervision of the Intensive Care Unit.
4. Supervision of the Inhalation Therapy Department.

Departmental physicians also consult with and advise other physicians in the Institute whenever they have problems in respiratory care, preparation for anesthesia and pain relief. Our research program aims to elicit the factors which increase the risk of anesthesia and surgery in cancer patients. We are also exploring various means of relieving pain in cancer patients. Finally, we are continuing our studies to determine the compatibility of anesthetic drugs with anticancer drugs.

### Breast Surgery

The research plan of this unit consists of five major programs:

1. Clinical cancer therapy.
2. An integrated research program for early diagnosis and treatment of breast cancer
3. A basic research program for studies on the biochemistry of hormone action.
4. A basic research program for studies of etiology and pathogenesis of mammary cancer.
5. A program for cancer control.

### Dentistry and Maxillofacial Prosthetics

This department is responsible for the oral care of inpatients and out-patients in support of their oncological treatment and for the prosthetic reconstruction of patients with surgical, congenital or traumatic defects of the head and neck. The main functions are (1) providing clinical and radiographic consultations regarding the oral cavity upon the request of the medical staff (2) carrying out dental care (3) constructing maxillofacial prostheses and (4) maintaining cooperative treatment programs with the departments of Radiation Medicine, Neurosurgery, Dermatology and Head & Neck Surgery.

Research is ongoing with particular attention being paid to radiation effects in the oral cavity, oral manifestations of various oncological diseases and prosthetic reconstruction of patients with head and neck defects.

## Dermatology

The Department is primarily engaged in the control and study of treatment and tumors involving the skin. The activities of the Department are oriented toward the investigation of cancer and related biological and pathological processes in the skin and adjacent tissues which may provide model systems for applied chemotherapy and immunotherapy and other therapeutic approaches. In addition to standard methods of management, specialized modalities such as chemosurgery, chemotherapy and immunotherapy are available for the treatment of primary skin cancer and metastatic malignant disease.

The research program of the Department includes investigation of the immunologic aspects of cancer and other proliferative diseases.

## Diagnostic Radiology

The purpose of the department is to aid the clinician in establishing the presence of disease, determine its extent, and follow its response to therapy. Techniques available range from the simple chest x-ray and skeletal survey through barium contrast studies of the gastrointestinal tract. Iodized contrast media make it possible to visualize the bronchial tree, gall bladder, and the genito-urinary system. Angiography - the injection of an iodized contrast medium into arteries or veins while taking films in rapid sequence - has progressed from a rare experimental procedure to a basic study giving essential information regarding the arterial blood supply and venous drainage to tumor. The Tomograph, a highly specialized piece of equipment, enables the radiologist to selectively view a given structure while blurring out detail above and below the level of that structure.

## General Surgery

This department is determining the knowledge areas that young surgeons must be familiar with to care for their cancer patients in the face of rapidly increasing information and increasingly complex methods of diagnosis and treatment. We are developing the discipline of surgical oncology.

We are in a multidisciplinary effort in the development and analysis of new biological markers, usually tumor by-products, which can be detected in blood and body fluids and signify, when detected, the presence of cancer.

## Gynecology

The objectives of the Department of Gynecology are to provide the optimum multidisciplinary treatment for all women with gynecologic cancers, and to research new early diagnostic techniques and new therapeutic approaches for the various gynecologic neoplasms. An additional goal, which cannot be separated from the others, is the comprehensive training of qualified physicians to be gynecologic oncologists. Essential to the accomplishment of these goals are vigorous programs of clinical and basic science research.

## Head and Neck Surgery

The objectives of the Department of Head and Neck Surgery are: to develop improved methods of care of head and neck tumor patients in the areas of diagnosis, definitive treatment, palliative treatment and rehabilitation; to learn more about the basic disease processes of head and neck neoplasia; and to provide a demonstration of optimal patient care in this complex interdisciplinary field as a learning experience for residents and other interested individuals.

The department serves both referral problems from outside the Institute and serves, in a consultation capacity, head and neck problems occurring within the Institute.

Patient care and research activities are carried out in collaboration with other departments, particularly with the Department of Radiation Therapy, the Departments of Medicine, and the Department of Dental Surgery and Maxillofacial Prosthetics.

## Laboratory Medicine

The Department of Laboratory Medicine comprises the laboratories of Clinical Chemistry, Hematology, Hemostasis, Blood Bank, Microbiology, as well as Cardio-Pulmonary Function. The department is a centralized laboratory for research support and program development in diagnostic areas for the clinical services of the institution. It provides necessary coordination of laboratory investigation for the many clinical programs in Cancer Therapy within the institute. It is also in its own fields of interest involved in basic and applied research projects in the general field of cancer diagnosis and monitoring.

## Medical Viral Oncology

The Department of Medical Viral Oncology brings together physicians, scientists, students and technical associates united in their long-term aims to develop chemotherapeutic approaches to the control of human virus infections. The spectrum of departmental activities includes very basic studies (e.g. determining the chemical mechanisms of tumor virus development) as well as clinical functions (consultative service in infectious disease problems, isolation of pathogenic viruses and anti-viral chemotherapy).

## Medicine A

The Department of Medicine A conducts clinical and preclinical studies designed to increase the efficacy of therapies for disseminated cancer. New treatments are devised based on understanding of control mechanisms for normal and abnormal cells, on knowledge of pharmacology of anti-cancer drugs, and on the ability to support patients during periods of toxicity.

The major therapeutic goal of the Department is the cure of hematopoietic malignancies (cancer of the blood-forming organs such as leukemia and multiple myeloma). Accordingly, the Department supports studies of blood cell kinetics, the mechanisms whereby blood cell precursors divide, mature, are released into the blood stream, and in the case of white blood cells, are directed toward sites of inflammation and infection.

Elaborate isolation procedures using high efficiency filters to sterilize room air, and decontamination with antibiotics and antiseptics are also used in the Department to reduce the exposure to infectious organisms and reduce the risk of infection.

Finally new drugs, and new combinations of drugs and radiation, are constantly being sought, developed, and evaluated to determine the best and most specific and long-lasting regimen for control and cure of malignant disease.

#### Medicine B

The clinical program of this Department consists principally of the study and treatment of patients with malignant lymphoma, chronic leukemia and related diseases.

Current research activities of this Department include work in the following areas:

**Lymphoma and Leukemia:** studies of the natural history, pathophysiology and complications of these diseases, development and evaluation of new therapeutic programs.

**Immunology and Immunotherapy:** studies of cellular immune mechanisms of man, especially in neoplastic disease; immunologic defenses against neoplastic disease; in vitro studies of lymphocyte function; immunotherapy of human neoplastic disease.

**Endocrinology:** studies of thyroid hormone synthesis; benign and malignant thyroid disease.

**Protein Metabolism:** studies of the biosynthesis and metabolism of serum glycoproteins; synthesis and release of embryonic proteins in neoplastic diseases.

**Cell kinetics:** studies of DNA synthesis and mitotic rate in normal and neoplastic cells, with emphasis on the effects of antitumor drugs.

#### Medicine C

The Department of Medicine C serves the aims of the Institute in several areas: steroid metabolism in normal and cancerous states, the cytogenetics of human cancer and leukemia, the examination of the patient's bone marrow for a variety of purposes, such as chemotherapy and radiation, and the basic study of the control of cellular division and reformation of the nuclear membrane. Thus, the Department contributes research and serves activities covering a variety of approaches to human cancer, such as cancer of the prostate, cancer of the bladder, leukemia and many other conditions.

## National Prostatic Cancer Project

The National Prostatic Cancer Project with headquarters at Roswell Park Memorial Institute, Buffalo, New York, is one of four targeted research grant-supported projects of the National Organ Site Cancer Program. The program was established in conformity with the objectives of the National Cancer Plan and is supported by the Division of Cancer Grants of the National Cancer Institute. The Program Director of the National Prostatic Cancer Project, assisted by the Assistant Director and headquarters staff, Working Cadre of scientists and consultants, has been responsible for developing and prosecuting a national program aimed at prevention of and decreased mortality due to prostatic cancer.

### Neurosurgery

Research of diseases affecting the central nervous system includes:

- 1) The rate of entry and distribution of antineoplastic agents into brain and cerebrospinal fluid (CSF)
- 2) The rate of entry and distribution of antineoplastic agents into experimental brain tumors (human choriocarcinoma) and surrounding edema in monkeys.
- 3) The response of experimental tumor growth is determined by plasma and urine levels of choriogonadotrophic hormone.
- 4) Our studies on the complex events of development of cerebral edema, movement of electrolytes, acid base changes in CSF and brain, and reversible vs. irreversible ischemic change in brain pursuant to cerebral circulatory arrest continue.

