Cancer Program Annual Report
2006 - 2007

Special Highlight on Prostate Cancer

80 Years At the Forefront of Medicine®
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Introduction

At the Forefront of Medicine®

The Cancer Program at the University of Chicago Medical Center is consistently ranked among the top in the country and named the best in Illinois by U.S. News & World Report. Our cancer program goes unmatched in the Chicagoland area as it is one of only two programs in Illinois designated by the National Cancer Institute as an official cancer center.

Our cancer program has been approved by the American College of Surgeons Commission on Cancer (ACoS CoC) Approvals Program since 1954. The CoC Cancer Program Standards ensure that we have the key elements of a successful cancer program, and have the tools and talent to provide state-of-the-art cancer care.

This year’s annual report demonstrates the strong leadership abilities of Cancer Committee and emphasizes the importance of a multidisciplinary approach to cancer patient care. Other essential components of our Cancer Program include cancer screening and prevention programs, as well as, a multitude of services to support our cancer patients and their families, such as social services, support groups, nutrition services, rehabilitation, pain management, and spiritual care.

Each year we reflect upon the accomplishments of our professional cancer teams. With their enthusiasm and expertise that they bring to their work and with their leadership and support, we are confident of our ability to fulfill our mission:

“Our mission is to provide superior health care in a compassionate manner, ever mindful of each patient’s dignity and individuality. To accomplish our mission, we call upon the skills and expertise of all who work together to advance medical innovation, serve the health needs of the community, and further the knowledge of those dedicated to caring.”
Patient Services Provided On-site

Screening and Early Detection Services

**Breast**
- Mammography

**Cervix**
- Papanicolaou smear (PAP smear)

**Colorectal**
- Colonoscopy
- Fecal Occult Blood Testing (FOBT)
- Flexible Sigmoidoscopy

**Oral**
- Oral Exams

**Prostate**
- Digital Rectal Exam (DRE)
- Prostate Specific Antigen (PSA)

**Skin**
- Skin Exams

Prevention Programs

**Site-Specific Educational Programs**
- Breast Cancer Prevention
- Cervical Cancer Prevention
- Colorectal Cancer Prevention
- Lung Cancer Prevention
- Prostate Cancer Prevention
- Skin Cancer Prevention

**Behavioral Programs**
- Anti-Tobacco for Adolescents
- Nutrition Programs
- Physical Activity
- Skin Cancer Awareness
- Smoking Cessation
- Weight Control

Diagnostic Imaging

- Angiography
- Computerized Axial Tomography Scan (CT Scan)
- Digital Radiography
- Mammography
- Magnetic Resonance Imaging (MRI)
- Nuclear Medicine
- Positron Emission Tomography Scan (PET Scan)
- Stereotactic Guided Biopsy
- Ultrasound (US)

Surgical Procedures

- Minimally Invasive Surgery
- Sentinel Lymph Node Biopsy

Radiation Oncology Services

- Brachytherapy
- Computerized Treatment Planning
- Intensity Modulated Radiation Therapy (IMRT)
- Kilovoltage and Electron Beam
- Linear Accelerators
- Physics Support
- Simulators
- Stereotactic Radiosurgery
- Systemic Radioisotopes

Medical Oncology Services

- Bone Marrow Transplant
- Infusion Center
- Plasmapheresis
- Stem Cell Transplant

Rehabilitation Services

- Enterostomal Services
- Lymphedema Services
- Physical Therapy
- Speech Therapy

Support Groups

- ACS Look Good...Feel Better
- ACS Reach to Recovery
- Breast Cancer Support Group
- Head & Neck Cancer Survivors Outreach Program
- Triumph Over Cancer
- Women’s Cancer Support Group

Support Services

- Cancer Resource Center
- Center for International Patients
- Child Life Program
- Family Housing
- Genetic Counseling
- Nutritional Services
- Pain Management Program
- Pastoral Care
- Pediatric Oncology Social Services
- Psychiatric Services
- Psychology/Mental Health Services
- Transportation Program
- Wellness Information Sessions
- Wigs, Turbans, & Prostheses

For More Information

http://www.uchospitals.edu/
http://www.uchospitals.edu/specialties/cancer/
Cancer Committee

Chairman’s Message
Cancer Committee Roster
Cancer Committee Structure & Objectives
Cancer Liaison Physician
Data Quality Subcommittee

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A Message from the Chairman

It is my privilege to present to you the 2006 Cancer Program Annual Report of the University of Chicago Medical Center. Our cancer center continues to provide the highest quality treatment to more patients each year. During 2005, the Cancer Registry abstracted 2,831 new cases. Over 2,300 of these cases were diagnosed or received initial treatment at the University of Chicago Medical Center, with the greatest representation by tumors of the prostate, breast, lung, colorectal, and kidney. Follow-up information has been maintained for greater than 90% of these patients.

This Annual Report includes highlights from all disciplines involved directly and indirectly with cancer patient care, including accounts from physicians, nurses, staff from cancer registry and patient support services, and other health care professionals. Their writings are reflective of the outstanding care given at our facility.

New to the report this year is a recounting of our 80-year history at the University of Chicago Medical Center and its Cancer Program. In 1927, the University of Chicago School of Medicine matriculated its first class and opened its first teaching hospital, named after the first Chairman of Medicine, Dr. Frank Billings. The Cancer Registry was established in 1951; and University of Chicago Cancer Program was recognized by the American College of Surgeons Commission on Cancer in 1954. In 1973, the University of Chicago was named one of the first NCI-designated Cancer Centers. Today, the University of Chicago Medical Center is consistently rated among the top ten cancer care hospitals in the United States by U.S. News World Report.

A special section of this report is devoted to the diagnosis, staging, and treatment of prostate cancer. Cancer of the prostate is the second most common cause of cancer-related death for men in the United States. The American Cancer Society (ACS) estimates that during 2007 approximately 219,000 new cases of prostate cancer will be diagnosed in the United States and 27,050 men will die of this disease. Improvements in methods of detection and treatment have allowed earlier diagnosis and more effective treatment of prostate cancer, leading to a recent decline in annual death rates.

This message would not be complete without thanking the members of the Cancer Committee and the Cancer Registry for their help throughout the year and for their contributions to this Annual Report. Special thanks to Brenda Huskey, our Cancer Registry Manager, who is a vital organizing force and a key component of the Registry’s continued achievement. We remain dedicated to our mission, and anticipate even greater success in the future.
Cancer Committee Roster 2006-2007

Mark D. McKee, MD Assistant Professor, Surgery, Section of General Surgery
Chairman

Habibul Ahsan, MD Professor and Associate Director, Population Sciences, Cancer Research Center

Ramona Behrendt, LCSW, ACSW, OSW-C Social Worker, Social Work Department

Sally Black, RN, MSN, MBA, OCN Clinical Director, Oncology Care Center, Section of Hematology/Oncology

C. Therese Bueno, BS, RHIT, CTR Certified Tumor Registrar, Cancer Registry Department

Elizabeth Danielczyk, MHA, RHIA Director, Health Information Management

Yolanda M. Davis, MPH Program Manager, Research & Community Affairs, Cancer Research Center

Daniel Haraf, MD Professor, Clinical Director, Radiation & Cellular Oncology

Philip Hoffman, MD Professor, Medicine, Section of Hematology/Oncology

Brenda Huskey, BS, MA, CCRP Manager, Cancer Registry Department
Cancer Committee Coordinator, Cancer Conference Coordinator

Nora Jaskowiak, MD Assistant Professor, Medicine, Section of General Surgery

Karen Kim, MD Associate Professor, Medicine, Section of Gastroenterology
Cancer Liaison Physician, Community Outreach Coordinator

Rick Kittles, PhD Associate Professor, Medicine, Section of Genetic Medicine

Mary Kobialka, BS, RHIA, CTR Training Supervisor, Quality Assurance Coordinator, Cancer Registry Department
Cancer Registry Data Quality Control Coordinator

Michael Koetting, PhD Vice-President, Policy Planning, University of Chicago Medical Center
Interim Quality Improvement Coordinator

Thomas Krausz, MD, FRC Path Professor, Pathology, Director of Anatomic and Surgical Pathology

Rebecca Malloy, RN, BSN Transplant Administrator/Nurse Manager, Medicine, Section of Hematology/Oncology

Kenan Onel, MD, PhD Assistant Professor, Pediatrics, Section of Hematology/Oncology

Gita Rupani, MD Assistant Professor, Anesthesia and Critical Care

Robert Schmidt, MD Professor, Director of Breast Imaging Research, Radiology

Christopher Shea, MD Professor, Medicine, Section Chief, Section of Dermatology

Deepti Singh, MD Assistant Professor, Medicine, Section of Hematology/Oncology

David Song, MD Associate Professor, Surgery, Section Chief, Section of Plastic & Reconstructive Surgery

Gary Steinberg, MD Associate Professor, Director of Urologic Oncology, Surgery, Section of Urology

Denise Szydelko, AAS, RHIT Cancer Registrar, Cancer Registry Department

Regine Theodule, BA Cancer Registrar, Cancer Registry Department

S. Diane Yamada, MD Associate Professor, Obstetrics & Gynecology, Section of Gynecologic Oncology
Cancer Program Leadership
Leadership is the key element in an effective cancer program. The Cancer Committee is responsible for initiating, implementing, evaluating, and improving cancer-related activities at the University of Chicago Medical Center. Cancer Committee was established to gather input for the continued growth of the Cancer Program and to be in accordance with the requirements from the American College of Surgeons for an Approved Cancer Program.

The Cancer Committee membership is multidisciplinary, representing physicians from the diagnostic and treatment specialties, and nonphysicians from administrative and supportive services. Physician members include representatives from surgery, medical oncology, diagnostic radiology, radiation oncology, gastroenterology, dermatology, urology, pathology, anesthesiology, pediatrics, and gynecology/oncology. Non-physician members include hospital administration, health information management, nursing, social work, quality improvement, social services, cancer research, and cancer registry.

Program Activity Coordinators
Select members of the Cancer Committee serve as coordinators. One coordinator is designated for each of the four areas of Cancer Committee activity: cancer conference, quality control of cancer registry data, quality improvement, and community outreach. The Cancer Liaison Physician is assigned to coordinate the community outreach activities. The other coordinators are appointed on the basis of specialty, knowledge, and skills.

Meeting Schedule
Regular meetings assure that administrative responsibilities related to cancer program leadership are carried out. The UCMC Cancer Committee meets at least quarterly. Subcommittees or workgroups are encouraged. A Cancer Registry Data Quality Subcommittee was established in November 2004. The coordinator for the quality control of cancer registry data heads this subcommittee.

Duties and Responsibilities
- Develops and evaluates annual goals that provide direction for cancer program activities.
- Establishes the cancer conference frequency and format on an annual basis.
- Monitors and evaluates the cancer conference frequency, multidisciplinary attendance, total case presentation, and prospective case presentation.
- Establishes and implements a plan to evaluate the quality of cancer registry data and activity. The plan includes procedures to monitor casefinding, accuracy of data collection, abstracting timeliness, follow-up, and data reporting.
- Analyzes patient outcomes and disseminates the results through the publication of the Cancer Program Annual Report.
- Monitors the clinical management of the cancer program and ensures that clinical services provide high quality patient care.
- Promotes a coordinated, multidisciplinary approach to patient management including accurate cancer staging of each patient.
- Promotes advancement in cancer treatment through the provision of clinical trial information and patient accrual to cancer-related clinical trials.
- Ensures that supportive services, and prevention and early detection opportunities are provided to cancer patients and their families.
- Promotes increased knowledge through annual educational programs, and registry staff participation in local, regional, or national educational activities.
- Ensure that cancer services, care, and patient outcomes are evaluated via studies of quality or outcomes.
The Cancer Liaison Program was established in 1963 as a component of the Commission on Cancer (CoC) to ensure adequate monitoring of cancer related activities between institutions and their surrounding communities. The standards set forth by the CoC ensure that supportive services, prevention, and early detection opportunities are provided to cancer patients and their families. These standards include the following:

*CoC Standard 6.1 ensures that supportive services reflect the needs of the majority of patients, facility caseload, frequently diagnosed cancers, and special populations.*

*CoC Standard 6.2 expects that each year, two prevention or early detection programs be provided on-site or coordinated with other facilities or local agencies.*

*CoC Standard 6.3 requires that the Cancer Committee monitor the community outreach activities on an annual basis.*

As the Cancer Liaison Physician (CLP), I have been collaborating with volunteer agencies, such as the American Cancer Society (ACS), to ensure appropriate and adequate support services are available to patients and their families. More specifically, we have been interested in increasing both visibility and use of the new Cancer Resource Center. Full-time staff is available to serve the needs of our diverse population, and to provide multi-lingual educational resources for patients and their families. In addition, we are continuously evaluating the mechanisms used to monitor patient needs, the quality and accessibility of services, and the effectiveness of the referral process.

With the support of the Cancer Committee and the community outreach staff, we have been responsible for monitoring the type and schedule of prevention and early detection programs offered. We have been extremely committed to outreach programs having effectively worked with surrounding communities to increase access to care and supportive services. Community outreach activities are reported to the Cancer Committee; and corrective recommendations are discussed if outreach activities fall below expectations. I am happy to report that our institution continues to provide significantly more outreach programs than required by CoC standards, further exemplifying our institutional commitment to our communities.

I would like to offer special recognition to all of those who have been instrumental in the coordination and improvement of UCMC community outreach activities, especially, Yolanda Davis, Cancer Prevention Programs; Peggy Baker-Williams, Cancer Support Programs; Tricia Parker and Mary Herbert, Cancer Resource Center, and Brenda Huskey, Cancer Registry.
As a subsidiary of Cancer Committee, the Cancer Registry Data Quality Subcommittee establishes a quality control plan to review, evaluate, and improve the various aspects and operations of the Cancer Registry Department, such as casefinding, accuracy and timeliness of abstracting, and patient follow-up. If deficiencies are identified, actions are taken to correct deficiencies, improve procedures, and increase the knowledge of our cancer registrars. The Subcommittee ensures that high-quality, timely information is available for research, annual reporting, quality management projects, grant proposals, administrative planning, and analyses of patient care. Quality control activities are reported during each quarterly Cancer Committee meeting.

The Data Quality Subcommittee consists of the cancer registry staff and is lead by the Quality Assurance Coordinator. The QA Coordinator is responsible for identifying errors in abstracting and data entry, discussing errors with the staff, formulating and discussing individual error rates with the staff, and acting as an educational resource for complex oncology coding issues. The abstractors are assisted by automatic data checks that are built into our Cancer Registry software; in addition, before our data is submitted to the Illinois State Cancer Registry and the National Cancer Data Base (NCDB), it is run through an edits program developed by the Centers for Disease Control.

The Manager of Cancer Registry serves as a liaison between the Cancer Registry Department and Cancer Committee Chair, as well as between various departments within the Cancer Program. The Manager recommends corrective action if any area falls below the annual goals set by the Cancer Committee and the American College of Surgeons Commission on Cancer. The Patient Follow Up Analyst reports the follow-up rates to the Subcommittee on a monthly basis, identifies issues related to cancer patient follow-up, recommends areas for quality improvement, and reports to the Cancer Committee at quarterly meetings. All cancer registry staff members participate in the evaluation of data quality and assist the Quality Assurance Coordinator with various duties as assigned.

Physician advisors are invited to our monthly Subcommittee meetings to participate in educational discussions regarding the diagnosis and treatment of cancer patients. Also, our physicians participate in our annual data quality reviews in which selected data items are reviewed in at least ten percent of the patients newly accessioned into our database. We would like to give special thanks to the following physicians who had participated in the data reviews over the past few years: Steven Chmura, Alessandro Fichera, Philip Hoffman, Nora Jaskowiak, Karen Kim, Ernst Lengyel, Mark McKee, Kevin Roggin, Deepti Singh, Gary Steinberg, Sarah Temkin, S. Diane Yamada and Gregory Zagaja.

Maintaining a high standard of quality for our cancer registry data is an essential component of our Cancer Program. According to annual physician audits, the overall accuracy of UCMC Cancer Registry data has been over 95%. The quality and value of our data continue to improve as we participate in data quality projects developed both internally by the Cancer Registry and Cancer Committee, and externally by the Commission on Cancer (CoC) and the NCDB. The value of cancer registry data is evident as it is heavily utilized for the purposes of medical research, education, and for finding ways of better serving our patient populations and surrounding communities.
Cancer Registry

Registry Reflections - Dr. Walter L. Palmer

A Registry is Born

The Department of Cancer Registry

History of Cancer Registries
DuPuytren, one hundred and fifty years ago, held that diagnosis is the most difficult part of our science: “without an exact and precise diagnosis theory is always faulty and practice often incorrect.” In the nineteenth century diagnosis was all important; the idea of tumor registries had not occurred to anyone. As medicine entered the twentieth century the phenomenal progress of basic science provided new procedures for the care of the patient. The new science brought with it, hitherto unknown laboratory skills and techniques, an experimental approach to medicine, new surgery, new procedures for irradiation, new antibiotic drugs, and a host of chemotherapeutic compounds. Experimentation ran wild. The new therapies required appraisal. And so there arose the problem of the measurement of the results. Donald Van Slyke of the Rockefeller Institute, years ago pointed out that purely qualitative knowledge is inadequate, that nothing is really known until it can be measured. But in human beings, precise measurement has always been difficult; treatment is often imprecise and satisfactory follow-up hard to obtain.

As a young man in practice I habitually requested patients to make return appointments for follow-up visits. If the symptoms persisted, either the diagnosis was wrong or the treatment somehow in error. Quite early at the University of Chicago, we learned that pay patients were more likely to make return visits and keep their appointments than were the indigent; pay patients provided better teaching material and were more satisfactory for purposes of research than the traditional transient dispensary patients; follow-up was easier. Certain philosophical problems arose such as the ethics of expecting patients to pay for their follow-up visits and even the ethics of suggesting that they return. In the minds of some physicians such tactics were tantamount to the solicitation of patients. The medical societies raised various objections. In time, however, these problems were resolved, but other more scientific questions arose such as the interpretation and collection of “Case Reports”, purely “anecdotal” techniques. The flavor of those days is suggested by the following experience: One of our University professors developed a carcinoma of the anterior wall of the upper rectum diagnosed by proctoscopy and biopsy. Dr. Dallas Phemister estimated the risk of combined abdominal perineal resection, at that time to be 25 to 30 percent. The patient hesitated and inquired about the use of radium. The late Dr. Alexander Brunschwig, then inserted a radium pack. After a number of weeks proctoscopy disclosed as ulcer where the tumor had been; a new biopsy was diagnosed by our surgical pathologist and also by a distinguished eastern pathologist as cancer. Some weeks later Dr. Lester Dragstedt performed a successful combined abdominal perineal resection; the specimen contained a healed ulcer, no cancer. The patient died many years later of an unrelated cause.

Gradually it became clear that not only would records need to be kept, but that they must be assembled, grouped, diagnoses made uniform, classifications established. Using the old punch cards, the labor involved was enormous and exceedingly costly. Clinics such as
Mayo, Crile, and Lahey Clinics, with their large clienteles, were better able to bear the cost than were individual hospitals and physicians. Nevertheless, we began to assemble some of our data starting with patients with peptic ulcer; twenty-five years later our follow-up records were almost ninety-nine percent complete, but then it became apparent that comparisons were difficult and that controls were either inadequate or completely missing. Other students encountered similar problems. One result has been the development in some areas of “blind, double blind and triple blind controls.”