### Nuclear Medicine

The prime activity of the Department is to maintain a comprehensive clinical program that provides a wide variety of diagnostic and therapeutic nuclear medicine procedures. In this rapidly expanding field, high quality service can be provided only by developing and evaluating new isotope procedures, in addition to maintaining and improving accepted techniques. The research activities of the Department are, therefore, concerned with the development and application of new radiopharmaceuticals and nuclear medical imaging devices.

### Pathology

The Pathology Department is responsible for the examination of all tissue removed in surgery, for the performance of all autopsies, and for cytological examinations.

The research program is concerned with the pathogenesis of human and experimental cancers. Anatomical, cytological and histological data are correlated with the clinical picture.

## Pediatrics

The Pediatric Department at Roswell Park remains committed to delivering the best available care to the child with cancer. The department is also involved in clinical research in childhood cancer with concomitant interest in basic research, particularly as it is related to childhood cancer.

## Radiation Medicine

The Department of Radiation Medicine is responsible for clinical services, research and education in radiotherapy and radiation physics, and research and education in radiobiology.

The Division of Radiation Oncology provides a radiotherapy service for Roswell Park Memorial Institute and also for outlying hospitals.

The Physics Division supplies a treatment planning and dosimetry service.

The Division of Radiation Biology conducts research to improve the radiation therapeutic ratio and to provide new treatment systems which might be used alone or in addition to radiation therapy. The Radiobiology Division is also involved in basic science investigations of cell structure and factors affecting tumor micro-circulation.

## Thoracic Surgery

The Department of Thoracic Surgery is concerned with the overall management of intrathoracic neoplasms. Our approach to the management of intrathoracic malignancies is multi-directional and seeks to: provide the best surgical techniques for the treatment of malignant lesions of the lung, esophagus and mediastinum; evaluate the patient with advanced malignant disease and to initiate non-surgical therapeutic techniques such as chemotherapy, radiation and immunotherapy; design and assist in the implementation of educational programs that emphasize the preventive aspect of ororespiratory malignancies; and conduct and jointly collaborate with other departments in basic clinical research studies that will contribute to the understanding of the intricacies of malignant disease.

## Urology

The Department of Urology is involved with the clinical evaluation and treatment of patients with urologic malignancies. It also performs acute and chronic dialysis for patients with end stage renal disease and renal transplantation.

The research activities of the Department are aimed toward clinical research. The principal goal is to develop newer and better treatments of urologic tumors. At present the emphasis is in the multi-modal approaches by combining immunotherapy, chemotherapy and surgery.



## Cancer Control

The cancer control office at Roswell Park assists in identifying Institute physicians who could participate in tumor conferences at community hospitals throughout the region. Clinicians from Roswell Park with special expertise in specific areas of cancer treatment join in the discussion of patient cases, or in some areas presentations are made on advances in cancer care.

The nursing education office and rehabilitation center at Roswell Park also have experience in conducting inservice education programs on a wide variety of topics related to cancer patient care. As a component of visiting participation in conferences at community hospitals, the Institute provides instructors for periodic participation in in-service programs in the community.

The Institute provides toll-free consultative service to medical and dental practitioners to assist in the immediate dissemination of information on cancer care. The Wide-Area Telephone Service (1-800-462-1877) permits community practitioners throughout New York State to call the Institute at any time free of charge and communicate directly with staff physicians.

The cancer control program at Roswell Park maintains a regional tumor service registry for thirty-five participating hospitals throughout Western New York and neighboring Pennsylvania. On a quarterly basis participants in the Lakes Area Tumor Service Registry hold continuing education workshops for medical record administrators and tumor registrars.

## Rehabilitation Center

The Comprehensive Cancer Patient Rehabilitation Center combines the services of occupational therapy, physical therapy, enterostomal therapy, speech rehabilitation, dentistry, maxillofacial prosthetics, respiratory therapy, social services, vocational counseling, rehabilitation counseling, psychological counseling, chaplaincy service, dietitian, and discharge nurse coordinator.

The specific and active sections of this rehabilitation service are as follows:

- a) Physical Therapy: To improve physical function, prevent deterioration and deter complications; to provide physical reconditioning, a process aimed at the restriction of physiological regression during convalescence through participation in progressively graded physical activities.
- b) Occupational Therapy: To improve physical function, measure work tolerance, maintain physical and mental progress, improve mental status, aid in diagnosis and exploration to rehabilitate the patient to the highest potential through purposeful activity.
- c) Dental Service: To restore the dental components so adequate mastication, esthetics, deglutition and speech can be achieved.

- d) Respiratory Therapy: To orient patients and families to surgical procedures and their postoperative environment and condition, to minimize the dangers of postoperative pulmonary and circulatory complications and to maintain and/or restore patients to the highest level of functional independence and state of well being.
- e) Plastic and Reconstructive Surgery: To improve the functional, cosmetic and palliative results of cancer removal.
- f) Enterostomal Therapy: To counsel and instruct patients in dealing with the artificial opening from the intestine created by surgery when the body's waste removal system is incapable of normal function.
- g) Speech Therapy: To assist in overcoming or lessening the degree of speech problems facing individuals admitted for evaluation, surgical procedure or radiation therapy.
- h) Maxillofacial Prosthetics: To establish an esthetically pleasing and functional appearance to the patient who has suffered facial disfigurement due to the disease process and its necessary treatment.
- i) Social Service: To assist the patient in coping more effectively with life's problems during his period of rehabilitation.
- j) Rehabilitation Counseling: To counsel each patient in terms of his individual problem through personal adjustment counseling and vocational and/or educational counseling and guidance.

#### Administrative Departments

This division is responsible for the general administration and management of support services and facilities.

#### Dietary Services

This department is responsible for complete food service for patients having served 273,516 meals in the year, of which 116,791 were prescribed modified diets. The therapeutic staff is concerned with planning of modified menus, supervising the preparation of prescribed diets, visiting patients and instructing them as to their nutritional needs, conferring with staff doctors and assisting with research and the solution of feeding problems.

The dietary staff also prepares and serves meals and refreshments for all special functions at the Institute, a total of 381 programs last year where 26,022 persons were served.

#### Employees Clinic

The basic goals of the Employees Clinic are to implement the State Health Laws and the Institute policies relating to personnel in State, Health Research, Inc., and Education Department positions, as well as provide continuing health service for employees and students. The number of visits to the clinic for all reasons reached a total of 9,629 during 1974-75.

### Housekeeping

This department is responsible for maintaining the physical appearance and furnishings of the Institute. The department also supervises the Institute's sewing room. The department has processed 2403 service requisitions last year. A total of 914 moves were completed, 8359 patient beds were washed, and the department's sewing room manufactured 4226 new items and mended 9300 items.

### Laundry

This department is responsible for laundering, pressing, delivery of clear linen, pick-up of soiled linen, filling requisitions for bedding and clothing, and marking of all linen and clothing. All purchase requests for bedding and clothing originate in the Laundry Department.

From April 1, 1974 through March 31, 1975 the Laundry processed 2,053,591 pounds of linen and clothing.

### Maintenance and Engineering

This department is responsible for the operation, maintenance and repair of the buildings, grounds, mechanical equipment and systems of the Institute.

The department assists in the planning, programing, designing, and cost estimating of new facilities, and rehabilitation of existing facilities.

Members of this department represent the Institute as liason with architects, engineers and contractors engaged in new construction and rehabilitation projects.

The staff, consisting of approximately 92 people, includes skilled journeymen in all the major building trades, as well as, maintenance men and helpers.

Services provided by the department: carpentry, plumbing, electric, refrigeration, machine shop, groundskeeping, and garage.

### Medical Records

The Medical Record Department is essentially a patient care information system, which receives, processes, stores, retrieves, and communicates data. It is responsible for insuring the completeness, accuracy, and consistency of the patient's medical record. Additionally, it codes and indexes all diagnoses and therapy to facilitate retrieval for research purposes.

## Nursing Service

The Nursing Service Department of Roswell Park Memorial Institute recognizes and accepts the overall philosophy of Roswell Park Memorial Institute that basic research correlated with clinical research is essential if the fundamental problems relating to the nature, etiology and management of all cancers and allied diseases are to be a reality. An integral part of Roswell Park Memorial Institute, the Nursing Service Department participates as a teaching and research unit.

The Nursing Service Department also endeavors to keep its staff currently informed of progress in the new cancer treatments.

## Personnel

The Personnel Department has the responsibility for the coordination and administration of personnel and labor relations programs and policies for the State and Health Research, Inc. at Roswell Park Memorial Institute.

The Personnel Department has basically a two-fold purpose. One is to locate and hire employees for the Institute, and the other is to administer the related programs such as Health Insurance, Retirement, Compensation, Classification, and the general fringe benefit program.

The Personnel Department also maintains a complete file on Institute personnel along with a record of the positions allocated to the Institute with their incumbents.

The Personnel Department also serves as the Institute's representative in labor relations matters.

## Pharmacy

This department is responsible for dispensing of drugs, chemicals, pharmaceutical preparations, manufacture of pharmaceuticals, preparation and sterilization of injectable and topical medication, furnishing information concerning medications to physicians and nurses, the pricing of items dispensed for purposes of billing patients, implementing the decisions of the Pharmacy Pharmacology Committee regarding the hospital formulary, protocols and protocol drugs.

## Research Service Shop

This department is responsible for the repair, calibration, and maintenance of almost all the clinical and scientific instruments and apparatus used in the Institute. This includes almost every form of optical, mechanical, electronic, and electromechanical equipment.

In addition, consultation services are provided regarding equipment requirements, sources of supply, modification of present equipment, and design of unique instruments or apparatus.

As time permits, special apparatus for clinical and scientific projects are engineered, developed and built here.

## Volunteer Services

The Volunteer Services Department is the coordinating office between the Institute and the surrounding community which supplies volunteer assistance. The department is responsible for planning, administering and coordinating the volunteer service.

### S.T.A.R.

The Society to Aid Roswell is a community non-profit organization of individuals assisting in the promotion of the programs and aims of the Institute.

### Division of Fiscal Administration and Business Management

This division is responsible for the management of the Institute's fiscal and business affairs funded both from the State of New York and from grants under Health Research, Inc. Among the responsibilities are: preparation and supervision of the State budget, supervision of the fiscal affairs of Health Research, Inc., Roswell Park Memorial Institute Division; supervision of joint State and Health Research, Inc. operations.

- a) State Appropriation Accounting Section - this section is the control center of the business office providing a system of internal check in processing receipts and payments, keeping records and making reports.
- b) State Payroll - this section's responsibilities include determination of payroll, maintaining time accrual records, and implementing salary and deduction policies.
- c) State Patient Billing - this section is responsible for the billing and collection of all charges to patients and maintaining related accounting records.
- d) Health Research, Inc. Business Office - is a non-profit corporation to receive and administer gifts and grants for research. Section responsibilities include grant accounting, accounts payable, payroll, and general accounting.
- e) Equipment Supervision - the main function of this department is to maintain a perpetual inventory record control of all State and Health Research, Inc. equipment. In addition, this Department maintains a warehouse of 10,000 square feet for equipment storage. Disposition of surplus property as well as interdepartmental and agency transfers of equipment are handled by this department.
- f) Cost Accounting - the function of the Cost Accounting Department is to provide the necessary cost data required by State, Federal and non-governmental agencies and the Institute administration.

- g) Mail Department - Mail Department personnel sort and deliver incoming mail to Institute departments and patients, as well as collect outgoing mail and prepare it for the Post Office. They also collect, sort and deliver inter-departmental mail.
- h) Printing Department - this department is responsible for printing the Institute's reports, the employees' newsletter, various instruction manuals, and all the Institute's own forms. It also handles the duplication of general memoranda to the staff.
- i) Purchasing Department - this department has the responsibility for purchasing all items of supply and equipment for the Institute and maintaining perpetual inventory cards.
- j) Receiving and Stores - this department is responsible for receiving and storing equipment and supplies, and for dispensing items to other departments.

#### Admitting, Information and Telephone

This department is responsible for coordinating of appointments and registration of new patients, processing in-patient admissions, and discharges, history interviewing, addressograph, switchboard and main lobby information desk.

#### Chaplain Service

The Institute employs three hospital chaplains on a part-time basis, one each for Jewish, Protestant and Roman Catholic patients. The chaplains visit patients regularly, and religious services are held in the Institute Chapel. In addition, Episcopal chaplaincy services are provided upon request.

#### Educational Affairs

Education at the Institute is many-faceted, ranging from ten formal degree-granting programs to informal conferences and seminars. The educational activities include postgraduate, graduate, and undergraduate programs as well as nursing, allied health, and public projects. Whereas the entire senior staff participates in the educational activities of the Institute in one way or another, the more formal academic programs are conducted by senior staff personnel who also hold professional appointments at State University of New York at Buffalo and other cooperating schools, viz., Niagara University, Canisius College, D'Youville College, Rosary Hill College and Erie Community College.

## Public Education

Public cancer education at Roswell is an integral part of the total education program.

One of the most recent and successful education efforts is the Can-Dial system. The telephone number and a library of taped messages are made available to citizens of New York State. The toll-free system operates sixteen hours per day, with an operator present to play a specific cancer related tape to individual callers. The tapes are also available in Spanish translations. To date, over 70,000 have been received since the system began operating in April of 1974.

Other Public Education programs include:

- Health Teacher Workshops
- Public Lectures
- Club and Organization Future Programs
- In-school Lectures
- Breast Cancer Teaching Days

- Employee Lectures
- Stop Smoking Clinics
- Literature Distribution
- Tobacco Education
- Public Tours for Science Students

## Professional Education

Roswell Park Memorial Institute has prepared a four-track program to make practicing physicians and dentists aware of the most recent advances in research on patient care. All practicing physicians, dentists, and medical personnel are encouraged to participate in any aspect of the four-track program. Offerings include:

1. An annual two-day interdisciplinary program on recent advances in oncology presented by department heads at the Institute discussing the latest progress in their specialty area of practice. The two-day multidisciplinary symposium is scheduled for the second week in October 1976.
2. A monthly one-day symposium on advances in a special area of oncology. The cycle of monthly symposia will utilize formal lecture, conferences, clinical rounds, demonstrations, etc., as suits the material under discussion and requests from the audience. Programs generally are held the second Thursday of the month.
3. An opportunity for a limited number of interested practitioners to participate for a variable period of time in the clinical activities of a specialty area of their choice at the Institute.
4. An extensive eight-week course in oncology offered in July and August at the Institute.

## Medical Illustration

The primary mission of the Department of Medical Illustration is to supply the medical and scientific staff at Roswell Park Memorial Institute, through the medium of graphic arts, the means to transfer knowledge to their own peers and to the lay members of the community.

Here researchers and clinicians may request the following services rendered for them: 1) surgical and medical illustrations; 2) the inking of all charts and graphs; 3) the planning and execution of health exhibits and brochures; 4) the preparation of all artwork to be used for teaching seminars, lectures, etc., before conversion to 35 mm slides, prints, etc.; and 5) signs and posters used within the Institute.

## Medical Photography

The primary responsibility of the Photography Department is medical and scientific photographic documentation. Photographs, slides, movies and other visuals which are produced here are indispensable in the advancement of medicine. Other types of photography performed routinely include public relations, portrait identification, and all Roswell Park Memorial Institute produced publications.

## Medical and Scientific Communications

The Department of Medical and Scientific Communications is basically responsible for the public relations programs of Roswell Park Memorial Institute. This is accomplished through the preparation of informational materials concerning the various Institute activities for dissemination through a variety of media including newspapers, magazines, brochures, radio and television.

Specific functions of the department include supervision of layouts, preparation of mechanicals, artwork, and copy writing, as well as the printing of various informative materials. These include the Institute's Annual Progress Report, posters, invitations, pamphlets, brochures and other types of literature of a medical and scientific nature.

Additional responsibilities include the accumulation of a newspaper clipping file, maintaining extensive publication mailing lists, as well as developing and staffing of Institute exhibits.

## Medical and Scientific Library

The objective of RPMI's library is to provide active support to the education, scientific research, clinical patient care and regional service activities of the Institute through the selection, acquisition, organization and dissemination of informational, educational and instructional library materials and audiovisual programs. The library contains 30,869 volumes and 777 periodicals.