About the time of World War II, it became apparent that with the several operations being developed for the different cancers and with the increasing concern about cancer it would be desirable to establish tumor registries. The American College of Surgeons was perhaps the first group to recognize this need, but it did not start its accreditation of Tumor Registries until 1956. As we discussed the subject at the University of Chicago there was both agreement and disagreement. The basic science experimentalists would have no truck with statistical methods. Furthermore, such studies would be very expensive. And of course many surgeons, radiologists and internists, were sure they knew the answers anyway! One of our surgeons, Dr. William E. Adams, a pioneer in the surgery of esophageal and pulmonary neoplasms threw his support to the establishment of a Registry, as did the dean, Dr. Lowell T. Coggeshall, the Chairman of the Department of Medicine, Dr. Wright Adams, the Chairman of Obstetrics and Gynecology, Dr. M. Edward Davis, and J. W. J. Carpender, of Radiation Therapy. The pathologists, Drs. Eleanor Hynphreys, Nancy Warner and Edith Potter were particularly helpful. In 1951, with funds from the Cancer Training Grant of the National Cancer Institute and from other sources a Registry was established. The American College of Surgeons a comprehensive guide for the utilization of Registry data was published in S G and O in January 1961 under the title “The Measurement of Cancer Survival by a Hospital Registry.” When Miss Holl retired in 1954, Dr. William Adams persuaded his technician, Mr. Willard Webber to take charge of the Registry. Mr. Webber distinguished himself so well that in due time he was captured by the American College of Surgeons [by about 1962]. In the meantime, in 1955, Dr. Charles B. Clayman had accepted supervisory responsibility [as medical advisory] for the Registry and transferred the accumulated data to IBM cards. In 1956, the University was one of seven University Registries, from eighty-four so invited, able to provide data for the Third National Cancer Conference in Detroit. In 1960 as a member of the End Results Group of the Chemotherapy Center of the National Cancer Institute, material was supplied which, with that of eight or nine other University Registries and three State Registries, formed the basis for Monograph number six, of the National Cancer Institute “End Results and Mortality Trends in Cancer.” A further analysis was published by the NCI in 1961.

By 1962, at the end of its first decade the Registry listed over 15,000 cases of neoplastic disease diagnosed and followed since 1945. Nearly 6,000 patients, including 2,800 with so called premalignant conditions, were known to be still alive. Our success in follow-up ranged from 96 to 99.99 percent depending on the site of the tumor. The primary sites analyzed most carefully were breast, lung, stomach, colon, ovary and the lymphomas.

Today, in 1979, at the end of its first twenty-eight years, Mrs. Florence Lowenstein is the supervisor of the greatly expanded Registry, and Dr. George E. Block [is] chairman of the Registry Committee. The work had been completely computerized so that the new cases and follow-ups are put “online” daily. Data is available for some 35,000 patients, with an average annual increment of 1,100. The Registry receives some 200 requests per year from the Staff for the retrieval of material, for the purposes of research. The Registry is supported by the medical school, the hospital, and the federally subsidized Cancer Research Center under the direction of Dr. John Ultmann.

The Birth of the University of Chicago Registry of Neoplastic Diseases, 1951

The following faculty members were the key supporters of the University of Chicago’s first official cancer registry established in 1951:

- Dr. Lowell T. Coggeshall, Dean, Chairman of Medicine
- Dr. William E. Adams, Surgery
- Dr. Wright Adams, Chairman of Obstetrics and Gynecology
- Dr. M. Edward Davis, Radiation Therapy
- Dr. J.W.J. Carpender, Radiation Therapy
- Dr. Eleanor Hymphreys, Pathology
- Dr. Nancy Warner, Pathology
- Dr. Edith Potter, Pathology

Over Fifty Years of Registry Management

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<tr>
<th>Year</th>
<th>Manager</th>
<th>Length of Term</th>
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<td>1951</td>
<td>Marion Holl</td>
<td>3 years</td>
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<tr>
<td>1954</td>
<td>William Webber</td>
<td>8 years</td>
</tr>
<tr>
<td>1962</td>
<td>Jack B. Cunningham</td>
<td>5 years</td>
</tr>
<tr>
<td>1966</td>
<td>Florence Lowenstein</td>
<td>20 years</td>
</tr>
<tr>
<td>1987</td>
<td>Valerie Spiro-Vesich</td>
<td>13 years</td>
</tr>
<tr>
<td>2000</td>
<td>Jennifer Lewis-Sepiol</td>
<td>3 years</td>
</tr>
<tr>
<td>2004</td>
<td>Brenda Huskey</td>
<td>3 years, current</td>
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2 Length of term for each manager is an approximation.

Jack B. Cunningham, CTR
Manager of the University of Chicago Registry of Neoplastic Diseases, 1962 - 1966
The Department of Cancer Registry

The Cancer Registry Department at the University of Chicago Medical Center plays an active role in the cancer program by providing multiple services and support for the components of a Commission on Cancer (CoC) Approved Cancer Program. The Cancer Registry coordinates the collection, research, analysis and dissemination of cancer information. In addition to routine cancer registry responsibilities, registrars serve as ACoS accreditation coordinators by playing key roles on Cancer Committee and by ensuring that the University of Chicago Cancer Program meets or exceeds all CoC Cancer Program Standards.

Since our official establishment in 1951, we have collected over 77,000 cancer cases with over 2,500 new cases added each year. The first six cases, diagnosed in 1928, were manually recorded in a logbook entitled, “Accession Registry: University of Chicago Clinics”. These very first entries consisted of only six data elements: a Registry Number (Accession Number), a four-digit Unit Number (Medical Record Number), the patient’s Name (last name, first name), the patient’s Sex, Age, and a single-phrased Diagnosis. According to these paper archives, the first cancer cases consisted of the following disease sites: two breast, two bone, one ovary, and one skin. (Note: Specific casefinding methods and rules for accession in early years is unclear; therefore, the actual number of cancer cases that were seen at the University of Chicago in 1928 cannot be determined from Cancer Registry data). The first logbook of 1928 accessions and others of subsequent years are still kept in the Cancer Registry Department to this day. Actually, many of these early cases are recorded in the current electronic Cancer Registry database with a few other data elements added such as dates of birth and death, date of diagnosis, and some limited information about treatment.

One-quarter of a century later, Florence E. Lowenstein, University of Chicago Cancer Registrar, writes in the introduction to a 1974-1975 Registry Report:

Examination of Registry collected data has been the first step in numerous investigations. With the intensification of oncologic research at the University, it is well recognized that the function and scope of the Registry must expand in order to fulfill the current needs of the medical community. Revision of the registry data base has begun, and substantial improvements in both quantity and quality of the data are anticipated.3

Since the implementation of more modern methods of electronic data collection, the Cancer Registry database has the capacity to store, maintain, and manipulate an enormous amount of data. In 2005 alone, 2,831 cases were accessioned. Of these cases, 82% were analytical. Analytic cases are those patients who were diagnosed and/or received first course of treatment at the University of Chicago Medical Center. Non-analytical cases, those patients who were diagnosed and/or received their first course of treatment at a different facility and were referred


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to the University of Chicago Medical Center for a recurrence or subsequent treatment, represented the remaining 18% of the total cases.

With regular increases and changes in data-reporting requirements that are set forth by the Illinois Department of Public Health (IDPH), the American College of Surgeons Commission on Cancer (ACoS CoC), and the University of Chicago Cancer Committee, both the quality and quantity of Cancer Registry data has become much more diversified and of more potential interest to investigators in the medical community. Today, each new case involves collecting over one-hundred data elements including patient demographics, diagnosis, tumor markers, disease staging, cancer treatment, and lifetime follow-up.

Our data is submitted monthly to the Illinois State Cancer Registry (ISCR) and annually to the National Cancer Registry Database (NCDB). The data is compiled with the data of other registries, both state- and nation-wide, for statistical analyses. This collaboration among cancer registries throughout the United States enables us to conduct comparative studies of prevalence, survival, outcomes, and populations. Furthermore, IDPH and other government agencies utilize this data to make decisions about the distribution of government funding.

In support of IRB-approved cancer research and grant applications and renewals, the Cancer Registry provides several data reports to physicians and other healthcare professionals at the University of Chicago Medical Center. For instance, the registry database can provide survival and disease status for patients being followed on clinical trials; produce patient lists that can include specific data sets for retrospective studies; screen for potential patients for accrual to quality of life studies; and serve as a resource for population studies and outcomes analyses. We strongly encourage the use of our data for the purposes of education and research. The Cancer Registry Department values patient privacy and abides by HIPAA regulations. For data requests that include private health information (PHI), a “Trusted Requestor” form and IRB approval are required.

In addition to these registry functions and responsibilities, the Cancer Registry staff serves as ACoS accreditation coordinators. The Manager of Cancer Registry coordinates the Cancer Committee meetings, documents its activities and initiatives, serves as the Tumor Board Conference Coordinator, tracks and documents quality improvements and Cancer Committee goals, publishes the Cancer Program Annual Report, and completes the electronic Survey Application Record that prepares the University of Chicago Cancer Program for ACoS accreditation. The Quality Assurance Coordinator of the Cancer Registry serves on Cancer Committee as the Cancer Data Quality Coordinator. This role not only helps to ensure the quality of Cancer Registry data, but also aims to maintain compliance with ACoS guidelines and standards. All other registrars support the Cancer Program through special projects and regular reports to Cancer Committee.

We are proud to announce that the University of Chicago Cancer Program has won the CoC Three-year Approval Award with five ratings of commendation. Our program exceeded expectations in the areas of cancer registry data analysis, patient guidelines, clinical trial accrual, cancer prevention and early detection, and cancer quality improvements.
2005-2006 Cancer Registry Accomplishments

- Completed over 2,800 abstracts for accession year 2005.
- Submitted data on all 2005 accessioned cases to ISCR and the NCDB as mandated. The Annual Call for Data met CoC standards of both quality and timeliness.
- Achieved an overall data accuracy rate of over 95% per physician audit of 10% of our analytic caseload.
- Achieved over 90% physician compliance with AJCC staging documentation guidelines.
- Maintained patient follow-up on over 9,400 eligible patients since reference year 1998 with a success rate of over 90%.
- Produced a Prostate Cancer Outcomes Analysis utilizing UCMC Cancer Registry data and NCDB data.
- Maintained all policies and procedures reflecting current ACoS CoC standards.
- Participated in state- and nationwide cancer registry educational activities annually.
- Participated in CoC’s special study, “Chemoradiation and Treatment of Nasopharyngeal Cancer”.
- Participated in NCDB’s study, “Cancer Program Practice Profile Reports (CP3R): Stage III Colon Cancer, 1998-2003”, and achieved full concordance with reporting adjuvant chemotherapy data for eligible stage III colon cancer patients.
- Conducted a registry data study on stage III colon cancer resulting in an abstract written by Dr. Blasé Polite. It was accepted for presentation at the 2007 Gastrointestinal Cancers Symposium sponsored by the American Society of Clinical Oncology.
The total number of cases, including both analytic and non-analytic cases, has steadily increased over time. In 2005 alone, a total of 2,831 cases across all disease sites were abstracted. With the greater availability and variety of screening, early detection, and prevention programs, the medical community can identify more cancer patients than in the past. It is also possible that higher cancer incidence could be attributed to an increased public awareness that cancer is both a preventable and treatable disease.

There was a dramatic increase in the number of UCMC analytic cases especially between years 2004 and 2005. Prostate cancers represented the most significant increase with a total of 320 analytic cases in 2004 to 391 in 2005, a 22% increase. This reflects a strong genitourinary program that offers a large number of treatment protocols and superior healthcare from a team of physicians representing multiple disciplines. And with the technology of the Da Vinci Surgical System that is used for all of our robotic minimally invasive prostatectomies, it is likely that many patients from outside facilities have been referred to our team of urologic surgeons.

Although prostate cases represented the site with the highest volume of new cases (n = 71), other disease sites that increased by about 25 to 35 new cases showed significant percentage increases per disease site. For instance, the number of skin cases doubled from 34 cases in 2004 to 68 cases in 2005, a 100% increase. Other sites that contributed to the volume increase and had significant percentage increases since 2004 include: bladder (46%), kidney (39%), lung (16%), and breast (13%).
### 2005 UCMC Primary Sites

#### Head & Neck
- **Lip**: 1 (A) 1 (NA)
- **Tongue**: 63 (A) 45 (NA)
- **Floor of Mouth**: 7 (A) 5 (NA)
- **Gum**: 2 (A) 1 (NA)
- **Palate**: 7 (A) 5 (NA)
- **Other Parts of the Mouth**: 14 (A) 9 (NA)
- **Parotid Gland**: 11 (A) 7 (NA)
- **Major Salivary Glands, NOS**: 2 (A) 1 (NA)
- **Tonsil**: 18 (A) 14 (NA)
- **Oral Pharynx**: 3 (A) 2 (NA)
- **Nasopharynx**: 8 (A) 6 (NA)
- **Pyriform Sinus**: 13 (A) 11 (NA)
- **Hypopharynx**: 6 (A) 3 (NA)
- **Pharynx**: 2 (A) 1 (NA)
- **Nasal Cavity, Middle Ear, Accessory**: 9 (A) 7 (NA)
- **Larynx**: 30 (A) 21 (NA)

#### Ophthalmic Sites
- **Eye & Adnexa**: 10 (A) 8 (NA)

#### Digestive System
- **Esophagus**: 50 (A) 43 (NA)
- **Stomach**: 44 (A) 37 (NA)
- **Small Intestine**: 16 (A) 13 (NA)
- **Colon**: 127 (A) 97 (NA)
- **Rectosigmoid**: 5 (A) 3 (NA)
- **Rectum**: 56 (A) 45 (NA)
- **Anus & Anal Canal**: 5 (A) 4 (NA)
- **Liver-Intrahepatic Bile Ducts**: 25 (A) 24 (NA)
- **Gallbladder**: 6 (A) 3 (NA)
- **Other Digestive Sites & Unspecified Biliary**: 15 (A) 14 (NA)
- **Pancreas**: 87 (A) 75 (NA)

#### Thorax
- **Bronchus & Lung**: 278 (A) 252 (NA)
- **Thymus**: 1 (A) 0 (NA)
- **Heart, Mediastinum, Pleural Mesothelioma**: 23 (A) 20 (NA)

#### Musculoskeletal
- **Bones, Joints, Articular Cartilage**: 38 (A) 33 (NA)
- **Retropertioneum, Peritoneum, NOS**: 12 (A) 11 (NA)
- **Connective, Subcutaneous, Other Soft Tissue**: 66 (A) 59 (NA)

#### Skin
- **Skin**: 95 (A) 68 (NA)
- **Breast**: 309 (A) 281 (NA)

#### Gynecological Sites
- **Vulva**: 10 (A) 9 (NA)
- **Vagina**: 5 (A) 5 (NA)
- **Cervix Uteri**: 30 (A) 27 (NA)

#### Genitourinary Sites
- **Penis**: 1 (A) 1 (NA)
- **Prostate Gland**: 431 (A) 391 (NA)
- **Testis**: 18 (A) 16 (NA)
- **Kidney**: 169 (A) 114 (NA)
- **Renal Pelvis & Ureter**: 12 (A) 9 (NA)
- **Bladder**: 109 (A) 79 (NA)

#### Central Nervous System
- **Meninges**: 29 (A) 28 (NA)
- **Brain**: 70 (A) 56 (NA)

#### Endocrine System
- **Thyroid Gland**: 60 (A) 47 (NA)
- **Adrenal Gland**: 1 (A) 0 (NA)

#### Other Sites
- **Peripheral Nerves, Autonomic Nervous System**: 4 (A) 4 (NA)
- **Lymph Nodes**: 62 (A) 45 (NA)
- **Hematopoietic/Reticuloendothelial**: 203 (A) 137 (NA)

#### Analytic: Cases diagnosed and/or received all or part of first-course of treatment at UCMC
- **Non-Analytic: Cases diagnosed and received first course of treatment elsewhere, then treated at UCMC**

#### Notes
- *Excludes localized basal and squamous cell carcinomas of the skin*
- **Excludes carcinoma in-situ of the cervix**
2005 UCMC Analytic Cases –
High Frequency Sites by AJCC Stage at Time of Diagnosis

During accession year 2005, the most common cancer sites were prostate, breast, lung, colorectal, kidney, and bladder. These figures show the distributions of cases, per disease site, by AJCC cancer stage at time of diagnosis.
At the University of Chicago Medical Center, most cancer patients reside in its surrounding areas within the state of Illinois (79%) with the majority living in Cook County. Out of the 2,231 cases accessioned in Illinois in 2005, 1,579 came from Cook County (56%), while the counties of Will, Du Page, Lake, Kane, Kankakee, and McHenry represented 516 cases (18%). The remaining 136 Illinois cases (5%) lived in other counties throughout Illinois at the time of diagnosis or treatment at our facility.

Being a world-renowned teaching hospital with one of the top ten cancer programs in the nation, many cancer patients are referred to the University of Chicago Medical Center from all over the United States and from distant foreign countries. Most out-of-state referrals come from the midwestern states of Indiana (n = 429, 15%), Michigan (n = 50, 2%), and Wisconsin (n = 38, 1%). Seventy-seven cancer patients (3%) were referred from 31 other states throughout the country. With assistance from the University of Chicago Medical Center’s Center for International Patients, six cancer patients from foreign countries came to our facility in 2005 for first-course treatment or subsequent cancer care. These countries included Puerto Rico, Argentina, Kuwait, Pakistan, and Thailand.

### Counties of Illinois

<table>
<thead>
<tr>
<th>County</th>
<th>Total Cases</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>Cook</td>
<td>1579</td>
<td>55.77</td>
</tr>
<tr>
<td>Will</td>
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<tr>
<td>Du Page</td>
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<td>Kane</td>
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<tr>
<td>Kankakee</td>
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</tr>
<tr>
<td>Mc Henry</td>
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<tr>
<td>La Salle</td>
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<tr>
<td>Winnebago</td>
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<tr>
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<tr>
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<tr>
<td>Macon</td>
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<td>Henry</td>
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<td>Edgar</td>
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<tr>
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<tr>
<td>Jasper</td>
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</tr>
<tr>
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<td>Knox</td>
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<tr>
<td>Moultrie</td>
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<td>Warren</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
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### Other States

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<thead>
<tr>
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<th>Total Cases</th>
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<td>Ohio</td>
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<td>California</td>
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<tr>
<td>Alabama</td>
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<td>Colorado</td>
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<td>Connecticut</td>
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<td>Kansas</td>
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<tr>
<td>Hawaii</td>
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<tr>
<td>Kentucky</td>
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<td>Michigan</td>
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<td>Mississippi</td>
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<td>Montana</td>
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<td>New Jersey</td>
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<td>North Carolina</td>
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<td>Oklahoma</td>
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<td>South Carolina</td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>21.03</strong></td>
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### Other Countries and Commonwealth

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<tr>
<th>Country</th>
<th>Total Cases</th>
<th>%</th>
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<td>Kuwait</td>
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<td>Pakistan</td>
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<td>Puerto Rico (U.S.)</td>
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<td>Thailand</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6</strong></td>
<td><strong>0.23</strong></td>
</tr>
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</table>
The distribution of patients by race and ethnicity reflects the diversity seen at the University of Chicago Medical Center. In 2005, the majority of our cancer patients were Caucasian (54%) followed by African Americans (31%). Other identified racial and ethnic groups included Hispanic (Mexican, Puerto Rican, and Spanish-nos), Asian (Chinese, Japanese, and Filipino), Asian Indian, and American Indian.
These figures show the distributions of cases, per disease site, by age and gender. Most men who were diagnosed with prostate cancer fell into the 60-69 age group (42%), while most women with breast cancer fell into the 40-49 age group (24%). For both genders, most lung and bladder cases were diagnosed within the 60-79 age range, while the majority of kidney cases were diagnosed within the 50-69 age range. Gender differences are more pronounced among other disease sites as shown in the patterns of age and gender distributions for colorectal, pancreatic, skin, central nervous system, and soft tissue cancer sites.
Insurance by Demographics and AJCC Stage, 2005

The diversity of our patient population is displayed in an analysis of insurance distribution across demographics and stage of disease. At the University of Chicago Medical Center, most patients carry private insurance (39%), such as HMO and PPO, or Medicare with a supplemental or additional private insurance (31%).

A closer look at this data reveals significant differences in insurance distribution across the variables of gender, race, and stage. In this table, all categories of insurance can be grouped into two major categories for the sake of analysis: the financially disadvantaged (FD) group (n = 458), and the financially advantaged (FA) group (n = 1,636). The FD group includes the insurance categories of “No Insurance”, Medicaid”, “Medicare with Medicaid Eligibility”, and “Medicare without Supplement”, while the FA group includes the insurance categories of “Medicare with Private Insurance or with Supplement” and “Private Insurance, HMO, PPO”. Given these two main categories, three patterns were evident:

1. Within the FD group, the female cancer patients (60%) greatly out-numbered the male cancer patients (40%). The reverse was true in the FA group (58% male, 42% female).
2. With respect to race and ethnicity, the majority of the FD group consisted of African Americans (67%) in comparison to Caucasians (21%) and other racial and ethnic groups (12%), while the FA group was most highly represented by Caucasians (64%).
3. Late-stage was strongly associated with patients who were financially disadvantaged based on insurance category. The vast majority of cases in the FD group consisted of Stage IV cancers (26%), whereas Stage II cancers (28%) were the most common among the FA group.

These data do reflect the economic status of the surrounding communities that we serve. In response, the University of Chicago Medical Center has continued to further develop its Cancer Prevention Program by adding more community outreach activities, including cancer prevention clinical trials, screening/early detection programs, and public awareness and education programs.

<table>
<thead>
<tr>
<th>Gender (%)**</th>
<th>No Insurance (n = 17)</th>
<th>Medicaid (n = 166)</th>
<th>Medicare with Medicaid Eligibility (n = 140)</th>
<th>Medicare without supplement (n = 135)</th>
<th>Medicare with Private Insurance or with Supplement (n = 722)</th>
<th>Private Insurance HMO, PPO (n = 914)</th>
<th>Insurance, nos and Other* (n = 200)</th>
<th>Unknown (n = 29)</th>
<th>Total (n=2,323)</th>
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</thead>
<tbody>
<tr>
<td>Male</td>
<td>9 (52.9)</td>
<td>57 (34.3)</td>
<td>55 (39.3)</td>
<td>64 (47.4)</td>
<td>402 (55.7)</td>
<td>541 (59.2)</td>
<td>123 (61.5)</td>
<td>17 (58.6)</td>
<td>1,268 (54.6)</td>
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<tr>
<td>Female</td>
<td>8 (47.1)</td>
<td>109 (65.7)</td>
<td>85 (60.7)</td>
<td>71 (52.6)</td>
<td>320 (44.3)</td>
<td>373 (40.8)</td>
<td>77 (38.5)</td>
<td>12 (41.4)</td>
<td>1,055 (45.4)</td>
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<tr>
<td>Age (%)**</td>
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<tr>
<td>0-29</td>
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<td>0 (0.0)</td>
<td>1 (0.1)</td>
<td>67 (7.3)</td>
<td>16 (8.0)</td>
<td>1 (3.4)</td>
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<td>40-49</td>
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<td>7 (5.0)</td>
<td>3 (2.2)</td>
<td>4 (0.6)</td>
<td>187 (20.5)</td>
<td>31 (15.5)</td>
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<td>50-59</td>
<td>3 (17.6)</td>
<td>56 (33.7)</td>
<td>19 (13.6)</td>
<td>10 (7.4)</td>
<td>14 (1.9)</td>
<td>372 (40.7)</td>
<td>88 (44.0)</td>
<td>12 (41.4)</td>
<td>574 (24.7)</td>
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<td>4 (23.5)</td>
<td>32 (19.3)</td>
<td>47 (33.6)</td>
<td>38 (28.1)</td>
<td>253 (35.0)</td>
<td>208 (22.8)</td>
<td>46 (23.0)</td>
<td>6 (20.7)</td>
<td>634 (27.3)</td>
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<td>49 (35.0)</td>
<td>56 (41.5)</td>
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<td>Race/Ethnicity (%)**</td>
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<td>Caucasian</td>
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<td>426 (59.0)</td>
<td>621 (67.9)</td>
<td>128 (64.0)</td>
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<td>African American</td>
<td>8 (47.1)</td>
<td>117 (70.5)</td>
<td>99 (70.7)</td>
<td>83 (61.5)</td>
<td>206 (28.5)</td>
<td>170 (18.6)</td>
<td>34 (17.0)</td>
<td>12 (41.4)</td>
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</tr>
<tr>
<td>Hispanic</td>
<td>2 (11.8)</td>
<td>13 (7.8)</td>
<td>2 (1.4)</td>
<td>3 (2.2)</td>
<td>18 (2.5)</td>
<td>25 (2.7)</td>
<td>9 (4.5)</td>
<td>1 (3.4)</td>
<td>73 (3.1)</td>
</tr>
<tr>
<td>Other and Unknown</td>
<td>2 (11.8)</td>
<td>10 (6.0)</td>
<td>10 (7.1)</td>
<td>14 (10.4)</td>
<td>72 (10.0)</td>
<td>98 (10.7)</td>
<td>29 (14.5)</td>
<td>0 (0.0)</td>
<td>235 (10.1)</td>
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<tr>
<td>AJCC Stage at Diagnosis (%)**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 0</td>
<td>0 (0.0)</td>
<td>7 (4.2)</td>
<td>10 (7.1)</td>
<td>6 (4.4)</td>
<td>31 (4.3)</td>
<td>34 (3.7)</td>
<td>7 (3.5)</td>
<td>3 (10.3)</td>
<td>98 (4.2)</td>
</tr>
<tr>
<td>Stage I</td>
<td>2 (11.8)</td>
<td>27 (16.3)</td>
<td>28 (20.0)</td>
<td>13 (9.6)</td>
<td>123 (17.0)</td>
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<td>31 (15.5)</td>
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<td>27 (16.3)</td>
<td>28 (20.0)</td>
<td>26 (19.3)</td>
<td>190 (26.3)</td>
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<td>8 (27.6)</td>
<td>602 (25.9)</td>
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<tr>
<td>Stage III</td>
<td>0 (0.0)</td>
<td>22 (13.3)</td>
<td>11 (7.9)</td>
<td>15 (11.1)</td>
<td>106 (14.7)</td>
<td>108 (11.8)</td>
<td>24 (12.0)</td>
<td>6 (20.7)</td>
<td>292 (12.6)</td>
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<tr>
<td>Stage IV</td>
<td>8 (47.1)</td>
<td>47 (28.3)</td>
<td>26 (18.6)</td>
<td>36 (26.7)</td>
<td>124 (17.2)</td>
<td>145 (15.9)</td>
<td>31 (15.5)</td>
<td>1 (3.4)</td>
<td>418 (18.0)</td>
</tr>
<tr>
<td>N/A***, Unknown</td>
<td>5 (29.4)</td>
<td>36 (21.7)</td>
<td>37 (26.4)</td>
<td>39 (28.9)</td>
<td>148 (20.5)</td>
<td>195 (21.3)</td>
<td>47 (23.5)</td>
<td>7 (24.1)</td>
<td>514 (22.1)</td>
</tr>
</tbody>
</table>

* Includes Insurance-nos, Tricare, and Military insurance
** As a result of rounding, percentages may not sum to 100.
*** “N/A” represents those cases in which there is no applicable.

AJCC staging schema for the disease site and/or histology.
A History of Standards Setters, Cancer Registries, and the Cancer Registry of the University of Chicago

1913 The 1912 Clinical Congress of Surgeons of North America creates a proposal calling for “standardization of surgeons,” which resulting in the formation of the American College of Surgeons in 1913. Their second proposal, the “standardization of hospitals,” leads to the founding of the Joint Commission on Accreditation of Hospitals in 1918 (now known as the Joint Commission on Accreditation of Health-care Organizations).

1913 The Board of Regents appoints the Cancer Campaign Committee (now known as the Commission on Cancer). This committee starts the process of outcome analysis of cancer cases based on cancer stage and treatment.

1922 The American College of Surgeons (ACoS) establishes the Commission on Cancer (CoC) to set standards for quality multidisciplinary cancer care delivered in hospital settings.

1926 The first hospital registry is founded at Yale-New Haven Hospital in New Haven, CT.

1928 Six cancer cases are recorded according to the 1928 University of Chicago Clinics Accession Registry archive.

1935 The first central cancer registry opens in Connecticut.

1940s At the Institut Gustave-Roussy in France, Dr. Pierre Denoix develops the TNM (Tumor-Node-Metastasis) Classification of Cancer Stage. To further develop the system, the International Union Against Cancer (UICC) establishes a Committee on Clinical Stage Classification under Denoix’s leadership.

1951 The University of Chicago Registry of Neoplastic Diseases and follow up programs are established with funds from the Cancer Training Grant of the National Cancer Institute (NCI) and other sources.4

1954 The American College of Surgeons Commission on Cancer awards CoC-Approval to the University of Chicago Cancer Program for the first time.

1956 The American College of Surgeons requires a cancer registry for all approved cancer programs.

1956 The University of Chicago registry becomes one of the founding registries of the End Results Group (ERG) formed by the National Cancer Institute (NCI). The University of Chicago registry was a member until 1973 when the Surveillance, Epidemiology and End Results (SEER) program was initiated.

1959 The American Joint Committee on Cancer (AJCC) develops and implements the use of the TNM (Tumor-Node-Metastasis) cancer prognostic system in America.

1962 Dr. Melvin L. Griem, Professor of Radiation Oncology and Director of the Chicago Tumor Institute, is appointed Chairman of the University of Chicago Tumor Registry Committee5 (15 years of service).6

1964 By about 1964, the University of Chicago Registry of Neoplastic Diseases becomes one of the first registries to become fully computerized with the hospital’s in-house computer system. Previously, the registry had a large database on IBM 80-column punch cards (quasi-computerized); these data were entered into the hospital computer.

1971 National Cancer Act budgets funds to the NCI for research, detection, and treatment of cancer.

1973 Surveillance, Epidemiology and End Results (SEER) Program of the NCI establishes the first national cancer registry.

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5 By about 1995, the Tumor Registry Committee became known as the University of Chicago Cancer Committee.
6 Length of term is an approximation.
A History of Standards Setters, Cancer Registries, and the Cancer Registry of the University of Chicago

1974 National Tumor Registrars Association (NTRA) is founded for the professional development of cancer registrars.

1974 Florence E. Lowenstein (exp. 2/13/1999), University of Chicago Cancer Registrar, becomes the first President of the Chicago Area Cancer Registrars Association (CACRA).

1977 Dr. George Block (1926-1994), Professor of General Surgery, is appointed Chairman of the University of Chicago Tumor Registry Committee (14 years of service). He and his successors have been proponents of Tumor Registry and encouraged the use of its data for both education and research.

1983 The National Cancer Registrars Association (NCRA), formerly known as the National Tumor Registrars Association, established the first certification exam for Cancer Registry professionals.

1987 The North American Association of Central Cancer Registries (NAACCR) is established to meet the needs of central cancer registries.

1991 Dr. Fabrizio Michelassi, Professor of General Surgery, is appointed Chairman of the University of Chicago Tumor Registry Committee (7 years of service).


1993 State laws make cancer a reportable disease.

1994 The University of Chicago Registry of Neoplastic Diseases contracts with an outside vendor, Rocky Mountain Cancer Data Systems (RMCDS), a great moment in registry history as the registry is able to be up-to-date with standard setters.

1996 Electronic data submission to the National Cancer Data Base (NCDB) is required for the first time for all CoC approved registries. The NCDB is a joint effort by the American Cancer Society and the American College of Surgeons.

1998 The University of Chicago Cancer Registry replaces RMCDS with the registry software of Medical Registry Services, Inc., now known as IMPAC Medical Systems. It is the electronic database that is used by Cancer Registry staff today.

1998 Dr. Mitchell Posner, Professor of General Surgery, is appointed Chairman of University of Chicago Cancer Committee (6 years of service).

2004 The CoC implements the first electronic Survey Application Record for the Cancer Program Approvals process.

2004 Dr. Mark McKee, Assistant Professor of General Surgery, is appointed Chairman of the University of Chicago Cancer Committee (current Chair).

2005 In June 2005, the ACoS CoC surveys the University of Chicago Cancer Program.

2006 The University of Chicago Cancer Program officially wins the CoC Three-year Approval Award with five ratings of commendation.

2006 A study conducted on University of Chicago Cancer Registry data alone is accepted for presentation at the 2007 Gastrointestinal Cancers Symposium sponsored by the American Society of Clinical Oncology.\(^7\)

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The American Cancer Society estimates approximately 230,000 new cases of prostate cancer annually with nearly 30,000 annual deaths. It is the most common malignancy in men and the second leading cause of death from cancer. Enlargement of the prostate is a common clinical condition in men over the age of fifty. The increase in size results in diminution of bladder capacity and constriction of the urethra producing signs and symptoms of urinary outlet obstruction and urinary tract infection. Prostatic enlargement usually involves a benign nodular proliferation composed of prostatic glands and supporting fibromuscular tissue and is termed benign prostatic hypertrophy or hyperplasia. However, prostate cancer is also a potential cause of prostatic enlargement with the production of similar symptoms. Prior to the current era, prostate cancer was detected by digital rectal examination. The palpation of a firm prostatic nodule would prompt the urologist to perform a needle biopsy on which a definitive diagnosis could be based.

The most common form of prostatic malignancy is termed adenocarcinoma and most secrete PSA. PSA, prostate specific antigen, is a protein manufactured and secreted by the cells of the prostate gland. Although increased serum levels of PSA are seen in a variety of benign clinical conditions, primarily benign prostatic hypertrophy, elevated PSA is also a sensitive marker for prostatic adenocarcinoma. In current clinical practice, the most common reason for a biopsy is now an elevated PSA or an abnormal rate of increase in the serum PSA. The elevated serum PSA is typically encountered in the context of a negative rectal examination, and is the basis upon which a prostate biopsy is undertaken.

The role of the pathologist in prostate cancer is twofold: to interpret the biopsy as to the presence of cancer and to evaluate the entire prostate gland in the event of a major resection for cancer. The biopsy as submitted by the urologist consists of thin cores of tissue obtained by transrectal needle biopsy. These cores are samples of the periphery of the prostate on both right and left sides, since the peripheral zones are the most common sites of tumor origin. The tissue is processed so that the tissue cores are embedded in a block of paraffin wax. Very thin slices are shaved off the block by a histotechnologist using a rotary microtome, are mounted on transparent glass slides and stained for microscopic analysis. The slices are 4-6 microns in thickness (1 micron is equal to one millionth of a meter), and are obtained from ten different levels of each tissue block. Each level is mounted on a glass slide. The slides are then routinely stained and examined by the pathologist.
In establishing a diagnosis of prostatic adenocarcinoma, the pathology of each tumor is graded according to the Gleason grading system. This system is in international use and facilitates communication among pathologists and clinical physicians. The grading is based on tumor growth patterns recognizable by the pathologist and employs a numerical score from 2 to 10, with higher numbers denoting more aggressive tumors. In addition to the diagnosis of adenocarcinoma, the pathologist is able to recognize cancer precursors or changes that have a high association with the simultaneous presence or subsequent development of cancer. The two major categories of such changes are high-grade prostatic intraepithelial neoplasia (P.I.N.) and atypical small acinar proliferation (A.S.A.P.) (Figure 1).

The resolution of diagnostic problems encountered on the biopsy samples is assisted by modern techniques of immunohistochemistry (antibodies attached to a colored agent which can be applied to tissue on the slide). Benign prostatic glands are composed of two cell types: a basal cell and the prostatic cell lining the gland itself. The glands of prostatic adenocarcinoma are composed only of the malignant variant of the glandular cell. An antibody developed against the basal cell (p63) or the high molecular weight cytokeratin it produces yields a negative reaction in a malignant gland. It is also known that prostatic cancer cells produce a protein called racemase (also known as p504), and an antibody to that substance is also available for clinical use. It should be expressed in cancer cells but not in benign cells. It is also possible to test for all three antibodies at once, in a specially prepared “cocktail” known as PIN-4, which is currently in use in surgical pathology at the University of Chicago (Figure 2).

In the reporting of biopsies with prostatic adenocarcinoma, the quantity of tumor present and the Gleason grade of the tumor are given, since these are the major factors in predicting which patients may best benefit from radical surgical intervention. The definitive surgical procedure to remove the prostate gland, i.e., a radical prostatectomy, yields the entire prostate gland. Areas of cancer are appreciated on examination of the specimen by being firm, irregularly shaped and yellow (Figure 3). The pathologic analysis of the resected specimen involves assessment of the margins (distal, proximal and peripheral), the status of the seminal vesicles, regional lymph nodes as well as verification of the quantity of tumor present. Currently, the pathologic parameters are summarized on the final report in synoptic fashion to facilitate clinical planning and Cancer Registry coding.
Figure 2A  A medium power microscopic view of prostatic adenocarcinoma of Gleason grade 6 obtained from a transrectal needle biopsy. The glands are well formed but haphazardly arranged.

Figure 2B  Prostatic adenocarcinoma and benign prostatic glands. An immunohistochemical stain using the PIN-4 cocktail containing antibodies to basal cells (staining brown along the edges of the normal glands, but absent around the cancerous glands) and the protein racemase or p504 (staining red in the cancer glands).

Figure 3  A specimen photograph of a transverse cut through the middle of a surgically removed prostate. The edges of the specimen are black due to the application of indelible ink to help the pathologist identify the margins of resection. The yellowish, irregularly demarcated areas on both sides denote the areas of cancer. A millimeter ruler at the bottom indicates the transverse dimension of approximately 5.0 cm.

For more information about the Department of Pathology, visit this website:
http://pathology.bsd.uchicago.edu/faculty/faculty.htm
The Role of the Urologic Surgeon

The Section of Urology is committed to advancing the field of urologic oncology through clinical excellence, innovative research, and training future leaders in urologic cancer. This is particularly true for the minimally invasive treatment of localized prostate cancer.

Clinical

The introduction of robotic-assistance has the potential to improve surgical outcomes and reduce the steep learning curve associated with conventional laparoscopic radical prostatectomy. The daVinci robot offers the benefits of improved dexterity, precision, and control during laparoscopic procedures, providing the surgeon with a magnified, stereoscopic (3D) visualization of the tissue planes. The proprietary Endowrist technology, with 7-degrees of freedom, enhances dissection of the neurovascular bundles (NVB) and allows for meticulous suturing of the urethrovessical anastomosis. As such, robotic-assisted laparoscopic radical prostatectomy (RLRP) has been associated with low morbidity, short convalescence, and comparable oncological outcomes when compared to open surgery.

Since February 2003, with the arrival of the daVinci robotic system, both Dr. Arieh Shalhav and Dr. Gregory Zagaja have developed one of the most active robotic prostatectomy programs in the Midwest. Together, they have performed over 800 RLRPs and presently schedule 10-12 cases per week. In less than three years, along with tripling our surgical volume, nearly all radical prostatectomy (RP) cases at the University of Chicago are now performed robotically (Figure 1.).

![Figure 1. Quarterly Surgical Volumes: A Comparison of RLRP to Total RP Procedures.](image-url)
**Research**

Throughout our surgical experience, continuous assessment of urinary and sexual outcomes, as well as pathological outcomes to optimize oncological efficacy of the RLRP technique, has been performed using a comprehensive, prospective patient database. Such evaluations have lead to the publication of 12 peer-reviewed manuscripts, and the presentation of over 25 abstracts at national urology meetings. Most importantly, these evaluations helped to modify surgical technique to improve cancer control. Notable contributions to RLRP include our team's publication on athermal, antegrade nerve preservation improving sexual outcomes and the use of the LapraTy clip (LTc) to replace knot tying during the vesicourethral anastamosis. The LTc, composed of absorbable material, simply snaps onto a suture allowing precise tension to be delivered. In the event that insufficient suture tension has been placed, unlike standard knot tying, the surgeon is able to place another LTc to ensure proper tissue opposition. In our series, we have demonstrated a significantly lower rate of bladder neck contractures likely due to decreased urinary leakage at the anastamosis. Furthermore, we have also published our RLRP outcomes for obese men demonstrating favorable outcomes. More recently, we have described a modified, side-specific nerve preservation protocol, based on patient preoperative variables to estimate tumor volume and reduce positive surgical margins (PSM). Patient selection and modification in nerve sparing technique has proved to significantly reduce our overall and organ-confined (pT2)-PSM rate to 12.6% and 8.3%, respectively. Clinical outcomes research has also allowed our team to evaluate recovery of urinary and sexual function for preoperative patient counseling. Our overall urinary continence at one year after surgery is 87.9%. Potency rates at one year for men undergoing unilateral and bilateral NVB preservation, is 59% and 81%, respectively.