Staff

118 M.D.'s  
98 Ph.D.'s  
72 Scientific Technicians  
399 Nursing  
1520 Administrative and Support

2207 TOTAL

Research  
Departments

Anesthesiology  
Biological resources  
Biophysics research  
Biostatistics  
Breast surgery  
Computer center  
Dental surgery and maxillofacial prosthetics  
Dermatology  
Diagnostic radiology  
Education  
Enzymology laboratory  
Epidemiology  
Experimental biology  
Experimental pathology  
Experimental surgery  
Experimental therapeutics  
General surgery  
Gynecology  
Head and neck surgery  
Immunology and immunochemistry research  
Laboratory Medicine  
Medical viral oncology  
Medicine A  
Medicine B  
Medicine C  
Molecular biology  
Neurosurgery  
Nuclear medicine  
Orchard Park laboratories  
Pathology  
Pathophysiology  
Pediatrics  
Radiation Medicine  
Thoracic Surgery  
Urology

Research  
Department heads

Trudnowski, R.  
Mirand, E.  
Harker, D.  
Bross, I.  
Dao, T.  
Priore, R.  
Schaaf, N.  
Holtermann, O.  
Jennings, E.  
Mirand, E.  
Laskowski, M.  
Vana, J.  
Helmstetter, C.  
Weiss, L.  
Murphy, G.  
Mihich, E.  
Holyoke, E.  
Barlow, J.  
Shedd, D.  
Pressman, D.  
Fitzpatrick, J.  
Carter, W.  
Henderson, E.  
Sokal, J.  
Sandberg, A.  
Paigen, K.  
West, C.  
Bender, M.  
Bock, F.  
Pickren, J.  
Amicus, J.  
Sinks, L.  
Johnson, R.  
Vincent, R.  
Merrin, C.

PublicationsDEPARTMENT PUBLICATION  
SUMMARY  
1974-1975

<u>Department</u>	<u>Papers</u>	<u>Abstracts</u>	<u>Books</u>	<u>Films</u>
Anesthesiology	9	1	-	-
Biological Resources	12	8	-	-
Biophysics Research	35	55	-	-
Biostatistics	24	8	-	-
Breast Surgery	8	3	-	-
Computer Center	4	-	-	-
Dentistry & Maxillofacial Prosthetics	10	-	-	-
Dermatology	17	5	-	-
Diagnostic Radiology	2	-	-	-
Enzymology	9	2	-	-
Epidemiology	1	-	-	-
Experimental Biology	18	14	-	-
Experimental Pathology	51	5	-	-
Experimental Surgery	51	9	2	-
Experimental Therapeutics	67	47	-	-
General Surgery	52	27	-	-
Gynecology	12	5	-	1
Head & Neck Surgery	15	-	-	-
Immunology & Immuno- chemistry Research	30	5	-	-
Laboratory Medicine	10	10	1	-
Medical Viral Oncology	32	18	-	-
Medicine A	21	12	-	1
Medicine B	28	17	-	-
Medicine C	9	2	-	-
Molecular Biology	12	3	-	-
National Prostatic Cancer Project	1	-	-	-
Neurosurgery	8	8	-	-
Nuclear Medicine	2	-	2	-
Nursing	1	-	-	-
Orchard Park Labs	5	2	-	-
Pathology	9	4	-	-
Pediatrics	10	3	1	-
Springville	21	4	-	-
Thoracic Surgery	10	2	-	-
Urology	12	-	-	1
TOTALS	618	279	6	3

Four Institute publications routinely present the community with new information on cancer. The Regional Cancer Report publicizes cancer control activities of organizations throughout the community. The Summer, the Institute's newsletter, reports on recent and on-going activities as well as Fall. The Director is the Education Department's newspaper and announces all cancer education activities for the region. The Clinical Newsletter highlights cancer control outreach programs for the community and is circulated to all referring physicians in Western New York and neighboring Pennsylvania. The Institute also publishes a monthly summary of the abstracts of all papers published in medical/scientific journals by members of the Institute staff.

Capacities

Chart III

STATISTICS

(Fiscal Year April 1, 1974 to March 31, 1975)

General Statistics

Total outpatient visits . . . . .	56,846
Total inpatient admissions . . . . .	6,451
Total inpatient days . . . . .	103,113
Average patient stay (days) . . . . .	16.04
Total beds in active use . . . . .	329
Average daily census . . . . .	282.50
Occupancy rate (percent) . . . . .	85.92
Discharges . . . . .	6429
Deaths . . . . .	553
Clinical chemistry determinations . . . . .	497,455
Hematology examinations . . . . .	195,759
E.K.G. examinations . . . . .	7,048
Pulmonary functions examinations . . . . .	646
Cytological cases . . . . .	9,766
Histological cases . . . . .	16,190
Autopsies . . . . .	503
Diagnostic radiological examinations . . . . .	66,350
Therapeutic radiological treatments . . . . .	38,344
Surgical operations . . . . .	3,471

Statistical Summary of  
Roswell Park's Outpatient Visits and Admission for 1974-75

	Outpatient	Inpatient
New patients examined (all services combined)		
Revisits Examined / Inpatient Admissions:	2,837	-
Breast Surgery	4,488	1,010
Dental Surgery	2,789	-
Dermatology	3,435	90
Dermatology (Chemotherapy)	929	-
General Clinical Research Center	941	456
General Surgery Division A	1,674	386
General Surgery Division B	1,932	543
Gynecology	4,325	779
Head & Neck Surgery A	3,184	320
Head & Neck Surgery B (Reconstructive Surgery)	1,872	377
Medicine A (including Metabolic Research Center)	3,098	452
Medicine B	5,680	481
Neurosurgery	118	47
Nuclear Medicine	756	5
Pediatrics	2,480	353
Radiation Medicine	10,737	194
Soft Tissue Chemosurgery	559	-
Thoracic Surgery	1,327	369
Urology	3,505	589
Total outpatient revisits	54,009	-
<b>TOTAL</b>	<b>56,846</b>	<b>6,451</b>

Educational Activities

Participants  
1974-75

POSTGRADUATE PROGRAMS

Visiting Scientist Program	3
Postdoctoral Fellowship Program	15
Resident Physician Program	145
Clinical Cancer Training Program	18
Foreign Exchange Visitor Program	12
Volunteer Resident Program	3

GRADUATE PROGRAMS

Predoctoral Fellowship Program	272
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PROFESSIONAL AND CONTINUING EDUCATION PROGRAMS

Physicians, Nurses and Hospital Personnel	5,725
Tele-Lecture	1,134
Conferences	2,500
Program in Bone Marrow Interpretation	31
Platelet and Blood Component Training Program	12

RESEARCH PARTICIPATION PROGRAM IN SCIENCE

Secondary and College Teachers	10
College Summer Students	53
High School Summer Students	51
Volunteer Student Research	49

MEDICAL AND DENTAL STUDENT PROGRAM

Medical Student Program	58
Dental Program	85

ALLIED HEALTH PROGRAMS

Radiotherapy Technology	43
Cytotechnology	5
Speech Therapy	501
(including observational students)	
Occupational Therapy Assistants Program	7
Physical Therapy Program	16
Medical Technology Program	23
Clinical Laboratory Assistants Program	4
Nursing Education Programs	
Dialysis for Nurses	3
School of Anesthesia for Nurses	6
Affiliation for Student Nurses	327
Cancer Teaching Days	347
Cancer Workshops for Staff Nurses	73
Work-Study for Collegiate Nurses	48
Nursing Inservice Program	2,372
Enterostomal Therapy Program	21

PUBLIC EDUCATION

Lecture Series for Community	515
Can-Dial	34,872
Speakers Bureau	1,320
Anti-Smoking Lectures	20,056
Visitors Tours	1,602

## EMPLOYEE EDUCATION

State Tuition Support Program and Inservice Training Program	169
Health Reserch, Inc. Tuition Support Program	76
Employee Training Courses	70

## COMMUNITY ACTION PROGRAMS

Neighborhood Youth Corps Training Program (NYC)	46
Work Incentive Program (WIN)	12
United Way	14
Junior Red Cross Volunteers	7
Native American Manpower	7
Youth Opportunity Program	4
High School Health Occupation Program	2

## Space

It is difficult to define precisely the allocation of space at the Institute by type of activity. Present total Institute facilities encompass 608,105 net square feet, of which 314,795 square feet are utilized in basic and clinical research. There are 83,700 net square feet of animal facilities, including seven cage-washing rooms, and laboratories with large animal facilities in Springville, New York. Eleven built-in cold rooms, 27 controlled environment rooms, and 59 sterile rooms are distributed throughout the Institute and total 6,995 gross square feet of such specialized space. Chart IV indicates the allocation of space available at the Institute by broad service areas.