For more information about the Department of Urology, visit this website: http://www.ucurology.org/

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**Education**

All of our residents and clinical fellows receive comprehensive training in all aspects of robotic urologic surgery. At our weekly multidisciplinary urologic oncology conference, all complex prostate cancer patients are discussed with our colleagues in medical and radiation oncology.

Patient education is also a high priority at the University of Chicago. Pelvic floor exercises and pharmaco-rehabilitation are extremely important to optimize post-operative urinary continence and potency recovery, respectively.

Aside from proctoring many community urologists during their initial RLRP cases, we have also begun reaching out to a national audience. In March 2007, our team is directing a national expert review course of the RLRP procedure, to be held at the University of Chicago, Graduate School of Business (http://rlrpcourse.uchicago.edu). Over two days, there will be a combination of keynote video presentations and panel-review on each step of the robotic prostatectomy, live surgical demonstrations, plenary Q&A sessions and personalized break-out sessions with the faculty members. The ultimate goal of this course is to allow other community urologists to gather information necessary to improve their robotic prostatectomy practice thereby accelerating the learning curve and improving patient outcomes.

In summary, we have a robust, comprehensive, and rapidly developing urologic minimally invasive program. Through research, discovery, and education, we shall continue to provide the best possible care for patients with prostate cancer.
Prostate cancer is the most common cancer affecting men in the United States. In the majority of cases, it is detected at an early stage and is therefore highly curable with appropriate local therapy. Men can often be successfully treated surgically with radical prostatectomy, or with radiation therapy (RT). Because the chance of cure is similar with surgery and RT, patients often decide based on preferences regarding the expected course of treatment.

The radiation oncologist is responsible for applying knowledge of biological and physical properties of radiation in order to design an effective and safe course of therapy. The primary treatment of prostate cancer with RT can involve external beam RT, seed implantation (brachytherapy), and/or hormone therapy. The decision is based on several factors including PSA value, Gleason score, and clinical stage. Patients who are treated with radical prostatectomy are sometimes found to have high-risk features that suggest benefit for further therapy with RT. Risk stratification is discussed at the time of consultation with the radiation oncologist. The plan of action is decided upon after discussion of potential risks and benefits of therapy. RT may also be useful for patients with locally advanced or metastatic disease, either for local control or palliation of symptoms caused by the cancer.

Radiation therapy involves the use of high energy X-rays to treat diseased areas. This causes irreparable damage to the DNA of the targeted cancer cells. On the other hand, normal tissues tend to repair themselves better in response to radiation. By delivering radiation in small doses over a prolonged period of time, side effects of the treatment can be reduced. There are two major approaches to the treatment of prostate cancer with RT: external beam radiation therapy and brachytherapy.

**External Beam Radiation Therapy**

Linear accelerators generate high energy X-rays, which can be specifically directed towards areas at risk. Intensity-modulated radiation therapy (IMRT) refers to a method of delivering highly conformal RT with the help of computer planning and sophisticated treatment machines. This technology enables safer delivery of high doses of RT for it has been shown to improve cancer cure rates and reduce the risk of severe side effects. Since 2000, the University of Chicago has used IMRT to treat patients with prostate cancer. Initial analyses of patients with at least 3 years of follow-up indicate PSA control rates of approximately 90% for patients treated for localized prostate cancer.

One important component of successful external beam RT is reproducibility of daily patient setup. In order to increase the ability to accurately target the diseased tissue and deliver the intended plan, ultrasound or implantation of internal gold markers into the prostate is used when appropriate.

**Brachytherapy**

Brachytherapy for prostate cancer involves the placement of radioactive sources within the prostate. Delivery of RT in this precise manner can potentially treat the prostate to higher effective doses than external beam RT, while normal tissues are spared due to the rapid dose fall-off beyond the radioactive sources. Because the sources are permanently implanted and decay over a period of months, patients need not return for daily treatment as with external beam RT. At the University of Chicago, patients who are eligible for prostate brachytherapy may be treated with a low-dose rate seed implant, with planning based on prostate volumes acquired through transrectal ultrasound prior to the actual procedure. Seeds are then implanted according to this plan through a transperineal approach in the operating room.
Research and Patient Care

One goal of the Department of Radiation and Cellular Oncology is to successfully integrate research into the best patient care. The department has been committed towards applying new innovations in prostate cancer therapy, and has systematically reviewed outcomes to build upon such experience. Since 1988, a patient database has been maintained for the primary purpose of internal review. Some analyses of this data have been published in the medical literature for the potential benefit of other institutions. Also, there has been recent interest in correlating outcomes available in the database with tissue analysis in attempt to better understand mechanisms for radiation resistance.

As of January 2007, two national trials are currently open at the University of Chicago:

**RTOG 0413**  
A comparison of hypofractionated versus conventionally fractionated RT for low-risk prostate cancer

**RTOG 0232**  
Brachytherapy with or without external beam RT for intermediate-risk prostate cancer

Eligibility for these trials and any others that may be open are discussed at the time of consult.

In summary, radiation therapy is an important modality of treatment for many patients with prostate cancer. Along with urologists, medical oncologists, pathologists, and radiologists, radiation oncologists play an important role in the multidisciplinary management of prostate cancer. The Department of Radiation and Cellular Oncology at the University of Chicago offers technologically sophisticated treatment and comprehensive care in an academic setting that is committed to the advancement of medical innovation.

For more information about the Department of Radiation and Cellular Oncology, visit this website:  
http://www.radonc.uchicago.edu/typea/technology.html
Despite the effectiveness of local therapy and androgen ablation for prostate cancer, more than 27,000 men die each year from this disease. Traditionally, medical oncologists were only involved in the care of men with prostate cancer when disease spread beyond the prostate and was no longer amenable to control with androgen deprivation. This role, however, is one in evolution worldwide. Less than 10 years ago, medical oncologists had limited tools beyond non-curative chemotherapy and pain medications to provide comfort for men with castration-resistant disease. New approaches and tools have paved the way for improvement. Given the outstanding number of new cases and the amount of death due to this disease, prostate cancer continues to be considered a significant public health problem – one that the University of Chicago has continued to address.

The University has long been viewed as a leader in the field of systemic therapy for prostate cancer. From the inception of hormonal therapy for prostate cancer sparked by the Nobel Prize winning research efforts of Dr. Charles Huggins to advances in modern cancer medicine, we have significantly contributed to the research effort directed toward the problem of prostate cancer. A multidisciplinary approach to this disease involving medical, urologic, and radiation oncologists has been the key to the success of the University of Chicago's efforts to lead the field in prostate cancer treatment. In addition, collaboration with physicians and investigators from other disciplines, such as William Dale, MD (geriatrics) and Rick Kittles, Ph.D. (cancer genetics), have put us in a unique position to conduct more comprehensive research, and provide multidisciplinary cancer patient care.

Under the direction of Walter Stadler, MD, an internationally recognized expert in genitourinary oncology, and with the recruitment of Edwin Posadas, MD from the National Cancer Institute the Genitourinary Medical Oncology Clinic has continued to grow. Dr. Posadas’ clinical and laboratory research interests are centered upon prostate cancer with a particular focus on the use of novel growth factor pathway “targeted” anticancer agents in the treatment of men with advanced disease. In both the clinical and research setting, nursing has made an immense impact upon patient care as well. This is driven by the tireless efforts of Elizabeth Manchen, RN, OCN, Christine Holmstrom, RN, OCN, and Rita Kankus, RN. The data amassed during all of the programmatic research efforts are coordinated by our Clinical Research Associates: Dale Rush, Lauren Michalak, and Katie Nichols.

Thanks to the highly collaborative atmosphere at the University of Chicago, the role of medical oncology in prostate cancer continues to expand, as is evident in the following clinical research programs:

**Neoadjuvant and Adjuvant Systemic Therapy**

A major contribution of medical oncology in a number of different tumor models such as breast, colon, lung, bladder, and ovary, has been the use of systemic therapy immediately before or after definitive local therapy (surgery or radiation). Across these tumor models, the use of chemotherapy and/or hormone therapy near the time of local therapy has allowed patients to live longer and better lives. For prostate cancer, there is currently no defined standard use of neoadjuvant (before)
or adjuvant (after) therapy beyond the use of hormonal agents with radiation therapy. This is not due to lack of efficacy, but rather due to a lack of data in this regard. The University of Chicago has been a consistent leader in research programs to address this question in men at particularly high risk for relapse and/or mortality from their prostate cancer. We have been and continue to be active in ongoing nation-wide research efforts to measure the benefits of such treatment that will define the standard of care in years to come.

**Novel Approaches to Hormonal Therapy**

While androgen deprivation therapy (ADT) has remained a mainstay of care for men with metastatic disease, the growing experience with these agents has shown that there are significant long-term impacts of ADT that strongly affect patients’ quality of life and health. Beyond standard castration, medical oncologists can employ additional hormonal maneuvers to halt prostate specific antigen (PSA) measured progression; however, these seem to add toxicity and may not improve life-expectancy. As such, there has been interest in the use of such agents on an intermittent basis and in conjunction with non-toxic medication. This has been another area of clinical research interest in the Genitourinary Medical Oncology Clinic and an area in which we sponsor clinical trials. Also, when initial ADT fails, men often feel well enough that chemotherapy is considered undesirable. In this period, non-toxic therapeutics are also highly pursued by men with prostate cancer. In addition to offering new agents as an alternative to pursuing chemotherapy, the Genitourinary Medical Oncology Clinic is pursuing evaluation of a testosterone replacement therapy first proposed by University of Chicago researcher Shutsung Liao. He showed that prostate cancer cells can adapt to a low testosterone environment by upregulating the androgen receptor, and that these cells are then killed or growth arrested by standard, physiologic testosterone doses. An ongoing trial is testing this concept in patients, with the potential added benefit of reversing some of the toxicities of androgen ablation.

**Androgen-Independent Prostate Cancer**

Prior to 2004, there was no defined standard of care for patients who failed androgen ablation. Since then, effective chemotherapy has been defined which has improved survival and more importantly, has impacted the quality of life of men receiving treatment. Furthermore, the field has identified a number of supportive treatments (such as bone-oriented therapies), which have also greatly improved the quality of life for men with advanced disease. Despite the gains made, however, there are still scores of men who need more. Programmatically, we are conducting a number of clinical studies looking at alternatives to current chemotherapy or agents which may be used should chemotherapy no longer be effective in controlling disease. These drugs are not limited to cytotoxic chemotherapy approaches. They include clinical studies involving a number of promising new anti-cancer agents targeted at particular molecular dysfunctions in prostate cancer.

**Quality of Life and Social Studies**

While a significant effort has been placed on developing diagnosis and treatment, there are emerging areas in prostate cancer research: quality of life measures, decision making or anxiety factors, and risk associated with long-term treatment. In collaboration with other investigators at the University, we have supported such efforts in the medical oncology clinic. Prostate cancer is a chronic disease; therefore, there is a greater need to care for the patients more than to destroy the cancer. As such, efforts examining the implication of treatment are key to optimizing care for men with prostate cancer. Important in this regard are the functional muscle and bone effects of androgen ablation, especially in elderly individuals, which can contribute to morbidity and even mortality. A number of trials, led by our collaborating geriatrician, Dr. William Dale, are evaluating the extent of this problem in an effort to initiate targeted interventions.

In summary, the role of medical oncology in prostate cancer is rapidly evolving and is important in the care of men with prostate cancer. Collaborations between medical oncology, urology, radiation oncology, pathology, radiology, cancer genetics, and geriatrics give us hope that significant strides can be made against this disease. More importantly, it allows us to provide the best care for men with prostate cancer.

For more information about the Section of Hematology/Oncology, visit this website:

http://medicine.uchicago.edu/section_pages/hemonec/index.htm
Initial treatment modalities utilized at UCMC for prostate cancer patients vary as shown in the figure below. Patients with low risk for prostate cancer recurrence may often opt for observation (close follow-up, no immediate treatment). For men with locally advanced, high risk, or aggressive cancers, UCMC offers a variety of treatment modalities such as surgery (e.g. robotic prostatectomy), radiotherapy (e.g. 3-D conformal, or brachytherapy), hormone therapy, and systemic therapy.

Given the registry data of accession year 2005, most analytic prostate cancer cases seen at UCMC are initially treated with surgery alone (73.4%), or radiation treatment only (10.5%). Other patients were initially treated with hormone (4.2%), or a combination of hormone (e.g. Zoladex, Lupron, Casodex, or Prednisone) and radiation (4.7%). The category of “All Other” (4.5%) represents various combinations of standard care and experimental treatments (e.g. Mitoxantrone, or Taxotere) as part of initial therapy. There were some cases in which the patient received no treatment (4.2%, n =10) due to any one of the following reasons: co-morbidities that contra-indicated standard therapy, patient refusal of recommended therapy, or no information was available regarding the patient’s initial treatment.

**Initial Therapy, 2005**
UCMC Prostate Cancer Cases (n=380)

- Surgery: 73.4%
- Radiation: 10.5%
- Hormone: 4.2%
- Hormone & Radiation: 4.7%
- All Other: 4.5%
- No Treatment: 2.6%

*Note: Analysis includes only analytic prostate cancer cases that are categorized as class 1 or class 2.*
Five-year Observed Survival

The American Cancer Society (ACS) estimates that during 2007 about 218,890 new cases of prostate cancer will be diagnosed in the United States, and about 27,050 men will die of this disease. This accounts for 10% of cancer-related deaths in men. However, the ACS reports that their most recent data show that relative 10-year survival is 93% and 15-year survival is 77%. These rates represent a 3.5% yearly drop in death rates in recent years. The ACS attributes these improved prostate cancer survival rates to modern methods of early detection and more effective treatment (www.cancer.org).

In order to directly compare survival rates for UCMC prostate cancer patients with national data, observed survival rates were calculated for patients diagnosed between the years 1998 and 1999. For localized and regional (AJCC Stages I - III, n = 435) prostate cancer cases at UCMC, the fifth year survival rate is 88.8%, which is comparable to the survival data supplied by the National Cancer Database (NCDB) of the Commission on Cancer (85.7%). For cases with distant metastasis (AJCC Stage IV), fifth year survival rates were much lower (UCMC 51.1%, NCDB 37.3%). The variability seen in survival values is likely due to a combination of factors, such as race and stage proportions, as well as, sample size.

Note: These are observed survival rates reflecting death due to any cause. Analysis includes only analytic prostate cancer cases that are categorized as class 1 or class 2.

Source: Jerri Linn Phillips, MA, CTR, National Cancer Database, Commission on Cancer, ACoS/ACS.

This data includes all prostate cancer cases of known age and stage that were submitted to the NCDB by 1,433 approved cancer programs across the United States. Stage is the pathological stage group where documented, augmented by the clinical stage group where pathological stage is not reported. This combination of clinical and pathological stage groupings minimizes the number of cases under analysis without AJCC stage and also avoids the exclusion of non-surgical cases from review.
As shown in the figure below, UCMC data continue to reflect a trend for lower five-year survival in African Americans (74.7%) compared with Caucasians (90.2%). This disparity has been observed nationally for many years.

Note: These are observed survival rates reflecting death due to any cause. Analysis includes only analytic prostate cancer cases that are categorized as class 1 or class 2, and limited to Caucasian and African American patient populations.

Survival data must be interpreted with caution. We must take into consideration the likelihood that patients in a given age group will die from causes unrelated to their cancer. We must consider life expectancy with respect to other variables such as gender, race, socioeconomic status, treatment complications, and co-morbidities at time of diagnosis.

The table below shows UCMC prostate cancer cases by AJCC stage and by race for diagnosis years 1998 - 2005. Within each data set, it is evident that the percentage of African Americans diagnosed with Stage IV prostate cancer is significantly higher in comparison to Caucasians who are diagnosed with the same stage of disease. Knowing that diagnosis at an advanced stage of disease dramatically lowers rates of survival, this data confirms that the AJCC stage distribution between the two patient populations is at least one of the key contributing factors to the survival disparity.

### UCMC Prostate Cancer Cases by AJCC Stage and Race, 1998 - 2005

<table>
<thead>
<tr>
<th>Diagnosis Years 1998 - 1999</th>
<th>AJCC Stage at Diagnosis (%)</th>
<th>Caucasian (n = 305)</th>
<th>African American (n = 142)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>1.97</td>
<td>2.82</td>
<td></td>
</tr>
<tr>
<td>Stage II</td>
<td>79.67</td>
<td>68.31</td>
<td></td>
</tr>
<tr>
<td>Stage III</td>
<td>12.46</td>
<td>11.27</td>
<td></td>
</tr>
<tr>
<td>Stage IV</td>
<td>5.90</td>
<td>17.61</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis Years 2000 - 2001</th>
<th>AJCC Stage at Diagnosis (%)</th>
<th>Caucasian (n = 318)</th>
<th>African American (n = 165)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Stage II</td>
<td>71.07</td>
<td>74.55</td>
<td></td>
</tr>
<tr>
<td>Stage III</td>
<td>23.90</td>
<td>10.91</td>
<td></td>
</tr>
<tr>
<td>Stage IV</td>
<td>5.03</td>
<td>14.55</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis Years 2002 - 2003</th>
<th>AJCC Stage at Diagnosis (%)</th>
<th>Caucasian (n = 305)</th>
<th>African American (n = 167)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Stage II</td>
<td>83.93</td>
<td>85.63</td>
<td></td>
</tr>
<tr>
<td>Stage III</td>
<td>11.15</td>
<td>5.40</td>
<td></td>
</tr>
<tr>
<td>Stage IV</td>
<td>4.92</td>
<td>8.98</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis Years 2004 - 2005</th>
<th>AJCC Stage at Diagnosis (%)</th>
<th>Caucasian (n = 430)</th>
<th>African American (n = 177)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Stage II</td>
<td>80.83</td>
<td>77.97</td>
<td></td>
</tr>
<tr>
<td>Stage III</td>
<td>13.95</td>
<td>11.30</td>
<td></td>
</tr>
<tr>
<td>Stage IV</td>
<td>5.12</td>
<td>10.73</td>
<td></td>
</tr>
</tbody>
</table>

* As a result of rounding, percentages may not sum to 100.
Accession: To list in order of acquisition. An accession number is assigned to each new patient who is eligible for inclusion in the Cancer Registry database.

AJCC TNM Stage: A staging system developed by the American Joint Committee on Cancer (AJCC), in which T stands for the size of the tumor, N for lymph node involvement, and M for distant metastasis. This is the extent to which a primary tumor has spread from its original site. In Cancer Registry data, the extent of disease is determined at the time of diagnosis and/or initial therapy.

Analytic Cases: Cases that are first diagnosed and/or received all or part of first-course treatment at the University of Chicago Medical Center (Class of Case 0 - 2).

Class of Case: A classification of cases that divides records into analytic and non-analytic categories. This allows cancer programs to select cases for specified analysis, and to determine whether or not to report a case to the state cancer registry and to the National Cancer Database (NCDB). The most common classes identified at UCMC are as follows:

Analytic:
- Class 0 - Patient was diagnosed at UCMC and all of first-course treatment was performed elsewhere, or the decision not to treat was made at another facility.
- Class 1 - Patient was diagnosed at UCMC, and all or part of the first-course treatment was performed at UCMC.
- Class 2 - Patient was diagnosed elsewhere, and all or part of the first-course treatment was performed at UCMC.

Non-Analytic:
- Class 3 - Patient was diagnosed elsewhere and all of first-course treatment was performed elsewhere. Patient presents at UCMC for recurrence or persistent disease. AJCC staging documentation and lifetime follow-up is not required for non-analytic cases.

Co-morbidities: Per ACoS guidelines, co-morbidities are the patient’s preexisting medical conditions, factors that influence health status, and/or complications during the patient’s hospital stay for the treatment of the primary cancer. ICD-9-CM codes are used to code these conditions. All are considered secondary diagnoses.

Distant metastasis: Refers to cancer that has spread from the original (primary) tumor to distant organs or distant lymph nodes. Also known as distant cancer.

Initial Therapy: First-course or initial definitive treatment, or series of treatments, that normally modifies, controls, removes or destroys proliferating tumor tissue. This is usually initiated within the first four months of diagnosis.

ISCR: The Illinois State Cancer Registry (ISCR) was established in 1984 within the Illinois Department of Public Health. Its purpose is to collect cancer incidence information for residents of Illinois, to monitor trends, to detect potential public health problems, to predict risks, and assist in investigating cancer clusters. The UCMC Cancer Registry submits data to ISCR on a monthly basis.
Glossary

Localized disease  An invasive malignant cancer confined entirely to the organ where the cancer began.

NCDB  The National Cancer Database (NCDB) was the first national database used to track and compare the treatment of most types of cancers. Working in conjunction with the Commission on Cancer (CoC), the purpose of the NCDB is to improve the quality of cancer patient care by providing physicians, cancer registrars, and others with the means to compare their management of cancer patients with the way in which similar patients are managed in other cancer care centers around the country. The UCMC Cancer Registry submits all required cancer cases to the NCDB each year, and participates in special studies designed by the NCDB and CoC.

http://www.facs.org/cancer/ncdb/ncdbabout.html

Non-Analytic Cases  Cases that were not seen at UCMC within the first four months following diagnosis (two months for leukemia) or who were first diagnosed at autopsy. This class of case is not included in UCMC’s treatment and survival statistics. In accordance with the ACoS guidelines for approved cancer programs, these cases must be accessioned and a patient index record prepared. Although abstracting and lifetime follow-up are encouraged, these are matters of local decision by the hospital cancer committee (Class of Case > 3).

No Treatment  A treatment option that includes cases in which no information was available, or no treatment was received.

Observed survival  The rate of survival that is computed by the actuarial method, compounding survival in one-month intervals from the date of diagnosis, with death from any cause as the endpoint.

Reference Year  A reference year is the year after which all eligible cases must be included and maintained in the facility’s cancer registry. A reference date (January 1 of the specified year) is established by the cancer committee. The reference date for UCMC is January 1, 1998. Cases prior to this date do not require active patient follow-up per ACoS guidelines.

Regional disease  Locally advanced cancer or cancer that has grown beyond the original (primary) tumor to nearby lymph nodes or organs and tissues.

Relative survival  The rate of survival that refers only to deaths from prostate cancer, not from other causes like advanced age, heart disease, or other causes unrelated to the patient’s cancer.
Cancer Research
Cancer Research Center
The Ben May Department for Cancer Research

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Cancer Research Center

Established in 1973, the University of Chicago Cancer Research Center (UCCRC) is one of 61 National Cancer Institute (NCI) designated Cancer Centers. This designation is awarded to centers with strong research programs in basic and clinical sciences that nurture productive collaborations between cancer center members and scientific and clinical programs. The UCCRC’s more than 200 members represent 16 departments throughout the University and include internationally recognized basic scientists and clinicians. In Fiscal Year 2006, the UCCRC and its investigators received more than $123 million in funding, which included $20 million in NCI funding, $38 million in other NIH grants, over $8 million in other peer-reviewed funding, $21 million in philanthropic contributions, and $36 million from other sources. The collaborative partnerships that provide the foundation for the UCCRC were instrumental in the University of Chicago’s success in obtaining a Specialized Program of Research Excellence (SPORE) grant for breast cancer research from the National Cancer Institute and a Specialized Center of Research (SCOR) grant from the Leukemia and Lymphoma Society. These grants alone will bring in more than $18 million to Chicago for cancer research.

UCCRC Senior Leadership
The UCCRC employs a wealth of intellectual, technological, and financial resources to pursue comprehensive, collaborative research. Its leadership is a cohesive team of committed researchers with years of experience and a broad range of expertise.

Michelle M. Le Beau, PhD
Director, UCCRC
Professor of Medicine

Marcy A. List, PhD
Associate Director for Administration, UCCRC
Scientific Director, UCCRC Cancer Clinical Trials Office

Marsha R. Rosner, PhD
Deputy Director, UCCRC
Charles B. Huggins Professor
Director, Ben May Department for Cancer Research
Professor, Department of Neurobiology, Pharmacology, and Physiology

Everett E. Vokes, MD
Deputy Director, UCCRC
John E. Ultmann Professor of Medicine
Chief, Section of Hematology/Oncology

Habibul Ahsan, MD, MmedSC
Associate Director for Population Research, UCCRC
Professor of Health Studies

Julie Auger
Associate Director for Core Facilities, UCCRC
Director, Office of Shared Research Facilities
John Cunningham, MD  
Professor and Chief, Section of Pediatric Hematology/Oncology

Geoffrey L. Greene, PhD  
Associate Director for Basic Sciences, UCCRC  
Virginia and D. K. Ludwig Professor  
Associate Director, Ben May Department for Cancer Research  
Professor of Biochemistry and Molecular Biology

Rick Kittles, PhD  
Associate Director for Diversity and Community Outreach, UCCRC  
Associate Professor of Medicine

Yves A. Lussier, MD  
Associate Director for Biomedical Informatics, UCCRC  
Associate Professor of Medicine

Mark J. Ratain, MD  
Associate Director for Clinical Science, UCCRC  
Leon O. Jacobson Professor of Medicine  
Chair, Committee on Clinical Pharmacology and Pharmacogenomics

Mitchell Posner, MD  
Thomas D. Jones Professor of Surgery  
Chief of General Surgery  
Director of Surgical Oncology Fellowship Program  
Director for the Center of Gastrointestinal Oncology

Michael Vannier, MD  
Professor of Radiology, Abdominal Imaging  
Vice Chair for Clinical Research  
Professor of Medicine, Section of Cardiology

Ralph R. Weichselbaum, MD  
Daniel K. Ludwig Professor  
Chairman, Department of Radiation and Cellular Oncology,  
U of C Center for Radiation Therapy

The University and the UCCRC have a long tradition of excellence in clinical and basic science cancer research, clinical and research training, and cancer care. The University of Chicago is the host institution for the Cancer and Leukemia Group B (CALGB) clinical cooperative group (Richard Schilsky, MD, Chair), and is an active member of the Children’s Oncology Group (COG), Gynecologic Oncology Group (GOG), and Radiation Therapy Oncology Group (RTOG).

The UCCRC is a leader in the development of novel agents for cancer treatment. Some of the major areas of clinical research include lung cancer, head and neck cancer, leukemia, breast cancer, prostate cancer, new drug development, and cancer genetics. The UCCRC has earned a Phase I grant and a Phase II contract from the National Cancer Institute. More than 900 patients were enrolled on 302 therapeutic clinical trials in 2006. Over 285 patients were treated on phase II protocols and 179 patients on phase I studies. Clinical trials span the gamut from preclinical development to investigator-initiated phase I clinical trials, to phase II trials in the regional phase II network, to phase III studies within CALGB. They incorporate correlative laboratory studies, including pharmacokinetic studies, genotyping studies, population pharmacology, and pharmacogenetic assays, and measurement of surrogate endpoints.
## UCCRC Scientific Programs

UCCRC members participate in six established scientific programs and interact through fruitful collaborations.

<table>
<thead>
<tr>
<th>Program</th>
<th>Program Leaders</th>
<th>No. of Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell Signaling and Gene Regulation</td>
<td>Suzanne Conzen, MD</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>Marsha Rosner, PhD</td>
<td></td>
</tr>
<tr>
<td>Molecular Genetics and Hematopoiesis</td>
<td>Wendy Stock, MD</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Michael J. Thirman, MD</td>
<td></td>
</tr>
<tr>
<td>Immunology and Cancer</td>
<td>Thomas Gajewski, MD, PhD</td>
<td>21</td>
</tr>
<tr>
<td>Clinical and Experimental Therapeutics</td>
<td>M. Eileen Dolan, PhD</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>Everett E. Vokes, MD</td>
<td></td>
</tr>
<tr>
<td>Advanced Imaging</td>
<td>Maryellen L. Giger, PhD</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Heber MacMahon, MD</td>
<td></td>
</tr>
<tr>
<td>Risk Assessment and Prevention</td>
<td>Andrea King, PhD</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Olufunmilayo I. Olopade, MD, FACP</td>
<td></td>
</tr>
<tr>
<td>Members not aligned with a program</td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

In 2006, the UCCRC continued its aggressive efforts to enhance its programs in many key areas, especially in drug discovery, women's cancers, lung and other thoracic malignancies, and gastrointestinal cancers. Progress in building a leading program in cancer prevention and control is particularly noteworthy. This achievement is demonstrated by the recruitment of leading experts in the field. Habibul Ahsan, MD, MMedSc, for example, is the UCCRC’s new Associate Director for Population Research. A Professor of Health Studies, Dr. Ahsan joined the faculty from Columbia University, where he was Associate Professor of Epidemiology and Director of the Center for Genetics in Epidemiology in the Mailman School of Public Health. Dr. Ahsan studies gene-environment interactions in the risk for arsenic-induced cancer. He is conducting an extensive chemoprevention trial in Bangladesh involving 4,500 adults who were exposed to very high levels of arsenic in drinking water. The goal of this substantial study is to reduce the high rates of skin cancer and other cancers in this population. Rick Kittles, PhD, is the UCCRC’s new Associate Director for Diversity and Community Outreach and an Associate Professor of Medicine in Genetic Medicine. Recruited from the Ohio State University Medical Center, Dr. Kittles studies genetic changes leading to prostate cancer initiation, progression, and treatment outcome. The recruitment of these two top scholars demonstrates the power of the UCCRC’s reputation for attracting new researchers from many disciplines. The addition of Drs. Ahsan and Kittles, along with Nathan Ellis, PhD, Kevin White, PhD, Yves Lussier, MD, and many others have allowed the UCCRC to enhance its already strong membership, creating an even more formidable arsenal of talent and expertise.
The UCCRC’s commitment to population science and cancer prevention is also evident in its unique links with patients and its surrounding communities. The Cancer Risk Clinic works with individuals who have high genetic risks, such as BRCA1 and BRCA2 mutation carriers. Teams of experts—physicians, social workers, nurses and genetic counselors—work closely with patients and their families assessing risk and developing strategies for prevention. This program provides a bridge between the University and surrounding communities. The Clinic is serving significantly more high-risk families, evaluating many more people and expanding its focus. The recent enhancement of the study of gastrointestinal malignancies is an example of this evolution. To analyze the occurrence of pancreatic cancer in a small clinic-based cohort, the program performed pedigree analysis for all cases of this cancer among families presenting to the University of Chicago Cancer Risk Clinic over a 10-year period.

A similar effort is the High-Risk Upper Aerodigestive Malignancies Clinic that serves individuals at high risk for developing lung cancer and other cancers of the oral cavity and the throat. Launched in 2006, most of the Clinic’s patients come from the neighborhoods surrounding the University of Chicago. The new Clinic takes a multidisciplinary approach, combining efforts to prevent or end high-risk behaviors, such as smoking, with experimental chemoprevention programs, improved early-detection techniques, and breakthrough treatments.

The Cancer Resource Center meets the cancer information needs of patients, their friends and families, and the general public. It also helps them handle cancer’s uncertainties and learn about ongoing cancer clinical trials at the University, which conducts more cancer clinical trials than any other facility in Illinois. In June 2004, the UCCRC—in partnership with the American Cancer Society and the Duchossois family—remodeled the Center and moved it to a more accessible, prominent and convenient location in the main lobby of the Duchossois Center for Advanced Medicine (DCAM). These efforts have successfully increased usage and expedited the delivery of special services to people affected by cancer. In 2006, Resource Center staff had 3,390 face-to-face meetings with patients, friends, and families. That is an average of more than 65 personal consultations per week.

The UCCRC also supports ten core laboratories that provide cutting-edge technology for our members’ research projects. These facilities occupy over 22,000 net square feet of laboratory space. Descriptions of these facilities are provided below.

- The Integrated Microscopy Facility (Benjamin Glick, PhD, Director) functions as a user-based core providing state-of-the-art microscopy imaging capabilities to all University investigators.

- The DNA Sequencing Core Facility (T. Conrad Gilliam, PhD, Director) is a shared facility used by over 50 laboratories doing cancer related research. The Facility provides primarily complete DNA sequencing of plasmid, PCR and large templates, such as BACs, PACs and cosmids. It also accepts user-generated reaction products.

- The Human Immunologic Monitoring Facility (Thomas Gajewski, MD, PhD, Director) provides clinical trial laboratory support for the development of cancer treatment strategies involving vaccines, monoclonal antibodies, cytokines, and cell-based therapies.

- The Immunology Applications Core Facility (Anne Sperling, PhD, Director) represents the merger of the Flow Cytometry, Immunohistochemistry, and Fitch Monoclonal Antibody facilities. These facilities provide access to state-of-the-art immunological technologies and quantitative analytical approaches to measure molecular, cellular and tissue functions.

- Human Tissue Research Core Facilities integrates five facilities (Tissue Bank, Laser Capture Microdissection, Tissue Microarray, Immunohistochemistry and Molecular Pathology) into a cohesive resource. It provides investigators in specific organ sites with the infrastructure to establish organ specific tissue banks in a centralized location.
• The Magnetic Resonance Imaging and Spectroscopy Facility (Gregory Karczmar, PhD, Director) offers support for studies of animal models of cancer and cancer patients including: 3-dimensional volumetric high resolution images, high resolution MRI of tissue samples, measurement of hemodynamic parameters and tumor oxygenation, development and testing of new MR methods designed to increase the sensitivity and specificity of MR scans, and development and testing of new contrast agents.

• The Peptide Synthesis and Sequencing Facility (Nancy Schwartz, PhD) makes primary structural data on various proteins and peptides available to researchers. Services include amino acid analysis or composition of proteins, amino-terminal sequence analysis of proteins/peptides, the production of synthetic peptides, and mass spectrometry for structural elucidation.

• The Pharmacology Core Facility (M. Eileen Dolan, PhD) is responsible for the determination of drug levels in biological specimens, the measurement of activity of biochemical correlates in human tissue, and the isolation of DNA, RNA and lymphocytes.

• The Scientific Visualization and Image Analysis Core Facility (Robert M. Nishikawa, PhD) is designed to provide high-speed and parallel processing capabilities and hardwired 3D visualization and virtual reality capabilities.

• Transgenic and Embryonic Stem Cell Facility (Kathleen Millen, PhD, Director) is designed to generate transgenic and knockout mice for researchers interested in generating animal model systems for developing new and improved diagnostic and therapeutic tools for cancer.

In addition to the core facilities referenced above, the UCCRC also provides service cores to translational investigators. These include the Biostatistics Core Facility and the Cancer Clinical Trials Office (CCTO).

• The Biostatistics Core Facility (Ronald Thisted, PhD, Director) provides collaborative statistical support to investigators engaged in clinical, basic, and population science research.

• The Cancer Clinical Trials Office (Marcy List, PhD, Director) provides central management and oversight functions for coordinating, facilitating, and reporting on the cancer clinical trials. The CCTO’s mission is to maintain high quality data, regulatory compliance, and centralized lists of active protocols with accrual status for use by investigators.

The UCCRC also supports the development of new core resources. A unique example is the University’s current Good Manufacturing Process (cGMP) Facility, which provides investigators with a state-of-the-art facility in which to prepare cell therapy products for phase I and II clinical trials.

All of these many resources are available to researchers and demonstrate the capacity of the UCCRC in its commitment to basic, translational and clinical research at all levels. They have also helped the UCCRC earn a reputation for excellence, innovation and willingness to attack cancer from every angle. The UCCRC’s strategic evolution drives a dynamic process that enables the organization to build on its past successes, to reinforce and streamline operations, to strengthen and expand its membership, and to complement and inform the mission and operation of the University and its Hospitals. This is an exciting time for both cancer research and the UCCRC. The UCCRC is taking full advantage of these new opportunities to enhance cancer care, diagnosis and prevention.
It takes a certain amount of audacity and imagination and a great deal of exceptional research to achieve a breakthrough discovery in the field of cancer. The Ben May Department for Cancer Research at the University of Chicago is characterized by just such a winning combination. Our focus on fundamental scientific research into the mechanism of cancer progression continues to lead to outstanding discoveries year after year. Our vision is a future where cancer is either eliminated by total cure or managed by chronic treatment that enables a high quality of life.

The mission of the Ben May Department is embodied in the motto of our founder, the late Nobel Prize winner Charles Huggins: “Discovery is our Business.” In that spirit of discovery, our researchers are pushing the boundaries of understanding and challenging the assumptions that often impede progress. We believe the first step toward preventing or curing cancer is basic research on the intricacies of the human body and the molecular, cellular and genetic events that lead to cancer. Advances in our fundamental understanding of cancer can then be translated into better methods of prevention, diagnosis and treatment.

We are motivated in our work by the genius of those who have gone before us in the Ben May Department and the courage of those who are fighting their personal battles against cancer today. It takes time, talent, dedication, and resources to continue to advance toward a cure. Generous funding has enabled the Ben May Department to increase its roster of quality faculty researchers and to support our move into new offices and laboratories equipped with the finest technology in the past year. These resources will prove indispensable in the enhancement and progression of our research.

In the dynamic environment of the new Center for Integrative Sciences, we are witnessing how scientific disciplines can come together, quite literally to collaborate in very powerful ways. Beyond these walls, the Ben May Department participates in interdisciplinary research in partnership with the University of Chicago Cancer Research Center, the Institute for Biophysical Dynamics, the Argonne National Laboratory, and the Computational Institute. The resulting synergies of these new relationships and communication channels have led to new and exciting research opportunities.

We are proud that the significance of our research continues to be recognized by prestigious awards, publications and conference invitations. We are even more proud when our work in basic research is translated into new treatment and prevention techniques.

We trust that donors, funders and partners share our sense of accomplishment for their part in supporting our work. We could not do it without you.

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Photo Credits: Dan Dry (Rosner), and Peter Kiar (BMDCR building)
Cancer Prevention and Early Detection

Cancer Prevention Program
Cancer Risk Clinic
The University of Chicago Cancer Research Center (UCCRC) is a nationally designated Clinical Cancer Center sponsored by the National Cancer Institute. The UCCRC conducts innovative clinical trials, and provides cancer education and outreach to the surrounding community.

More than 180 members, including internationally recognized basic scientists and clinicians, represent 16 departments throughout the institution. All members participate in six established research programs and interact through fruitful collaborations. These programs include Cell Signaling and Gene Regulation, Molecular Genetics and Hematopoiesis, Immunology and Cancer, Clinical and Experimental Therapeutics, Advanced Imaging, and Cancer Risk and Prevention.

Cancer prevention research at the UCCRC focuses on identifying genetic risk factors for cancer, investigating potential chemoprevention agents, early detection, and quality of life issues. In the UCCRC, Yolanda M. Davis, Program Manager of Research & Community Affairs, conducts many of the large scale, cooperative group prevention trials. She is responsible for the recruitment and retention of participants in these prevention clinical trials. She also develops and implements educational programs on cancer and clinical trials for the hospital and surrounding community.

The UCCRC has a Cancer Resource Center located on the first floor of the Duchossois Center for Advanced Medicine (DCAM) at 5758 S. Maryland Avenue. This center provides comprehensive cancer information on different types of cancer, treatment options, therapeutic agents, support groups, clinical trials, along with a host of other information related to cancer diagnoses.