Chart IV

### Net Square Feet by Service

Basic Research	193,470
Clinical Research	78,190
Patient Care	151,275
Education	34,115
Administrative Services	101,735
Springville	16,920
Orchard Park	21,680
West Seneca	10,720
	<hr/>
	608,105

The Kevin Guest House is a non-profit affiliate of Roswell Park Memorial Institute which accommodates relatives of patients of the Institute and serves as a meeting places and/or a place for temporary lodging.

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## Space

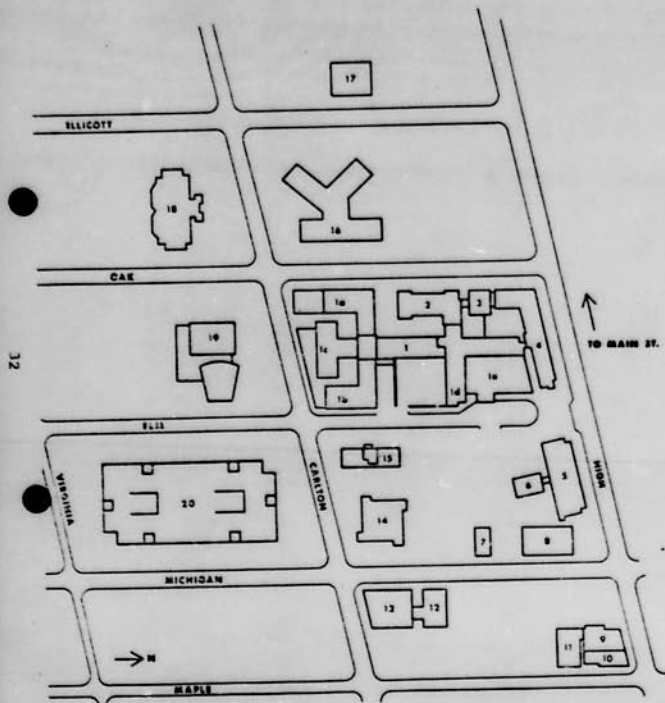
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### THE ROSWELL PARK CAMPUS

1. Main Hospital
- 1a. West Wing
- 1b. East Wing
- 1c. Radiation Therapy
- 1d. North Wing
- 1e. Ambulatory Services
2. Simpson Building
3. Gaylord Building
4. Gratwick Basic Science Building
5. Cell and Virus Building
6. Cell and Virus Annex
7. Sub Station
8. Boiler House
9. Clowes Building
10. Mergenhausen Building
11. Wehr Building
12. Crystallographic Center
13. Kress Building
14. Grace Cancer Drug Center
15. Roswell Park Apartments
16. Carlton House
17. Kevin Guest House
18. Cancer Cell Center
19. Research Studies Center
20. Parking Ramp

CHART IV



The Ambulatory Services Building, opened in September 1975, houses eight outpatient clinics. The new facility will accommodate over 70,000 outpatients who are treated in the Roswell Park clinics each year.

The Cancer Cell Center, opened in late 1975, is designed to provide adequate space for a basic science research program on the cancer cell in a coordinated effort by three major groups of investigators. The building consists of five stories with a gross floor area of 65,570 square feet.

Acquisition and renovation of the former Carlton House currently offers new potential and resources to develop clinical activities. The total capacity for program development in inpatient services at the Institute has increased over 50 percent through this resource addition.

A new Institute facility, Butler Hall, will be utilized to augment initiatives in educational and community outreach programs. The building will house conference facilities and community projects of the Institute that will benefit from the unique characteristics of the historic mansion.

## NEW YORK STATE DEPARTMENT OF HEALTH

## ROSWELL PARK MEMORIAL INSTITUTE

Fiscal Summary 1974 - 75

## Distribution of Operating Expenditures by Source of Funds

\*State expenditures include the annual appropriation to the Institute (excluding equipment and capital facilities) plus an apportionment of fringe benefit expense and overhead expense, including an assessment for services by State departments in Albany. Grants to the Institute are administered by Health Research, Inc.

	New York State	Health Research, Inc.	Total
Total Expenditures	\$34,812,675	\$10,181,221	\$44,993,896

	<u>%</u>	<u>\$</u>
Basic Research	49.2	22,120,954
Clinical Research	24.2	10,893,634
Outpatient Services	5.8	2,617,071
Inpatient Services	20.8	9,362,237
	<u>100.0</u>	<u>\$44,993,896</u>

Allocation of Costs to Major Institute  
Functions

## Patient Referral

The Roswell Park Memorial Institute receives patients who reside throughout this country and abroad. A large proportion of patients reside chiefly in New York, Pennsylvania, and Ohio.

The Institute relies upon practicing physicians and dentists to refer patient cases to the services of the clinical staff. The Institute will not admit directly patients for hospitalized care without the consent of a personal physician. In some cases, the referral may come from a physician other than the immediate family practitioner or attending physician of the patient.

The Institute provides a toll-free referral line and consultative service to all medical and dental practitioners in New York. This Wide-Area Telephone Service (WATS) permits practitioners throughout the state to call the Institute toll-free at any time and communicate directly with staff physicians or receive patient admission information.

The Institute maintains a central admitting office responsible for coordinating appointments and registration of new patients, processing in-patient admissions and discharges, and maintaining history interviews and other central admission procedures.

Patients are assigned to a clinical service directly responsible for care of the specific cancer under treatment. It is the responsibility of the departmental chairman and senior attending staff to organize and develop a multidisciplinary review of the patient's course of treatment. The composition of this team of professionals is designed on an ad hoc basis to reflect the special parameters of each patient case.

Rehabilitation of the cancer patient and coordination of follow-up care begins at the first admission of the patient for clinical care. The department of Social Service has access to each patient within the hospital and assists in obtaining a full recovery of the patient to optimal capabilities in the family and the community. Many of the rehabilitation services participate in the clinical rounds of the medical services and develop pre-operative contact with patients.

A nurse discharge coordinator is employed to assist patients leaving the Institute and to provide continuity of patient care after discharge from the hospital. The Institute has developed close cooperative ties with community-based services that are maintained by private, public and voluntary rehabilitation agencies.

On an annual basis, the LakesArea Regional Tumor Registry, maintained at the Roswell Park Memorial Institute, contacts every patient case to determine the current health status of the patient. This cancer registry follow-up stimulates an annual review of the patient's response to treatment.

## Region

The Roswell Park Memorial Institute is located in Buffalo, New York, which is the largest metropolitan area in the the region and is the commercial and industrial center for the area. The Institute, therefore, has the distinct advantage of being situated at the natural hub for communication and coordination of regional activities.

The immediate surrounding region included 2,690,000 residents in 1970 in a tri-state area of Western New York and neighboring portions of Pennsylvania and Ohio. The large majority of the population is located in the counties surrounding Buffalo that border Lake Erie. The major channels of regional transportation and communication follow along the shore through Buffalo between Erie, Pennsylvania, and Niagara Falls.

The distribution of physicians, hospital beds, and allied health personnel in the region also reflects the concentration of the population in the Buffalo metropolitan area. Buffalo, therefore, is the hub for health manpower resources and medical communications as well as population for the area.

## Cancer Control Activities

### Prevention

The Public Education Office of Roswell Park offers health education programs in prevention of cancer to grade schools, high schools, and community organizations throughout the area. In addition to a general presentation on public prevention of cancer, this bureau conducts programs on "Smoking and Health" upon request.

Several clinical specialty areas within the Institute develop and present public programs on the preventive aspects of their field of cancer research. The Department of Dermatology conducts programs in public education on the risk of over-exposure to the sun and contact with compounds such as arsenical preparations. Professional presentations stress management of premalignant solar keratoses.

The Department of Thoracic Surgery at the Institute undertakes efforts toward the prevention of lung cancer through smoking cessation. These activities are aimed toward public education and the training of community health educators. Many of these efforts are conducted in cooperation with carcinogenesis researchers at the Orchard Park Laboratories of the Institute. A Lung Cancer Information Clearinghouse, an active library of filmstrips, movies, and written materials, is maintained for inquiries from school research projects, students, their parents, and other interested adults. Members of the Institute staff consult with the New York State Department of Education in the development of health science education centers within the state university teacher training system. The Department of Thoracic Surgery also participates in continuing education programs for health educators throughout Western New York. Throughout the year, the Institute conducts smoking cessation clinics for all interested residents of the community.