The UCCRC prevention program works closely with The University of Chicago's Office of Community Affairs on many hospital sponsored community health events. In addition to internal partnerships, the prevention program has partnered with organizations such as:

- Access Community Health Network
- American Cancer Society
- Cook County Breast Coalition
- Gilda's Club
- Healthcare Consortium of Illinois
- Illinois Department of Public Health
- Illinois Partnership for Comprehensive Cancer Control
- Susan G. Komen Breast Cancer Foundation
- Y-Me National Breast Cancer Organization

Yolanda M. Davis, MPH
Program Manager,
Research & Community Affairs
Cancer Research Center
The Cancer Risk Clinic at the University of Chicago Medical Center is designed for people who may be at increased risk for cancer because of their personal history, family history, medical conditions, or lifestyle. We work with individuals and entire families to study the pattern of cancer occurrences within a family. The Cancer Risk Clinic team evaluates all of these factors to assess a person’s risk for developing cancer and offer strategies to lower risk for cancer to those patients who are at increased risk.

Cancer accounts for about 20% of all deaths in the United States. Cancer genetics refers to the medical field that examines the genetics of specific cancers, and the ethical, legal, social, and psychological implications of this knowledge. Genetic information, including information from family history and from DNA-based testing, provides a means to identify people who have an increased risk of cancer. In some cases, DNA-based testing can be used to confirm a specific mutation as the cause of the inherited risk and to determine whether family members have inherited the mutation.

Methods of genetic risk assessment include empiric models, assessment of family history and genetic testing. Genetic testing is generally undertaken only when family history or other clinical characteristics, such as early onset of cancer, indicate a substantial likelihood of an inherited predisposition to cancer. The purpose of identifying a person with an increased risk of cancer is to improve his/her health outcome or quality of life. Once identified, clinical management strategies can be used to reduce risk. Having new knowledge of increased risk enables the individual to make more informed decisions about reproduction, retirement, and other life decisions.

Genetic testing may also be offered to patients who have been diagnosed with cancer, both newly diagnosed individuals and survivors of earlier cancers. Testing may be desired to identify the cause of the cancer, to clarify risk to offspring, to define the appropriateness of particular surveillance approaches, or to aid in decision-making about risk-reducing preventive surgery. While there are not, as yet, proven effective treatments specific to most cancer genetic syndromes, some patients and physicians may wish to include genetic risk status as a factor in consideration of treatment options.

Cancer of the colon and rectum (CRC) is the third most common cancer and the second leading cause of cancer-related death in the United States. It occurs with equal frequency in males and females, and in most cases is preventable. Most colorectal cancer develops in individuals who are at average-risk and generally begins as a pre-malignant adenoma. The most common risk factor for CRC is a positive family history. Identifying and removing these adenomas, through the use of screening sigmoidoscopy or colonoscopy, before cancerous changes occur, can prevent CRC. Early detection is the key to improved survival and cure.
Hereditary colon cancer is broadly divided into two types: polyposis (having multiple polyps or growths) and nonpolyposis. Hereditary CRC’s have an autosomal dominant pattern of inheritance, which means that first-degree relatives of individuals with a hereditary predisposition to CRC have a 50% chance to have inherited the altered gene related to early-onset colon cancer.

For individuals with a family history or personal history that is suggestive of a hereditary predisposition to CRC, genetic counseling is available to discuss risk-reduction strategies, specialized screening tests, and the availability of genetic testing. The risk assessment team will provide an estimation of a person’s risks for specific cancers based upon age, family history and other risk factors.

Cancer risk assessment may be particularly important for women who have been diagnosed with gynecological cancers. As an example, ovarian cancer has been associated with many hereditary cancers, the most notable of which is hereditary breast and ovarian cancer syndrome (HBOC). Breast and ovarian cancer are major causes of mortality among women. In the United States, a woman has a 12% probability of developing breast cancer by age 80 years and a 1.8% risk of developing ovarian cancer. Like all cancers, breast and ovarian cancers are genetic diseases, caused by alterations in genes that predispose to early-onset cancer. In most cases, genetic alterations leading to breast cancer are sporadic, occurring only in the somatic tissues affected by the disease.

However, a small percentage of breast and ovarian cancers (5-10% for breast cancer) are associated with inherited mutations in the breast cancer susceptibility genes BRCA1 or BRCA2. Individuals carrying germline mutations in BRCA1 have a 37-87% probability of developing breast cancer and a 15-45% probability of developing ovarian cancer. For females carrying germline mutations in BRCA2, the probabilities of breast and ovarian cancer are 37-85% and 10-20%, respectively. For males carrying a BRCA1 or BRCA2 mutation, there is an approximately 6% lifetime risk of developing breast cancer. Thus, while only a small fraction of breast and ovarian cancers are associated with inherited susceptibility mutations, these mutations are the strongest predictors of cancer risk known. Genetic counseling for hereditary cancer syndromes has been available in our Cancer Risk Clinic since 1992. Individuals who are identified as being at increased risk for cancer can participate in a number of clinical trials aimed at reducing the risk of the disease or the risk of death from cancer.

Longitudinal studies and follow up with these high risk populations had enhanced our knowledge of risk factors for cancer leading to many dedicated risk assessment clinics popping up all over the country. The University of Chicago’s Center for Clinical Cancer Genetics and the Cancer Risk Clinic is nationally known as a leading program that combines clinical care with the opportunity to participate in cutting edge research.
Clinical Management

Pathology
Surgical Oncology
Gynecologic Oncology
Neurologic Oncology
Pediatric Oncology
Radiation & Cellular Oncology
Medical Oncology, Section of Hematology/Oncology
Medical Oncology, Adult Blood & Marrow Stem Cell Transplant
Pharmaceutical Services
Oncology Conference Schedule
The diagnosis, treatment and follow-up of patients with neoplastic disorders require a dedicated and multidisciplinary team of health care professionals. At the heart of that team are the Clinical and Anatomic Pathology Laboratories where the tests that are essential for the accurate diagnosis and optimal treatment of the patient are performed. At the University of Chicago, each clinical section of the Department of Pathology provides unparalleled diagnostic services to the patient with cancer and to the physicians who care for them.

Usually, the initial diagnosis of cancer is made on a tissue specimen or biopsy that is reviewed by the pathology staff of the Sections of Surgical Pathology or Cytopathology. In the case of lymphoma and leukemia, the Hematopathology Section and the Clinical Hematology Laboratory provide the diagnostic services. All of these areas provide a full range of consultative services and highly specialized studies, including expert morphologic analysis, flow cytometry, immunohistochemistry, and in situ hybridization studies, in order to arrive at the correct diagnosis.

Each of the full-time surgical pathology faculty has one or more areas of special interest and expertise and serves as the pathologist of record for one or more of the institutional multidisciplinary cancer groups, including chest, gynecologic, gastrointestinal, bone and soft tissue, pediatric head and neck, and breast oncology groups. Surgical pathology faculty interacts through multidisciplinary tumor groups as collaborators in ongoing clinical research studies, including treatment outcomes. Surgical pathology faculty attending one or more of the specialty multidisciplinary cancer groups will, in turn, update their colleagues and outline for the residents necessary information for surgical pathology reporting that will impact on newer sub-classifications for staging and therapeutic decision-making.

The College of American Pathologists (CAP) creates cancer protocols as a resource to pathologists. The protocols consist of checklists and background information, such as detailed outlines, explanatory notes, and references. The American College of Surgeons Commission on Cancer (ACoS CoC) has recognized the value of CAP protocols in the diagnosis and care of cancer patients. Effective January 1, 2004, ACoS COC mandated that pathologists at CoC-approved cancer programs include only the scientifically validated or regularly used data elements of the checklists in their surgical pathology reports on cancer specimens. We completed a review of pathology reports from 2005 to assess completeness of diagnosis with respect to CAP requirements. The review included a random sample of 220 pathology reports, representing more than ten percent of the Cancer Registry analytic caseload. Our analysis showed that 99% of reports included a cancer related diagnosis. Of the cases that require CAP data, 96% contained all the required data elements. In addition, these reports contained the majority of the recommended data, which has not yet been shown to be useful by scientific validation.
The surgical pathology faculty is responsible for examining all tumor resections to assist in providing fresh neoplastic and normal tissue samples being studied in a variety of institutional as well as national cooperative protocols. Additionally, the surgical pathology faculty facilitates all tissue acquisitions into the institutional frozen tumor bank.

Among the most recent advances in care is the recognition that a number of tumors are associated with specific genetic abnormalities that can be detected with appropriate probes. The Molecular Diagnostic Laboratory provides molecular assays for many of these genetic changes and also uses state-of-the-art molecular procedures to monitor for residual disease following cytotoxic therapy.

In addition, the laboratories provide many of the tools that are necessary in staging the spread of the cancer, in predicting prognosis and in monitoring the response to treatment. The Coagulation Laboratory does the initial evaluation and monitoring of abnormal bleeding and clotting disorders that are often associated with cancer therapy. The Clinical Hematology Laboratory monitors the changes in the hematologic values that often determine how much therapy a patient can tolerate. Routine chemical studies and immunochemical analyses of a variety of serum tumor markers performed by the Clinical Chemistry Laboratory permit physicians to monitor disease progression and therapeutic response to different treatment protocols. The Clinical Microbiology Laboratory performs the detection of a spectrum of microbes (especially bacteria, fungi and viruses) that are common but debilitating in immuno-compromised patients. Furthermore, the recognition that a bacterium, Helicobacter pylori, is strongly associated with the pathogenesis of some lymphomas, underscores the potential role of the microbiology laboratory as knowledge of tumorigenesis accumulates. Lastly, the Blood Bank not only provides blood product support for patients receiving chemotherapy, but also is crucial to the bone marrow transplantation for pediatric patients.

In all of these laboratory areas, the faculty is conducting basic and applied research that will lead to better understanding of malignant processes or improved methods for cancer detection. The participation of the Pathology Laboratories and faculty in a multidisciplinary approach helps the University of Chicago provide the efficient, effective and up-to-date treatment for cancer patients.
The Department of Surgery and the section of General Surgery embrace three specific goals as their mission: (1) excellence in patient care, (2) creation of new knowledge through basic science and clinical research, and (3) education. This mission is the foundation upon which the cancer program in the Department of Surgery continues to build and grow. There has been a long-standing commitment and tradition of excellence within Surgical Oncology. This annual report includes a history of the Medical Center and Cancer Program that highlights some of the important contributions to cancer care by University of Chicago surgeons.

Multidisciplinary clinics and conferences are the cornerstone of our department’s comprehensive cancer treatment philosophy. A multidisciplinary approach is customary at the University of Chicago among surgeons in head and neck oncology, thoracic oncology, gastrointestinal oncology, breast oncology, bone and soft tissue sarcoma, and melanoma. The department has played leadership roles in several initiatives to develop patient-oriented centers for complex care. These include our Comprehensive Breast Center, the Center for Gastrointestinal Oncology, and our center of excellence for minimally invasive surgery. The Surgical Oncology Breast Program is part of the integrated radiology, medicine, genetic counseling, psychological and social services, patient education, and physical therapy services based at the Breast Center in the Center for Advanced Medicine. The newly established Center for Gastrointestinal Oncology provides a coordinated introduction of patients to our experts in gastroenterology, medicine, radiation, and surgery for malignant diseases of the alimentary and hepatobiliary tracts. In the last decade, multidisciplinary treatments for many of these diseases have become highly integrated rather than sequential. The Center for Gastrointestinal Oncology has enabled a streamlined evaluation of patients for advanced diagnostic tests and preoperative therapy that may be important prior to surgery. Our Minimally Invasive Surgery Program is founded on technologies and communication advances that have led to the use of less invasive and more “patient friendly” surgical procedures for the diagnosis, staging, treatment, and palliation of patients with a variety of solid tumors. Minimally invasive procedures for resection of cancers of the lung, esophagus, liver, pancreas, colon, rectum, and genitourinary tract have been developed, refined, and are currently being performed at the University of Chicago Medical Center.

The educational component of the cancer program in the department of surgery is punctuated by three didactic conferences: (1) Surgical Oncology Case Conference, (2) Surgical Oncology Journal Club, and (3) Surgical Oncology Core Lecture Series. With each of these conferences, our goal as a department is to establish a foundation of cancer-care knowledge in our student, resident, and fellow trainees. Surgical Oncology Case Conference involves a weekly review of all cancer cases performed within the section of general surgery and provides a forum for discussion of interesting cases. Surgical Oncology Journal Club provides an in-depth analysis of controversial topics in surgical oncology through structured debates by fellow and resident presenters. An expert attending physician serves as a moderator and is available for subsequent discussions. Surgical Oncology Core Lecture Series meets twice a month to review the entire gamut of oncologic issues, with an emphasis on classic and recent literature to serve as a foundation for evidence-based practice.

We are one of only eighteen centers nationally approved by the Society of Surgical Oncology for advanced fellowship training in cancer surgery. Our fellowship program remains one of the most highly sought after training programs for aspiring academic surgical oncologists. Our program is one of only a few that offer an eighteen month research experience for the fellows, allowing them to develop the skills required to establish a laboratory, develop a research project, successfully apply for grants and prepare publications for peer review journals. The fellowship again underscores our commitment to excellence in patient care, education, and research and serves as the training ground for future leaders in academic surgical oncology.

The above highlights only some of the initiatives and emphases within the Department of Surgery related to cancer treatment, research, and education. In the upcoming year we will continue our ongoing efforts, which have made the Department of Surgery one of the nationally recognized leaders in cancer care.
The Department of Obstetrics and Gynecology (OB/GYN) consists of physicians who are general obstetrician gynecologists and those who specialize in the areas of maternal fetal medicine, reproductive endocrinology, urogynecology and gynecologic oncology. An OB/GYN is considered a primary care physician and, as such, may be the only physician that a patient sees for her routine medical care. The OB/GYN plays an important role in the prevention, diagnosis, and occasionally, the initial management of both gynecologic and non-gynecologic malignancies. During a medical visit, the OB/GYN will assess a patient’s risk factors for the development of cancer, perform a physical examination, and order tests that screen for malignancies. A detailed family history may reveal that multiple members of a patient’s family have breast and/or ovarian cancer, placing a patient at risk for the development of a hereditary breast and/or ovarian cancer syndrome. In this instance, the OB/GYN may play a significant role in the prevention of disease by recommending that a patient see a genetic counselor or be referred to the Cancer Risk Clinic to decide whether genetic testing for BRCA1 or BRCA2 mutations may be of value. If the patient is then deemed to be at significant risk for the development of ovarian cancer, the OB/GYN may recommend that a patient undergo a prophylactic salpingo-oophorectomy (removal of the tubes and ovaries) when childbearing is complete to prevent the onset of ovarian cancer. This treatment is highly effective in preventing over 95% of cancers from developing.

The OB/GYN will also perform a detailed annual physical examination to include a breast exam, pelvic exam (which should include a rectovaginal examination), a Pap smear to detect cervical dysplasia (a potential precursor to cervical cancer), and, if appropriate, a test for occult blood in the stool, which may be a sign of colorectal cancer. Careful examination of the cervix may reveal a firm, nodular area characteristic of a cervical cancer. A rectovaginal examination is extremely important as it can detect endocervical cancers that are not visible to the naked eye because they have developed higher in the cervical canal. A rectovaginal exam can also detect pelvic masses, which may herald the presence of ovarian pathology, or uterine enlargement, which may be an indication of uterine pathology. Fecal occult blood tests are also performed in women over the age of 50 to screen for adenomatous polyps and colorectal cancer. For women over the age of 40, the OB/GYN follows the screening recommendations as put forth by the American Cancer Society and will order annual screening mammograms. For women over age 50, a flexible sigmoidoscopy, colonoscopy or barium enema will also be ordered to screen for polyps and colorectal cancer.

A frequent presenting complaint to the OB/GYN is abnormal or irregular vaginal bleeding. This may take the form of regular, but heavy menses, irregular menses, bleeding after intercourse or frank postmenopausal bleeding. The OB/GYN takes into consideration the patient’s history and presenting complaints to assess whether this abnormal bleeding may be a sign of cervical or uterine cancer. Symptoms of ovarian cancer can be particularly difficult for the physician to attribute to a particular disease process as they include nonspecific complaints such as bloating, constipation, and/or abdominal pain. Once the OB/GYN performs the diagnostic work-up and determines that a gynecologic malignancy is present, the patient will typically be referred to a gynecologic oncologist who has subspecialty training in the treatment of gynecologic malignancies. The gynecologic oncologist can then perform any necessary surgery, administer chemotherapy, and in conjunction with a radiation oncologist, play an active role in deciding on a radiotherapy treatment regimen. The gynecologic oncologists at the University of Chicago are members of the Gynecologic Oncology Group, a cooperative clinical trials group funded by the National Cancer Institute, which encourages patients to participate in nearly 20 clinical trials available for cervical, endometrial, ovarian, and vulvar cancers.

The OB/GYN and gynecologic oncologist work together to help prevent, diagnose and treat patients with gynecologic malignancies in an efficient manner to help produce an optimal outcome for the patient. This is carried out in a multidisciplinary manner utilizing the expertise of our radiation oncology and medical oncology colleagues. The importance of other professionals such as our chemotherapy nurses and social workers cannot be overemphasized as they frequently make significant contributions to the comprehensive care of our patients.
The Neuro-Oncology Service at the University of Chicago began in October 2004 as part of the newly formed Brain Tumor Center. Since its inception, the program has focused on establishing a clinical program that offers a full range of multi-disciplinary care to patients with cancer affecting the nervous system. The goals of the Neuro-Oncology Service are articulated in the mission statement of the Brain Tumor Center: “The members of the Brain Tumor Center at the University of Chicago are dedicated to the continuous improvement in the quality of life for individuals with cancer affecting the nervous system. This goal will be maintained through cooperation between members in (1) basic science to further understand the causes of these diseases, (2) translational research to develop better and safer treatments for them, and (3) clinical research to bring these advances to the public, all in an environment of scientific rigor and clinical excellence.”

Neuro-Oncology outpatients are seen three days per week. Visits are conducted in both the Neurology and Hematology/Oncology Clinics in the Duchossois Center for Advanced Medicine. In most cases, new patients can be seen within 48 hours of contact. There were 480 patient visits to the Neuro-Oncology clinics in 2006. The majority of patients have primary brain tumors, but those with brain metastases and the neurologic complications of cancer and its treatment are also seen.

There is also an active in-patient neuro-oncology consult service. A wide variety of cancer patients experiencing neurologic complications are followed. In 2006, approximately 140 patients were seen in consultation in 2006.

The complex care of these patients is coordinated through a weekly multidisciplinary conference. Patient care is expedited by close interaction between surgical, medical, and radiation oncology physicians, with diagnostic input from both neuropathologists and neuroradiologists.

Patients are offered a variety of treatment options, including participation in clinical trials conducted in the departments of Surgery, Radiation Oncology, and Hematology/Oncology. For those who travel a distance to discuss treatment opinions, members of the team also take pride in coordinating patient care with both referring physicians and specialists closer to their homes. Individuals interested in appointments with the Neuro-Oncology Service may call 773-702-9869.
Pediatric Cancer in the United States

With 2,300 children and adolescents dying each year, cancer is the leading cause of disease-related mortality in children aged 1-21. Thus, approximately 150 children out of every million children younger than 21 years of age are diagnosed with cancer annually in the United States. Indeed, the incidence of childhood cancer has increased slightly over the last 30 years, since we are currently observing 13,000 new cases annually. Major categories of childhood cancer include leukemia, lymphoma, brain tumors, neuroblastoma (cancer of sympathetic nervous system), retinoblastoma, Wilm's tumor (kidney), hepatoblastoma (liver), bone cancers, soft tissue, germ cell, and carcinomas.

The survival rate for children with cancer has improved substantially over the last 30 years. In 1975, approximately 50 percent of children with cancer survived 10 years from diagnosis. Recent data show that 65 percent of children with cancer now survive 10 years from diagnosis. Investigators agree that these results form a reasonable foundation for future improvement, and are the result of using well-designed, Phase I-III clinical trials. Thus, nationally, greater than 90% of children with cancer are enrolled on institutional or multi-institutional protocols.