Several scientific departments have conducted extensive work in environmental carcinogenesis, and researchers present public programs on preventive measures. The Department of Biostatistics has directed efforts toward public education in the hazards of low level radiation exposure. The Molecular Biology Department undertakes activities toward enhancement of public awareness of environmental agents and their effect on the incidence of cancer.

The public education staff of the Institute has completed a New York State Cancer Education Curriculum for grades four through twelve. This material on prevention and early detection of cancer is provided to school teachers throughout New York State.

As part of its compilation of resource materials and cancer information, the Cancer Communication Office at Roswell Park has established an environmental carcinogen clearinghouse. Copies of information on everyday environmental hazards may be obtained by calling or writing this office.

For the past twenty-two years, members of the staff at the Orchard Park Laboratories have been involved in cancer prevention. The focus of these activities includes (A) identification of environmental carcinogens, (B) determination of methods by which environmental carcinogens could be eliminated or reduced, and (C) studies on the mechanism by which tumorigenic materials produce cancer so that the pathway between exposure to carcinogen and development of cancer can be interrupted.

The bulk of these studies has involved reduction of the carcinogenic hazard involved with tobacco usage. Work has demonstrated that substantial reduction in carcinogen exposure would be achieved by the use of effective filters. Such filters have been widely adopted throughout the world and recent data suggests that filters have reduced mortality due to cancer and other diseases. Present studies seek to design cigarettes that will deliver less carcinogenic tars. Several laboratory models have been tested and found to offer promise.

A second type of tobacco study is leading to identification of the cocarcinogens in unburned tobacco. Researchers have identified one of the carcinogens and have elicited the manner in which its activity is enhanced by the presence of other extractives in the leaf. Methods to reduce the concentration of these extractives in tobacco preparations intended for chewing will result from these studies.

#### Screening and Detection

The Institute maintains research, services and educational programs in many cancers where early detection contributes significantly to the control of cancer. Roswell Park has aided the Erie County Department of Health in the establishment of a cervical cytology screening program for the community. Roswell Park has assisted in the training of nurses and in the diagnostic work-up of abnormal smears.

Dr. Steven M. Piver, Associate Chief Gynecologist, also serves as chairman of the Uterine Task Force Committee of the American Cancer Society, New York State Division. This program seeks to assure New York State by 1976 that each woman over age 20 receives a pap smear examination.

The Breast Service at the Institute conducts educational programs with individuals, for community organizations, and through general media outlets on early detection of breast cancer through instruction in breast self-examination. This department also is establishing a Breast Screening Detection Center to provide early detection services to populations at risk and to demonstrate the most recent insights on screening, detection and diagnosis.

The Department of Head and Neck Surgery, in conjunction with the Dentistry & Maxillofacial Prosthetics Department, also is active in conducting public education programs and professional education for dentists and physicians on early detection and diagnosis of cancers of the head and neck.

The Public Education Office offers a series of health education presentations for schools and community organizations on early detection of cancer. Subjects include breast self-examination and carcinoma of the breast, pap smears and cervical cancers, and proctosigmoidoscopy and cancer of the colon and rectum.

The Institute relies upon physician referral of cancer patients and does not conduct direct screening of the general public. However, the Institute receives many referrals to its outpatient clinics for additional screening, diagnosis, and staging of cases initially identified by community practitioners. The opening of the new Ambulatory Services Building augments the Institute's effort to screen cancer patients and maintain follow-up services for the frequent occurrence of second primary lesions.

The Roswell Park Employees' Clinic serves as a method of screening, detection, and diagnosis for malignant diseases in employees, volunteers, participants in Institute programs, and visitors. Periodic re-examination of dietary personnel, primate animal handlers, and trash handlers continue early detection efforts in these groups of employees. Annual chest x-ray examination of all employees, on a voluntary basis extends screening for primary or metastatic chest cancer. Annual papanicolaou smear examinations are offered to all female employees on a voluntary basis. The Cytology Division of the Department of Pathology provides exfoliative cervical smears for all employees, patients, some Institute clinic outpatients, and assists the screening activities of other regional facilities.

Many of the Institute services provide assistance for the community screening and detection of cancer patients. The Department of Laboratory Medicine conducts workshops for area laboratories in the detection and identification of monoclonal gammopathies. The Pediatrics Service maintains an active role in assisting general practitioners and pediatricians in the evaluation of leukemic marrow for specific diagnosis. A refresher course in cytopathology is conducted for all interested individuals approaching the New York State Cytology Proficiency Test.

Many research programs underway at the Institute focus upon the development and dissemination of new insights into cancer detection. Examples of efforts in experimental detection include enzyme tests to identify high-risk population, studies on CEA, and investigation of ovarian carcinoma antigens.

#### Diagnosis and Treatment

The Institute provides toll-free consultative service to medical and dental practitioners to assist in the dissemination of recent advances in cancer care. This Wide-Area Telephone Service (1-800-462-1877) permits community practitioners throughout New York State to call the Institute at any time free of charge and communicate directly with staff physicians.

The Visiting Team Program of Roswell Park involves the staff of the Institute in monthly cancer programs in community hospitals throughout Western New York and neighboring portions of Pennsylvania. On a regular basis, Roswell Park sends a team of staff representatives to participate in the community in a review of current cancer patients or general areas of cancer patient care. This participation often includes multidisciplinary physician conferences, nursing in-service programs, and consultations between rehabilitation therapists.

Several individual departments at the Institute have established outreach programs. Members of the staff of Medicine A participate in a monthly review of cancer patient cases and cancer presentations at community hospitals in the Southern Tier Tumor Management Board of Elmira, New York. These community visits combine formal discussion of combined therapy subjects and evaluation of current patient care in the region.

The Department of General Surgery conducts a similar monthly community program for the Utica Tumor Conference of Utica, New York. This monthly conference involves eight community hospitals in the examination of patients referred to a tumor clinic and an academic program of case presentation and discussion.

The Pediatric Department at Roswell Park, in affiliation with Buffalo Children's Hospital, has developed a joint Comprehensive Pediatric Cancer Center. All children initially referred to either institution are managed jointly by the surgeons, radiotherapists, and oncologists based in both institutions. Currently, virtually all children with hematological malignancies and lymphomas are referred upon diagnosis to Roswell Park for combination radiotherapy/chemotherapy. In the case of solid tumors, children often are referred to the Institute after surgery for combined radiotherapy and chemotherapy. Throughout the year, members of the Institute's Pediatric Department participate every other week in the Tumor Board of Buffalo Children's Hospital. Furthermore, the Pediatric Department has developed regional contacts in Syracuse, Albany, and Erie, Pennsylvania to aid the management of children with malignancies in their residential communities.

Many other departments within the Institute have developed ties to area hospitals for cooperative review of cancer treatment. The Department of Diagnostic Radiology attends weekly conferences at Meyer Memorial Hospital in Buffalo for all area residents and radiologists. Clinicians in the Radiation Medicine Department have close liaison with the staff of Millard Fillmore and Kenmore Mercy Hospitals in the metropolitan area and with radiologists throughout Western New York.

Roswell Park maintains the central registry operations for thirty-five community hospitals participating in the Lakes Area Regional Tumor Service Registry. The registry is designed to provide data on the incidence of cancer, to facilitate monitoring of patients, and to develop end-results data to assess the effectiveness of various modes of treatment. The Roswell Park staff provides each hospital with a listing of registered patients by name and primary site. Regional analytical reports are prepared annually and each participating community receives an individual tabulation of the hospital's cases in comparison to the entire region. Special analytical reports utilizing registry data are prepared upon request.

The Head and Neck Service of the Institute, in conjunction with the State University of New York at Buffalo, has established a prototype comprehensive network demonstration project for head and neck cancer. The principal objective of the program is to close the gap between regional patient care and clinical advances at special cancer institutions. Specific operational objectives include establishing continuing education programs to insure early and proper diagnosis disseminating information on optimal protocols, developing a coordinated referral network for community services and specialized back-up, and providing comprehensive regional rehabilitation services. First echelon centers in the head and neck network have been established in Rochester and Erie, PA.

Another regional network for cooperative efforts in diagnosis and treatment is under development between radiation therapists throughout the area and the Department of Radiation Medicine at the Institute. Members of the staff assist in treatment planning and dosimetry service at community facilities.

Roswell Park also is active in the policy development and program implementation of regional organizations that sponsor cancer programs. Representatives of the Institute sit on the Lakes Area Regional Medical Programs advisory group. Dr. Murphy has served as chairman and coordinator of the RMP Cancer Control Committee.