Pediatric Cancer at the University of Chicago – An Overview

Clinical Care

The goal of the Pediatric Hematology/Oncology program at the University of Chicago is the cure of all children with cancer. As a leading program in Chicago, we offer conventional and investigational forms of therapy for all childhood malignancies. Patients, their families and physicians can call the Diagnostic Referral Center at the Comer Children's Hospital, where a hematology/oncology clinician is available 24 hours a day to answer questions, and arrange clinic or in-patient referrals as appropriate. We provide rapid state-of-the-art diagnostic facilities for all blood diseases including leukemia, lymphoma, aplastic anemia, sickle cell anemia, white blood cell defects, thrombocytopenia, and bleeding disorders. Similarly, expertise is always available to address issues related to neuroblastoma, sarcomas, brain tumors and other childhood tumors.

Patient- and family-centered, a multidisciplinary approach is used to care for patients and their families. A key focus is providing the best possible care for our patients with the fewest hospitalizations. Whenever possible, children receive treatments on an outpatient basis in a dedicated clinic and transfusion suite in the remarkable Center for Advanced Medicine.

When it is necessary for patients to be hospitalized, children and adolescents receive care in a dedicated hematology/oncology and bone marrow transplant unit at the Comer Children's Hospital, a unique, new facility on the campus of the University of Chicago. From diagnosis through follow-up care, each patient is followed by a faculty physician from the University of Chicago, a dedicated, masters prepared Clinical Nurse Specialist, a pediatric oncology social worker, and a team of child-life specialists. The Child Life and Family Education program provides emotional support and education for children and their families at the bedside, in the clinic and in a well-equipped and staffed playroom. Family support, as well as food and lodging, is also available at a nearby Ronald McDonald House.
The program has specific clinical research programs in childhood cancer including leukemia, Hodgkin’s and non-Hodgkin’s lymphoma, neuroblastoma, brain tumors, soft tissue and bone sarcoma. In addition, we have established specialized clinics focused on Cancer Risk and long-term survivors of cancer. These programs provide unique resources for families with more than one member with cancer, and the ever-going number of individuals who have been cured of their disease but require lifelong follow-up to prevent and treat sequelae of chemo- and radiotherapy.

The hematopoietic (blood) stem cell transplantation program directed by Dr. Cunningham is focused on two major areas. Firstly, we are utilizing allogeneic donor transplantation to treat leukemia, lymphoma and hematologic disorders such as aplastic anemia and hemoglobinopathies. We are particularly interested in caring for those children with resistant or refractory leukemia, and those who do not have a matched donor. A second area of interest is the use of autologous (own) stem cell transplantation for treatment of solid tumors. For these procedures the program uses peripheral blood, placental blood, and bone marrow as sources of stem cells for transplant, and immune cell subsets for post-transplant adjuvant therapy.

Research

Clinical

The section of Pediatric Hematology/Oncology has an active and productive clinical research program. The cancer program is a full member of the Children's Oncology Group (COG), and participates in national and international research programs and clinical trials. In addition, innovative institutional protocols are offered to address most issues in pediatric cancers including novel sarcoma trials, and transplantation for refractory leukemia and lymphoma.

Faculty members including Drs. Susan Cohn, Tara Henderson, James Nachman and Charles Rubin are leaders for a number of Children’s Oncology Group (COG) studies, including those for neuroblastoma, Hodgkin's disease and acute lymphoblastic leukemia. Dr. Cohn has chaired the Neuroblastoma Disease Committee and Dr. Nachman has chaired a limited institution pilot trial for osteogenic sarcoma.

Basic Science

The section of Pediatric Hematology/Oncology has an internationally recognized, federally funded basic science research program. Our program is located in the Institute for Molecular Pediatric Sciences (IMPS), a unique development at the University of Chicago. The Institute is the first dedicated interdisciplinary center in the United States to study childhood illness from the most basic level to clinical care. Programs include:

Dr. Eric Beyer is focused on intercellular communication, specifically, an understanding of the structure and function of gap junction proteins. Understanding how cells communicate with one another may lead to better understanding of how to control the growth of cancerous cells.

Dr. Cohn is a leading authority on neuroblastoma, the most common type of cancer found in infants. She is particularly interested in the development of new therapeutic agents based on a thorough understanding of the molecular basis of this disease.

Dr. Cunningham has a long standing interest in the molecular mechanisms of hematopoietic (blood) cell differentiation and how they may be perturbed by different events including cancerous changes. He is also interested in aberrant cell migration, particularly in epithelial malignancies.

Dr. Ken Onel is an expert in pediatric and other familial genetic cancer syndromes. His work is focused on understanding the genetic basis of cancer susceptibility by identifying genes and genetic markers that alter cancer risk.

In addition to our program, we have developed highly important collaborative interactions with other members of the University of Chicago Cancer Research Center (UCCRC), the adult hematology/oncology program, Human Genetics, the Ben May Institute for Cancer Research, and the Computation Institute. Taken together, our clinical and scientific endeavors should result in significant advances in the identification and successful treatment of cancer in children. Moreover, it may provide insights into novel approaches for adult malignancies.
The Department of Radiation and Cellular Oncology continues to provide patients with excellent care. We are also trying to expand medical knowledge though basic science and clinical research. The field of radiation oncology is technically demanding; and the technology available for patient treatment has shown rapid growth. These advances in technology have helped to expand the use of radiation treatment to an integral part of the cancer therapy armamentarium. Radiation therapy has evolved from the days of low energy radioactive sources though orthovoltage to the current treatment with high-energy linear accelerators. This has enabled the more effective treatment of deep-seated tumors. Prior to the days of linear accelerators, skin toxicity limited the amount of radiation that could safely be given. Skin toxicity is seldom a problem with current treatment machines due to the physical characteristics of the radiation they produce. This allows the delivery of higher more effective doses to cancer bearing tissues.

CT Based Treatment Planning and 3D Conformal Radiation Therapy
The recent ability to use CT data for radiation treatment planning allows the radiation oncologist to more precisely define the cancerous area and delineate areas at risk for microscopic sub-clinical extension of tumor. The University of Chicago Department of Radiation and Cellular Oncology purchased a CT simulator for the Center for Advanced Medicine in 1997 to provide patients with the benefits of advanced treatment planning. When our conventional simulator was retired, a wide bore CT simulator was installed in 2001 to accommodate large patients.

The Department of Radiation and Cellular Oncology has a commitment to offer our patients the best technology available. CT planning technology has continued to advance. We have purchased a new 16 slice third generation wide bore CT simulator from Philips. This simulator will be able to complete scans in a shorter time with better resolution. A shorter time on the planning table means less patient discomfort. Higher resolution means better targeting of cancer. We will be the second institution in the country to have a simulator with this degree of sophistication.

The use of CT based treatment planning has enabled the development of 3D conformal radiation therapy. This advance lets the treating physician shape the radiation more precisely to the shape of disease containing tissue. In addition, 3D planning systems permit a more uniform dose to be delivered. This reduces the chances of under dosing disease and enhances the likelihood of cancer control.

Intensity Modulated Radiation Therapy
The latest technological advance has been the introduction of Intensity Modulated Radiation Therapy (IMRT). This advance was made possible by the latest generation of linear accelerators that have multi-leaf collimators that automate blocking in conjunction with the latest treatment planning software. This latest advance in technology enables the radiation oncologist to shape the high dose (damage causing) area of radiation to a degree that was not thought to be possible only
a few years ago. In addition, the radiation oncologist can limit the amount of radiation passing through critical normal tissue. These enhancements in targeting cancer while limiting doses to normal structures should translate into better disease control and fewer long-term complications. The University of Chicago Department of Radiation and Cellular Oncology was the first center in Chicago to fully implement this treatment option and provide IMRT to its patients.

The list of disease sites treated with IMRT at the University of Chicago continues to grow. IMRT is the standard treatment offered to patients with prostate, anal, cervical, uterine, and pancreatic cancer. Dr. Mundt has been able to show the doses of radiation to normal small bowel and bone marrow can be significantly decreased with the use of IMRT in cervical and uterine cancer resulting in fewer toxicities.

Head and neck cancer is another area where IMRT has become the standard treatment technique. Here there are multiple critical structures involved in speech and swallowing packed into a confined space. This makes head and neck cancer an ideal site for IMRT treatment. The goal of treatment is to maintain the excellent control rates we have seen while reducing the long-term toxicity by precision radiation therapy.

**Respiratory Gating**

Another initiative is the implementation of respiratory gating. During traditional radiation, the beam is on continuously during the treatment. We have purchased new equipment that will allow for the precise delivery of radiation during a specified part of the respiratory cycle. It has been shown that lung cancers move with respiration and require larger radiation field to avoid under-dosing the cancer. This also results in radiation to extra normal tissue as well. By gating the radiation to specific portions of the respiratory cycle we can limit the size for the radiation field, spare more normal lung, and still treat all of the cancer. We have included respiratory gating in the treatment plan for patients with lung cancer.

We have also included respiratory gating in our breast cancer treatment. This enables us to use a smaller treatment field while providing the necessary radiation to the breast tissue. The use of gating reduces the amount of normal lung in the radiation field. In patients with left breast lesions, it reduces the amount of heart tissue getting radiation.

**Image Guided Radiation Therapy**

This year we have added a fourth state of the art linear accelerator. The Varian Trilogy system can be used to deliver 3D conformal radiotherapy, IMRT, stereotactic radiosurgery, fractionated stereotactic radiation therapy, and intensity-modulated radiosurgery for cancer and neurosurgical treatment. The new accelerator uses more sophisticated on board imaging to localize the tumor at the time of treatment. Thus, it will be possible to localize the tumor with the patient on the treatment table. This is the basis for Image Guided Radiation Therapy (IGRT).

**Research**

The Radiation and Cellular Oncology Department has remained active in multiple areas of clinical investigation. Members of our department participate in all the Tumor Conferences conducted at the University of Chicago. We are members of CALGB, GOG and RTOG. There are many active clinical trials that have been designed with the joint collaboration of medical oncology and radiation oncology. With the growth of new technology, physician collaboration across disciplines, and clinical trial research, we aim to provide our patients with the best treatment options in cancer care.
The Hematology/Oncology Section in the Department of Medicine continues to see increased numbers of inpatients and outpatients with a variety of malignancies and hematologic disorders. There are active clinical research programs in most areas involving many treatment modalities. Newly recruited faculty members have interests in breast cancer, bone marrow transplantation and gastrointestinal malignancies. The leukemia group manages patients with acute and chronic leukemias, including the use of allogeneic (involving a donor) bone marrow transplantation. This program offers bone marrow transplantation from matched unrelated donors. For leukemia patients who do not have a matched relative for bone marrow donation, this approach offers the option of marrow donation from concerned citizens who are part of an international bone marrow registry. Correlative laboratory analyses of peripheral blood and bone marrow are an integral part of the clinical research activity of this group. The leukemia and lymphoma clinical teams collaborate closely with section members who focus on the laboratory aspects of cytogenetics and molecular genetics.

In the area of solid tumor oncology, there are multiple active programs. The chest oncology program is studying a variety of combined modality treatment programs for locoregionally advanced lung cancer, utilizing concomitant chemotherapy and radiotherapy. In addition, trials using chemotherapy drugs along with some of the “targeted therapies” (i.e. small-molecule drugs and anti-angiogenic drugs that specifically target tumor cell growth factors in non-small cell lung cancer) are in progress. In hopes of finding improved therapies, new drugs are frequently being tested in Phase II trials for patients with widespread disease. There are also protocols in place for the treatment of advanced esophageal cancer. We continue to have one of the largest clinical programs in the country in the area of mesothelioma, an uncommon cancer of the pleura (lining of the lung or abdomen), usually related to past asbestos exposure.

The head and neck oncology group is evaluating a number of concomitant chemotherapy radiotherapy protocols in patients with advanced disease. Many patients can now be offered “organ sparing” therapy, thus avoiding the sometimes disfiguring and voice sacrificing surgery that such patients traditionally have undergone. Small, targeted molecules are also being used as part of therapy protocols for these patients, as well.

The genitourinary oncology group is evaluating a large number of treatment protocols for patients with prostate cancer, with particular interest in developing new strategies for patients with advanced, hormone resistant disease. In addition, they have been conducting multiple trials using newer targeted drugs in patients with advanced kidney cancer. The gastrointestinal oncology group has been quite active in developing treatment protocols, generally testing new drugs, for patients with advanced colorectal and pancreatic cancers. Recent data supporting the use of angiogenesis-inhibiting drugs (e.g. bevacizumab) are being applied in this group of patients.

The breast cancer treatment group is participating in several international trials of hormonal therapy options in pre-menopausal women. In addition, they are conducting trials of new drugs in both early and advanced disease, including lapatinib, a small-molecule drug being tested in patients whose tumor are positive for Her-2/neu overexpression, but who have become resistant to therapy with trastuzumab (Herceptin®). In the management of advanced melanoma, the first tumor vaccine developed at the University of Chicago is undergoing clinical testing.

New drug development is a major priority of the Section of Hematology/Oncology. There is a very active Phase I drug development program, which has a contract with the National Cancer Institute to test new anticancer drugs. Phase I trials evaluate new drugs, or older drugs combined in a novel way with modulating agents, to determine the appropriate doses for subsequent testing in Phase II trials. At any given time, ten to fifteen trials of Phase I agents are underway. Though such trials do not yet have a track record in cancer treatment, they offer hope to patients whose cancers have failed to benefit from standard therapies, or for which there is no standard therapy. In the past few years, the Section of Hematology and Oncology has also had a large Phase II contract, to test new drugs at established doses in specific groups of cancer patients to assess their efficacy in cancer treatment. At any given time, three to five phase II trials are underway.

Overall, our efforts are aimed at applying lessons from the laboratory into clinical research trials, in the hopes of improving the care of patients with advanced cancers.
The adult stem cell transplant program continues to be centered on excellence in clinical care and research. From 64 transplants in fiscal year 2000-2001, the program now performs between 110 and 130 transplants annually. More importantly, the number of services offered and the array of clinical research have multiplied. Allogeneic transplantation for hematologic malignancies constitutes a major interest of the program, with allogeneic transplants accounting for slightly more than one-half of the transplants. In 2002, an unrelated donor program was initiated and became rapidly successful. Currently, approximately 30 unrelated donor transplants are performed each year. For patients lacking unrelated donors a novel approach combining haplo-identical and cord blood transplantation is under investigation.

Most of our patients agree to participate in research protocols. Our clinical research focus is on the development of novel conditioning regimens and on innovative studies of immune manipulation to prevent disease recurrence. Ongoing NCI supported studies evaluate methods to improve preparative regimens for transplantation. Most of our transplant studies use stringent prophylaxis for graft-versus-host disease (GVHD). This results in a very low incidence of acute and chronic GVHD, an excellent quality of life for our transplant patients, and the ability to safely offer transplants to older patients in their sixties and early seventies. Since many of our patients are older, Dr. Arzt has taken a particular interest in evaluating the use and outcome of transplantation in these older patients.

Autologous transplantation is increasingly used for the treatment of acute leukemia (AML), lymphoma and myeloma. Peripheral blood stem cell support and other innovations in technology have rendered this a safer procedure. We participate in a CALGB sponsored study of post-transplant therapy for myeloma. In AML and in lymphoma, ongoing studies have focus on post-transplant immunotherapy. The preliminary results of such studies are extremely encouraging. Also, we are currently evaluating the use of a novel stem cell purging device for patients with lymphoma and with history of bone marrow involvement. Five patients have been accrued to a new study using anti CD133, a novel-purging agent.

The University of Chicago adult stem cell transplant program has rapidly emerged as a premier center for clinical research and clinical care. It is currently the largest allogeneic transplant program in Chicago. Our scientific commitment and expertise is illustrated by the award of three federal grants to faculty of the stem cell transplant program, and an increasing number of national and international publications and presentations.
The Department of Pharmaceutical Services supports the cancer patient and the oncology program for both inpatients and outpatients. Special expertise in chemotherapy therapeutics is required to provide sophisticated, safe and effective care to these complex and seriously ill patients. The pharmacist involved in the preparation of chemotherapy, investigational therapies or supportive care must understand the important role of drug therapy relative to the patient’s unique needs and work in close collaboration with all members of the patient’s health care team. The Department of Pharmaceutical Services provides pharmaceutical care to the cancer patient as an inpatient through its inpatient chemotherapy program. Cancer patients receiving outpatient care require very complex infusions provided through the Outpatient Chemotherapy Infusion Center Pharmacy. Additionally, these patients may require specialized therapy only available through the outpatient retail pharmacy. The retail pharmacy, located at the Center for Advanced Medicine, is open Monday through Friday from 9:00 a.m. to 5:30 p.m.

The Outpatient Chemotherapy Infusion Center Pharmacy is located in the Center for Advanced Medicine and is open Monday through Friday from 7:30 a.m. to 6:00 p.m. During these hours, the pharmacy is staffed by certified pharmacy technicians and registered pharmacists uniquely trained in the proper handling and preparation of chemotherapeutic agents. Additionally, these pharmacists also review chemotherapy orders to assure effective therapy is provided in a safe and appropriate manner based, in part, on guidelines developed in collaboration with the medical staff of the University of Chicago Medical Center.

Inpatients receive chemotherapy, investigational therapies, and supportive care provided by a core group of pharmacists specially trained to successfully manage the complex therapeutic regimens used. These unique professionals are dedicated to providing our patients with the most innovative, safe and effective care available.

New therapies are constantly being evaluated to continually improve care provided to our patients. At the University of Chicago Medical Center, there is ongoing research involving unique, innovative investigational drugs and FDA-approved drugs used in new regimens. The Investigational Drug Service (IDS) was created in response to the increasing complexity of research protocols and the recognized need for highly trained professionals to uniquely manage all aspects of the drug therapy used in these investigational studies. Approximately sixty percent of the clinical trials managed by the IDS employ investigational anticancer drugs. The IDS pharmacist and staff review each investigational chemotherapy protocol from a pharmaceutical viewpoint, create written guidelines for pharmacy personnel, and provide drug information to UCMC staff involved in the care of cancer patients. Additionally, the IDS coordinates drug procurement, drug storage, inventory control, drug distribution and dissemination of drug information to the various chemotherapy pharmacies and hospital affiliates.