The Institute maintains a close working relationship with the American Cancer Society in the development of community outreach. Members of the staff hold numerous appointments to committees and councils of the ACS at the national, state, regional, and county level. Public and professional programs continually are planned and conducted under cooperative sponsorship.

The Institution also functions as the organizational center for the National Prostatic Cancer Project. Coordinating five hospitals across the country, this project serves referral of patients with advanced metastatic prostate cancer that have failed to respond to all forms of standard therapy. The network allows for rapid evaluation of new treatments and the sharing of knowledge gained at the national level.

Members of the Institute staff also serve in prominent positions on numerous national task forces and cadres. A listing of current cooperative clinical trials and scientific associations that extend across the nation would require virtually a catalogue of all clinical services and research projects at the Institute.

#### Rehabilitation

Another parameter of cancer control is the development of patient services that extend beyond the period of immediate treatment intervention. Cancer patient rehabilitation programs seek to restore the patient to maximal health and capabilities in the community.

In 1974, the Institute officially opened a Comprehensive Cancer Patient Rehabilitation Center, a new central facility to integrate rehabilitation staff at Roswell Park. The Rehabilitation Center coordinates rehabilitation services and their expertise toward returning the cancer patient to function in the home, vocation, and society. The availability of multifaceted services allows a total approach to the patient's mental and physical needs.



The Institute also assists in the continuing care of the cancer patient after return to the community. A nurse discharge coordinator reviews patient needs at the end of inpatient treatment and provides contact with available community services. This activity assures continuity of necessary care after discharge from the Institute. Each of the rehabilitation services also is available for consultation with former patients and community agencies should a patient's course of continuing care require assistance or reassessment.

Recognizing the role of the Institute in serving cancer patients and their relatives, Roswell Park has created the Kevin Guest House to serve out-of-town patients who require accommodations while visiting the Institute. The house provides a meeting place for patients and their families while they are in this area.

Finally, the Institute plays an active role in community agencies that seek to assist cancer patients and their families. For example, members of the staff collaborate with the Association for Research of Childhood Cancer (AROC) in efforts aimed at pediatric and adolescent cancer patients throughout the region.

#### Education and Training

One of the most active areas of community outreach at the Institute is the presentation of educational programs for public and professional audiences. Education at the Institute is many-faceted, ranging from formal degree-granting programs to informal conferences and seminars. Educational activities include postgraduate, graduate, and undergraduate programs as well as lay, allied health, and employee education. Formal academic affiliations are maintained with institutions throughout Western New York, including the State University system, Niagara University, Canisius College, D'Youville College, Rosary Hill College, and Erie Community College.

**Public Education:** The Institute's Department of Medical and Scientific Communications is responsible for disseminating information from programs at the Institute. The department prepares brochures on subjects of community interest, including recent releases on carcinogenesis, herpes virus, plamapheresis, environmental agents, and health and smoking.

The Institute has established a public information system (CAN-DIAL) that provides immediate information on cancer-related subjects to individuals with telephone access. The library of pre-recorded message units is available on a toll-free telephone line (1-800-462-1884) throughout New York State. Tapes are available on 36 separate subjects, in English and Spanish, to callers 16 hours a day, seven days a week.

The Public Education Office conducts a monthly Community Lecture Program, a series of lay-oriented lectures in cancer for the general public. The programs seek to better inform community members of basic, up-to-date facts concerning cancer.

The Roswell Park Speakers Bureau is a public service whereby clubs and organizations may request a guest speaker on lay-oriented cancer topics. This program is a cooperative effort with the American Cancer Society in establishing a community service. Members of the Institute staff frequently participate in programs for volunteer units of the ACS.

The public education staff has developed a series of health education lectures geared to the concerns of interests of special target audiences: the Spanish-speaking community, minority groups, and industry.

Daily health education programs are presented to patients, their families, employees, visitors, and friends in the lobby of the Ambulatory Services Building at Roswell Park. These presentations include films, speakers, written materials and other audiovisual aids dealing with cancer facts.

Individual programs and Institute tours are arranged for visitors to Roswell Park. Presentations are developed in the Public Education Office that reflect the size, interests, and educational level of each community group. A scientific careers group, Medical Exploring, meets at the Institute during the school year on a bi-monthly basis. Discussion with scientific professionals and tours of facilities give young students a better view of futures in scientific fields.

In addition to direct public presentations, the Institute continually prepares public announcements and programs for release through radio, television, and the printed media. Departmental monthly reports are reviewed to identify any facts which may be of interest to the general public.

The Institute also maintains an active literature distribution service and audiovisual library. Over 50,000 pamphlets are distributed each year. The materials are provided by the American Cancer Society, the National Cancer Institute, and Roswell Park and are distributed free of charge. The Education Department maintains a large lending library of films and slides produced at the Institute or provided through the American Cancer Society and other voluntary and commercial organizations.

Roswell Park regularly hosts smoking cessation clinics sponsored by community agencies. Members of the staff assist as speakers for such clinics. The Education Department coordinates promotion, scheduling, and evaluation of these programs.

A recent program at RPMI, conducted in cooperation with the American Cancer Society, invited clergy from throughout Western New York to attend talks by Institute staff on the basic facts of cancer treatment. These activities centered upon the role of clergy in providing assistance to the cancer patient and his family.

Finally, the Institute is establishing CONTROLINE, a telephone information service at Roswell Park to respond to public inquiries and provide materials relevant to cancer programs and activities available at the Institute and throughout the region.

Professional Education: The cancer control office of the Institute conducts a four-track program to make practicing physicians and dentists aware of the most recent advances in research on cancer patient care. Offerings include:

- 1) An annual two-day interdisciplinary program on recent advances in oncology presented by department heads at the Institute discussing the latest progress in their specialty area of practice.
- 2) A monthly one-day symposium on advances in a special area of oncology. The cycle of monthly symposia utilizes formal lecture, conferences, clinical rounds, demonstrations, etc., as suits the material under discussion and requests from the audience.

3) An opportunity for a limited number of interested practitioners to participate for a variable period of time in the clinica' activities of a specialty area of their choice at the Institute.

4) An extensive eight-week course in oncology offered in July and August at the Institute.

Every third Wednesday of the month, the Institute presents two oncology programs for physicians and nursing personnel to 39 regional outlets in Western New York. These programs are carried over a closed circuit telephone educational system of the Lakes Area Regional Medical Program.

Roswell Park has inaugurated a series of major conferences that are held annually in honor of outstanding scientists, all of whom spent a part of their research life at the Institute, viz., Drs. Cor, Curi and Clowes. In addition to these "name conferences", a number of major seminars are held throughout the year. Some of these programs are jointly sponsored by the American Cancer Society and the State University of New York at Buffalo.

The Institute, in conjunction with the American Cancer Society, offers the C. Robert Thompson Memorial Fellowship which provides a private practice physician the opportunity to participate for an extended period in the clinical activities of the Institute. A community practitioner is able to attend conferences and meetings, ward rounds, and laboratories for both research and clinical management of cancer patients.

Since 1971, Roswell Park has conducted an Oncology Lecture Series for the Tumor Board and Cancer Care Committee of the South Nassau Communities Hospital in Oceanside, New York. The Institute annually provides speakers for the program and draws upon the wide diversity of expertise on the staff.

The Institute's Medical Library acts as a reference service for medical practitioners throughout the area. The library provides libraries in the region with cancer materials upon request.

Roswell Park maintains a Regional Center for Maxillofacial Prosthetics which utilizes the resources of the Departments of Head and Neck Surgery, Reconstructive Surgery, and Dentistry and Maxillofacial Prosthetics. Each year three dentists with postgraduate work in prosthodontics are given a full year training in maxillofacial prosthetics. The program combines clinical practice and didactic instruction. In addition, two dental technicians receive a year of study as maxillofacial prosthetic laboratory technicians.

The Research Participation Program in Science invites science teachers and students to attend the Institute for the summer to receive laboratory research experience, work under senior staff supervision, and attend staff lectures and seminars. Community participants include high school teachers and students, undergraduates, and graduate or medical students enrolled in professional studies.

Allied Health Programs: The Institute conducts many programs, several in conjunction with the State University and area colleges for the continuing education of health practitioners.

A ten week program is open to all persons interested in human bone marrow interpretation. The lectures introduce participants to the morphology of normal bone marrow and then to abnormal states, e.g., acute leukemia, chronic leukemia, cancer cells, etc. The program utilizes the projection of colored slides and demonstrations on the microscope.

A platelet and blood component training program is open to any qualified physician, nurse, or technologist employed in a hospital treating cancer patients. The program is designed to help insure that cancer patients receive effective hematology in the form of transfusions and other blood components.

A program in radiotherapy technology is offered jointly by the Erie Community College and the Institute. Courses in basic sciences and general education are presented by the college while technical courses and clinical experience are offered through the Institute.

The School of Cytotechnology trains qualified students for positions as cytotechnologists. In addition to formal lectures, classes are conducted in the use and care of a microscope, staining procedures, collection and processing of specimens, anatomy, histology, endocrinology, physiology, pathology, and cytology.

Several rehabilitation services offer practical training for student therapists. Students majoring in Speech Pathology at colleges throughout the state are accepted for clinical speech training, lectures, observation, and practical experience. Participants in Erie Community College's occupational therapy assistant program receive six weeks of practical training at Roswell Park through assignment to clinics working with all types of patients. Senior students in physical therapy at the State University may electively affiliate with Roswell Park for opportunity to observe and administer patient treatments.

A joint medical technology program exists between Rosary Hill College and the Institute. Students receive their clinical laboratory experience at Roswell Park during their junior and senior years. This program includes a teaching laboratory to permit preliminary training in clinical laboratory tests.

**Nursing Education:** A five to eight week program is available for specialized training in hemodialysis. Students are taught the principles of dialysis and equipment operation. Formal lectures in nephrology, physiology, and related subjects are given by staff physicians to provide a theoretical background for the clinical experience.

Roswell Park also conducts an enterostomal therapy training program to instruct nurses in the care of patients with all types of abdominal stomas.

Cancer teaching days are conducted throughout the year at schools of nursing throughout the region and at other interested community agencies. Students participate in formal classes and clinical experience in selected aspects of cancer nursing.

Cancer workshops are held at Roswell Park throughout the year for nurses employed in the community. Special workshops are designed for registered nurses in supervisory positions in hospitals, staff nurses, and consultants employed by the New York State Department of Health. Programs may incorporate classes, demonstrations, and observations to acquaint participants with recent trends in cancer nursing.

Roswell Park also provides clinical facilities in cancer nursing for students enrolled at D'Youville University, and the State University of New York at Buffalo. Student nurses are placed in selected clinical areas where they can participate in the direct nursing management of the patient with cancer. Collegiate nursing students also are offered a six-week work-study experience under the direction of a teacher seeking to improve their skills in caring for the cancer patient in the hospital and the community.

The Institute also maintains a school of anesthesia for nurses. Students are given extensive clinical instruction, clinical experience and didactic training in anesthesia, anatomy and physiology, chemistry and physics, and pharmacology.

**Health Teacher Education:** The Education Department of Roswell Park has designed a curriculum, a teacher training manual, and conferences for instructor training on the subject of cancer for the State Education Department. The curriculum is designed for use in grades 4-6, 7-9, and 10-12 and covers basic facts and preventive information concerning this disease. Methods of early detection and prevention are presented, especially in the areas of breast cancer, cervical cancer, lung cancer, skin cancer, and colorectal cancer.

The teaching manual is a guide for teachers throughout New York State to use in conjunction with the curriculum. It provides the background needed to teach the subject, references, and teaching aids. Training sessions have been held in the state for instruction of regional health education coordinators.

In cooperation with the Buffalo Public Schools, the Education Department conducts update programs to enhance the current knowledge of school teachers and administrators regarding cancer. Members of the Institute clinical staff address the audience of teachers on topics related to cancer prevention, detection, and treatment.

44. Cole Memorial Hospital (Coudersport, PA)
  - regional tumor registry services
  - periodic visiting team programs
45. Warren General Hospital (Warren, PA)
  - periodic visiting team programs
  - regional tumor registry services
46. St. Francis Hospital  
Olean General Hospital (Olean)
  - periodic visiting team programs
  - regional tumor registry services
47. SUNY at Buffalo
  - pap smear screening program
48. Genesee Memorial (Batavia)
  - regional tumor registry services
  - periodic visiting team programs

Academic Affiliations:

49. State University of New York at Buffalo
50. Erie Community College
51. Rosary Hill College
52. D'Youville College
53. Niagara University
54. Niagara Community College

## Working Arrangements with Community Hospitals and Agencies

### Statewide:

1. New York State Department of Health
  - numerous outreach activities including WATS, CAN-DIAL
2. American Cancer Society, State Division and County Units
  - numerous activities including committee and task force appointments

### Regional:

3. Erie County School Districts
  - grade school and high school health education programs on cancer prevention and detection
4. Erie County Health Department
  - establishment of pap smear screening program
5. Lakes Area Regional Medical Program
  - numerous activities and committee appointments
6. Eastern Great Lakes Head and Neck Network
  - site specific network of professionals in Buffalo, Rochester, and Erie, Pennsylvania for education, treatment and research

### Local:

7. Buffalo Children's Hospital (Buffalo)
  - joint management of patient cases through Comprehensive Pediatric Cancer Center
  - regional tumor registry services
8. Buffalo General Hospital (Buffalo)
  - joint patient rounds and conferences on some services
  - regional tumor registry services
  - enterostomal therapy consultation
9. Emergency Hospital (Buffalo)
  - regional tumor registry services
10. Lafayette General Hospital (Buffalo)
  - periodic visiting team programs
  - regional tumor registry services
11. Millard Fillmore Hospital (Buffalo)
  - joint rounds and conferences on some services
  - cooperative radiation therapy planning
  - regional tumor registry services

12. Buffalo Mercy Hospital (Buffalo)
  - regional tumor registry services
13. Buffalo Veterans Administration Hospital (Buffalo)
  - cooperative dentistry and maxillofacial prosthetic consultation
  - periodic visiting team programs
14. Intercommunity Hospital (Newfane)
  - periodic visiting team programs
  - regional tumor registry services
15. Mt. St. Mary's Hospital (Lewiston)
  - periodic visiting team programs
16. Niagara Falls Memorial Medical Center (Niagara Falls)
  - regional tumor registry services
  - periodic visiting team programs
17. Lockport Memorial Hospital (Lockport)
  - regional tumor registry services
18. Medina Memorial Hospital (Medina)
  - periodic visiting team programs
19. Arnold Gregory Memorial Hospital (Albion)
  - periodic visiting team programs
20. Sheridan Park Hospital (Tonawanda)
  - regional tumor registry services
21. Kenmore Mercy Hospital (Kenmore)
  - cooperative radiation therapy planning
22. Our Lady of Victory (Lackawanna)
  - regional tumor registry services
23. Bertrand Chaffee Hospital (Springville)
  - regional tumor registry services
  - periodic visiting team programs
24. St. Jerome Hospital (Batavia)
  - monthly visiting team program
  - regional tumor registry services
25. Wyoming County Community Hospital (Warsaw)
  - regional tumor registry services
26. Lakeshore Intercommunity Hospital (Irving)
  - regional tumor registry services
27. Brooks Memorial Hospital (Dunkirk)
  - bimonthly visiting team program
  - regional tumor registry services



28. Tri-County Memorial Hospital (Gowanda)
  - regional tumor registry services
29. Jamestown General Hospital (Jamestown)
  - regional tumor registry services
30. W.C.A. Hospital (Jamestown)
  - monthly visiting team programs
  - cooperative radiation therapy planning
  - regional tumor registry services
31. Salamanca District Hospital (Salamanca)
  - periodic visiting team programs
  - regional tumor registry services
32. Cuba Memorial Hospital (Cuba)
  - monthly visiting team programs
  - regional tumor registry services
33. Jones Memorial Hospital (Wellsville)
  - periodic visiting team programs
  - regional tumor registry services
34. Southern Tier Tumor Management Board (Elmira)
  - monthly joint cancer program
35. Our Lady of Lourdes Memorial Hospital (Binghamton)
  - monthly joint cancer program
36. Utica Tumor Conference (Utica)
  - monthly joint cancer program
37. South Nassau Community Hospital (Oceansides)
  - monthly joint cancer program
38. Doctors Osteopathic Hospital (Erie, PA)
  - regional tumor registry services
39. Erie Osteopathic Hospital (Erie, PA)
  - regional tumor registry services
40. Union City Hospital (Union City, PA)
  - regional tumor registry services
41. Bradford General Hospital (Bradford, PA)
  - periodic visiting team programs
  - regional tumor registry services
42. Port Allegany Community Hospital (Port Allegany, PA)
  - periodic visiting team programs
  - regional tumor registry services
43. Buffalo Columbus Hospital (Buffalo)
  - regional tumor registry services

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