Clinical Management
Pharmaceutical Services

Sandeep Parsad, PharmD
Oncology Clinical Specialist

Ann Calandro, RPh
Pharmacist-in-Charge
Outpatient Chemotherapy Infusion Center

Emmanuel Semmes, RPh
Investigational Drug Pharmacist

Mark Miller, CPT
Investigational Drug Lead Pharmacy Technician

Phyllis Newson, CPT
Investigational Drug Lead Pharmacy Technician

Dave Hicks, RPh, MBA
Interim Director, Pharmaceutical Services

Thomas E. O’Brien, PharmD, MS, FASHP
Interim Director, Pharmaceutical Services
## 2006 - 2007 Institutional Oncology Conference Schedule

### Monday
- **Bone Marrow Transplantation Scheduling Conference** 09:00 a.m. - 10:00 a.m. 6-NW
- **Hematology/Oncology Conference** 11:30 a.m. - 01:00 p.m. E-215
- **Phase II Conference** 01:00 p.m. - 01:30 p.m. E-215

### Tuesday
- **GU Medical Oncology Conference - Stadler** 08:00 a.m. - 09:30 a.m. E-215
- **Medical Grand Rounds** 12:00 p.m. - 01:00 p.m. P-117
- **GI Oncology Multidisciplinary Conference** 12:00 p.m. - 01:00 p.m. S-644
- **Leukemia Conference** 01:00 p.m. - 03:00 p.m. E-215
- **Lymphoma/Myeloma Conference** 02:30 p.m. - 04:00 p.m. TBA
- **Head and Neck Multidisciplinary Conference** 04:00 p.m. - 05:30 p.m. E-215
- **Bone & Soft Tissue Multidisciplinary Conference** 04:00 p.m. - 05:00 p.m. E-302

### Wednesday
- **Chest Oncology Multidisciplinary Conference** 08:00 a.m. - 10:00 a.m. DCAM 1D
- **Gyne-Oncology Conference** 09:00 a.m. - 10:30 a.m. L-272
- **Phase I Conference** 11:30 a.m. - 12:30 p.m. E-215
- **GU Oncology Multidisciplinary Conference** 04:00 p.m. - 05:00 p.m. S-644

### Thursday
- **Pending ALLO Transplant Team** 08:00 a.m. - 09:00 a.m. E-215
- **Neuro-Oncology Conference** 08:00 a.m. - 09:30 a.m. Q-207B
- **Breast Oncology Multidisciplinary Conference** 08:30 a.m. - 10:00 a.m. G-217
- **Bone Marrow Transplant Conference** 09:00 a.m. - 10:00 a.m. E-215
- **MUD/ALLO** 10:00 a.m. - 11:00 a.m. E-215
- **Transplant Data Team Meeting (monthly, 2nd Tuesday)** 10:00 a.m. - 11:00 a.m. M-252
- **Section Meetings (monthly)** 12:00 p.m. - 01:00 p.m. E-215
- **Surgical Oncology** 04:00 p.m. - 05:00 p.m. G-217
- **Pediatric Tumor Board & Stem Cell Transplant Rounds** 04:00 p.m. - 05:00 p.m. S-644

### Friday
- **Melanoma Multidisciplinary Conference (bi-weekly)** 07:30 a.m. - 08:30 a.m. S-644
- **QA Meetings – vanBesien & Smith (every 3 months, 1st Friday)** 08:00 a.m. - 09:00 a.m. E-215
- **Lab Meeting - Wickrema** 01:30 p.m. - 03:30 p.m. E-215
Nursing

Oncology Care Center - Inpatient Care
Hematology/Oncology Center - Outpatient Care

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The Oncology Care Center

The Oncology Care Center is comprised of three adult Hematology/Oncology units located in the Bernard Mitchell Hospital at the University of Chicago Medical Center. The nursing staff cares for patients that are at various stages of their disease and that have been admitted for treatment, symptom management, disease complications, supportive care, and palliation. Treatments include chemotherapy, radiation therapy, and biologic therapy. Many patients participate in clinical trials also. The Oncology Care Center has specific patient populations who are admitted to designated units. Patients with solid tumors (primarily head and neck cancers) are cared for on 6SW. Patients with hematological diseases (such as leukemia, lymphoma and myeloma) and patients undergoing bone marrow/stem cell transplantation are cared for on 6NW. Patients with solid tumors and hematological diseases of various etiologies are cared for on 6NE.

Each oncology unit is led by a Patient Care Manager (PCM) who is responsible for ensuring that nursing staff is properly trained and that nursing care is delivered in a safe and efficient manner. The nursing staff works as a team to provide excellent care to all patients and families. There is an interdisciplinary approach to each patient’s plan of care including collaborative coordination with physicians and support from dietitians, social workers, pharmacists, physical therapists, occupational therapists, chaplains, and case managers.

To better prepare our nurses who care for cancer patients, each staff nurse is required to complete a bridging course in oncology, as well as, the Oncology Nursing Society’s Chemotherapy Provider Course that is facilitated by the clinical nurse specialist. Monthly continuing education sessions are offered also. All staff nurses are encouraged and supported to become Oncology Certified Nurses (OCN) by successfully completing the National Oncology Certification Exam.

Oncology Case Managers

The Oncology Care Center has three inpatient case managers who are chemotherapy certified and OCN certified by the Oncology Nursing Society. In collaboration with the staff nurse, case managers assess patients and families for medical, psychosocial and learning needs at admission, and initiate referrals with other members of the multidisciplinary care team. Case managers assist in the coordination each patient’s plan of care, regularly update the plan as needed, and facilitate the patient’s discharge from the hospital. Case managers make arrangements for post-discharge outpatient services with DCAM clinic, home care nursing agencies, medical equipment and pharmacy providers. By working closely with social workers, case managers help to ensure that the patient receives optimal social services after hospital discharge. For patients whose treatment plan includes multiple hospital admissions, case managers facilitate the continuity of their course of care. Based on their extensive knowledge and experience in cancer patient care, case managers serve as a great resource to the nursing staff and other members of the patient care team.
The scope and complexity of services provided by nurses in the outpatient hematology/oncology care settings of the University of Chicago Medical Center continues to expand yearly with increased responsibilities and clinical issues. Advanced practice nurses, research nurses, clinical nurses and physician resource nurses in the Infusion Unit assist with the implementation and administration of approximately 400 treatment protocols along with numerous off-protocol regimens. Since most of the treatment regimens support patients in an ambulatory care environment, numerous challenges are presented for the outpatient Hematology/Oncology nurses. Presently, there are 23 disease-specific research/clinical nurses who work closely with the patients to plan their physician visits, tests and treatment schedules. Nineteen research nurses specialize in protocol-driven chemotherapy treatments. Four clinical nurses work with the patients who are not on protocol-driven treatments for their diagnoses. These nurses work along side the oncologist/hematologists during clinic visits providing educational information about the disease and chemotherapy treatments to the patients and their caregivers. They act as liaisons among all members of the healthcare team. The research nurses are involved in many aspects of clinical research including Phase I, Phase II, CALGB intergroup and pharmaceutical studies. Sixteen of the research/clinical nurses and advanced practice staff have received their national certification from the Oncology Nurses Society. Denise Friesema, RN, OCN is the Clinical Research and Operations Administrator for the Hematology/Oncology Section.

Jackie Newsome-Ryan, RN is the manager for the Hem/Onc clinics in 6D of the DCAM. Patients arrive here for their scheduled physician appointments. In 2006, the physicians and nurses in 6D encountered over 28,000 patient visits assigning rooms, giving vaccine and flu injections, managing emergencies and getting patients admitted for hospital stays.

The outpatient Infusion Therapy Unit, 6E of the DCAM, encompasses the chemotherapy, apheresis and triage areas of the Hem/Onc Section. In the chemotherapy area, there are 17 chemotherapy certified physician resource nurses who administer a myriad of on- and off-protocol cancer treatment regimens and/or research drugs to ambulatory Hem/Onc patients. Seven of these nurses have received their national certification in oncology nursing from the Oncology Nurses Society. In the apheresis area, an apheresis nurse works with technologists to collect stem cells from patients and donors for bone marrow transplantation, administers photopheresis treatments, and provides supportive care for the outpatient transplant patients. In the triage area, nurses draw labs, administer non-chemotherapy products, and offer support services. In 2006, the outpatient nurses in the Infusion Therapy Unit provided care to over 100 patients per day, resulting in over 25,000 patient visits, and the administration of over 56,000 doses of drug.

The broad-based oncology knowledge held by our Hem/Onc outpatient nurses provides patients and their families with ongoing education about their disease and drug treatment plans, in addition to the prevention and/or management of the possible side effects. With each visit to the Hem/Onc areas, the patients’ concerns and questions are addressed, along with the assessment of any possible symptoms or problems they may be experiencing. Teaching and providing the outpatient with information helps to lessen the anxieties associated with cancer and its treatments. The outpatient oncology nurses recognize the complexity of each patient’s care and plan appropriate interventions with the physicians and the multidisciplinary cancer care team. The oncology nurses support the patient and family through the roller coaster ride of the initial diagnosis, the treatment process, and future follow-up care.

As outpatient care for the treatment of cancer continues to expand, our goals continue to focus on interventions that will benefit the patient, enhance the quality and outcomes of their lives, and be cost effective. The Outpatient Cancer Nursing Program at the University of Chicago Medical Center is dedicated to the continual development and safe delivery of cancer patient care.
Patient Support Services

Physical & Occupational Therapy
Ostomy Care Services
Nutrition Services
Cancer Resource Center
Oncology Support Programs
National Cancer Survivors Celebration Day
Oncology Social Work Services
Pain Management
Spiritual Care

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Exercise training for patients with cancer is safe and effective in improving physiological and functional status. Therapists treat these patients in acute hospital settings to help the patient achieve functional goals, such as bed mobility, transfers, activities of daily living (ADLs) and ambulation. In outpatient and home care settings, these patients are encouraged to participate in regular exercise programs based on an individual exercise prescription. The exercise training must be individualized for each patient, as the response to exercise will differ between patients depending on their disease progression.

At the University of Chicago Medical Center, physical and occupational therapists work with adult and pediatric oncology patients both in the inpatient and outpatient settings. As part of the interdisciplinary team of patient caregivers, the therapists assess the patient’s functional mobility and his or her ability to safely and independently perform activities of daily living. The physical and occupational therapists then develop an individualized plan of care to meet the patient’s needs and provide direction for discharge planning. These recommendations often include appropriate assistive devices, special equipment, or home modification in order to help maintain safety, and to increase independence in their living environment. The plan of care also includes directives that facilitate the transfer from the hospital to the home or rehabilitation center.

The Clinical Nurse Specialist in Ostomy Care Services provides care to patients with ostomies. The ostomy patient population includes patients with esphagostomies, gastrostomies, ileostomies, colostomies, and urostomies. The rehabilitation of this patient population includes preoperative counseling (preparing for future adjustment, stoma site selection), postoperative instructions (selecting the correct management system, assisting the patient or caregiver to learn management skills), and post-discharge management (problem solving, supportive therapy). Fecal and urinary stomas are generally created as a permanent diversion; patients require assistance to integrate them into their life style. As patients live with a stoma, their needs may change indicating a new management system. The outpatient stoma clinic is available to patients for problem solving and to learn new ostomy management skills.

Gastrostomy tubes can be particularly troubling to patients. When indwelling for a long period of time, leakage can occur making management difficult. The Clinical Nurse Specialist can assist in the correct sizing of the tubes, demonstrate peristomal skin management, and teach patients how to reduce the complications associated with the tubes.

Ostomy care services are essential for the patient with a stoma and are part of the collaborative approach to helping patients achieve the highest quality of life. The services are provided in both the inpatient and outpatient areas and are ongoing as long as the patient requires care.
Many patients with cancer have nutrition problems requiring the involvement of a registered dietitian (RD). Nutrition care may improve a patient's tolerance of cancer therapies and assist in providing an enhanced quality of life. The multitude of side effects that can arise from traditional cancer therapies (e.g. taste changes, nausea and vomiting, decreased appetite) can cause a significant change in the cancer patient's nutritional status. Modifications in diet with close attention to patient food preferences and aversions are essential for improving nutritional status and alleviating some of these difficulties.

At the University of Chicago Medical Center, medical nutrition therapy is an integral part of patient care on the Oncology Service. RDs and dietetic technicians, registered (DTRs) in the Department of Nutrition Services strive to meet the specialized nutritional needs of patients with cancer. DTRs screen patients newly admitted to identify those with current or potential nutrition problems, and monitor tolerance and acceptance of oral feedings and nutritional supplements. RDs assess nutritional status of patients who need additional intervention and develop individualized plans of nutritional care.

Nutritional assessments address an individual's nutritional status, evaluate nutrient requirements, and identify aspects of the patient's diagnosis and treatment that could alter nutritional status. The nutritional care plan might include a modified diet, nutritional supplements, education, or enteral and/or parenteral therapy. RDs and DTRs monitor and adjust, as needed, the nutrition plan of care throughout the patient's stay.

Cari Briley MA, RD, LDN, CDE, the RD for the Hematology/Oncology section, can be reached at 773-702-6800, pager 8073, or ext 53663.

In the Radiation Oncology Clinic, the RD provides nutritional care for cancer patients receiving radiation within the framework of a multidisciplinary team approach. The RD performs nutritional assessments on patients determined to be at nutritional risk based on a nursing nutrition screen, or upon referral from a member of the Rad-Onc team or the patient. A primary focus of care is educating the patient (and their family as appropriate) on a diet formulated to avoid (as much as possible) weight loss, protein wasting and an increased risk of infection. The RD follows the patient during the course of their treatment, and as needed may follow-up by phone or in-person after treatment is completed.

Lisa Zoberman RD, LDN, the Radiation Oncology Clinic RD, can be reached on Tuesdays and Wednesdays at 773-702-6800, pager 8071, or ext 47125.
The UCCRC Cancer Resource Center

In 1997, The University of Chicago Cancer Resource Center opened a unique resource to offer cancer patients and their families and friends empathetic counseling and reliable information. In June 2004, the UCCRC—in partnership with the American Cancer Society (ACS) and UC Hospitals—remodeled the Cancer Resource Center and moved it to the main lobby of the Duchossois Center for Advanced Medicine (DCAM), the outpatient facility for the UC Hospitals (UCH). The new location made the facility more accessible to patients and raised its profile to better ensure that potential users were aware of the availability of its services. All patients who come through the main entrance of the DCAM pass by the Resource Center.

Open Monday through Friday from 9:00 a.m. to 5:00 p.m., the Resource Center is staffed by Patricia Parker, a specially-trained ACS social worker, and Mary Herbert, an administrator-counselor, who help patients and their families:
- Access comprehensive cancer information, including facts about specific types of cancer, treatment information and pain management.
- Learn about innovative cancer research trials and how to participate in them.
- Connect with community resources that supply housekeeping, home healthcare, childcare, medical equipment, and other support services.
- Obtain other support services (e.g. wigs, travel vouchers, discounted lodging, etc.) directly from the Resource Center.
- Join support groups designed to serve their emotional and information needs.
- Learn about grants available to cancer patients to meet unexpected financial needs and to obtain guidance and help in filling them out.

The Center has a public area with an extensive library of books, pamphlets, and brochures. Staff members encourage visitors to take the reading materials they need. The Center also has a conference room for personal, private counseling.

On a regular basis, the Cancer Resource Center staff:
- Visit cancer patients in their rooms.
- Deliver refreshments to the Chemotherapy Infusion Unit to meet with patients who are undergoing treatment.
- Staff information tables in the hospitals and at community events, which includes a standing weekly effort focused on specific cancer sites, early detection and cancer prevention.
- Make presentations at Section meetings and other similar gatherings to inform doctors and nurses about the services available to their cancer patients.
- Prepare, distribute, and post a monthly calendar of events (e.g. smoking cessation classes, support groups meeting, and lectures) for cancer patients and their families.
- Participate in UCCRC and ACS informational and fundraising events.
- Organize and participate in the bi-weekly luncheon for lung cancer patients.
These efforts have successfully increased usage and expedited the delivery of special services to people affected by cancer. In 2006, Resource Center staff provided services to about 3,390 patients, friends, and families, including almost 2,000 individual consultations. That is an average of close to 40 personal consultations per week. This figure does not include the many people who prefer to obtain information from the materials available at the Center and have limited direct contact with staff. As shown in the figure below, the Cancer Resource Center continues to thrive and serve a growing number of patients, their families and friends.
A diagnosis of cancer can be devastating leaving one feeling overwhelmed and isolated. In response, the University of Chicago Medical Center (UCMC) developed “Triumph Over Cancer”, a cancer support and education program developed to meet the psychosocial needs of cancer patients, survivors, and family members. These programs offer various types of support groups to address fears and concerns in a supportive environment. The following programs are available (on-site or by referral) at University of Chicago Medical Center, Weiss Memorial Hospital, Northside, and downtown Chicago:

- Breast Cancer Support Group
- Head and Neck Cancer Support Group
- Prostate Cancer Support Group
- Women's Cancer Support Group
- General Cancer Support Groups
- Children and Parent Support Groups
- Volunteer (One-on-One Peer Support) Program
- Look Good, Feel Better
- Individual, Family and Marital Counseling
- Information and Community Resources

Offered monthly at a downtown location, educational sessions are also available to provide information on alternative eating, healthy cooking classes, coping with cancer and recurrence, stress management, and other related topics. These programs are free and open to anyone diagnosed with cancer.

The University of Chicago Medical Center also participates in the National Cancer Survivors Celebration Day held on the first Sunday in June. Over 900 cancer patients, survivors, and their family members participate in a yearly celebration of life. UCMC provides a light buffet with informational booths and a children’s program. A University of Chicago oncologist provides medical updates; and cancer survivors give messages of hope through their stories. Each year, entertainment is provided by blues band, Lynne Jordan & the Shivers. Over the past seventeen years, many celebrity cancer survivors have spoken about their experience. The speakers have included: Linda Ellerbee, Linda Eikenberry & Michael Tucker, Robert Urich, Steve Allen, Dave Drewecky, Peggy Lipton, Scott Hamilton, Meredith Baxter, Ted Kennedy Jr., Harry Belafonte, Diahann Carroll, and Cokie Roberts. In June 2007, Patti LaBelle will be our keynote speaker.
National Cancer Survivors Day is celebrated every year. In June 2006, cancer survivors, their friends, and families enjoyed the speakers and activities of the University of Chicago’s 15th annual Cancer Survivors Day. Sen. Barack Obama (D-III.) and actress, Meredith Baxter, a breast cancer survivor, led the event held at the Westin Hotel in Chicago. Other guest speakers included Dr. Funmi Olopade, Director of the UC Cancer Risk Clinic, and Jon Duncanson, CBS-2 news anchor.

Mike Schuster, a 15-year survivor of head & neck cancer and volunteer, is pictured with Peggy Williams at National Cancer Survivors Day 2006.

Brenda Huskey, Manager of Cancer Registry, and her family are greeted by Meredith Baxter at the registration table. Brenda celebrates cancer survivorship of her mother, Shirley (stomach, 24 years; breast, 10 years), and her niece, Stephanie (brain, 9 years).

Pictured from left to right, Jackie Doyle and her daughter, Alexandra, Meredith Baxter, and Peggy Williams with her daughter, Samantha, attend the event in support of their family and friends who have survived cancer.
Clinical oncology social workers, as integral members of the interdisciplinary health care team, are involved in the identification, assessment, and treatment of oncology patients and their families who have psychosocial and/or environmental needs related to the impact of diagnosis, treatment, hospitalization, and discharge.

The social worker pays attention to the special nuances of the cancer patient’s diagnosis, namely the depression, whether organic or reactive. Counseling focuses around managing the normal feelings of anxiety, sadness, anger, worry, disbelief, depression, and fear of the unknown. Frequently, the social worker must “rehearse” with patients and families alternative outcomes of the illness (namely death). This involves dealing with anticipatory grief and mourning, and making hospice referrals when appropriate.

Besides providing psychosocial counseling, clinical social workers provide “concrete” services, especially related to discharge planning and continuity of care. These case management services involve referrals for home health care, hospice, homemakers, and transport services.

A major role of the clinical social worker in working with the potential hospice patient is enabling the patient and family to make the emotional move from one of curative care to palliative care. Patients are referred to a variety of hospice programs based upon the geographic location, payor source, and unique psychosocial needs of each case. The majority of patients are referred to VITAS, Horizon Hospice, Hospice of the Calumet Area, Midwest Hospice and Palliative Care, Seasons Hospice, Heartland Hospice, and Northwestern Hospice.

When a loved one dies from cancer, the grief can be overwhelming for the family. To assist families in their mourning, the Hematology/Oncology social workers have created an annual memorial service entitled, “Time of Remembrance”. This service is held on the first Saturday in May on the atrium level of the Duchossois Center for Advanced Medicine, and honors the memory of all cancer patients who had died in the previous year. Two goals of “Time of Remembrance” are to acknowledge the reality of death, human loss and grieving, and to assist families in creating closure with the University of Chicago Medical Center and the health care team.

Briefly stated, the clinical oncology social worker is a supportive listener, advocate, mediator, and expeditor for patients and families who are confronting a diagnosis of cancer with all of its uncertainties.
Pain management is one of the important aspects of the multidisciplinary approach to cancer patient care. Pain can be the result of (1) the rapid multiplication of cancer cells in an organ due to capsular stretch; (2) extrinsic pressure on nerves or surrounding viscera; (3) post surgical discomfort related to cancer therapy; or (4) other causes unrelated to cancer. Pain management is directed to the specific needs of each patient based on the specific cause of pain. Major goals of pain management are to treat pain, help preserve quality of life, and minimize side effects.

Since 1994, the Agency for Health Care Policy and Research (AHCPR) of the United States Department of Health and Human Services has issued special national clinical practice guidelines for the management of cancer pain. These guidelines establish a hierarchy of pain management interventions in which oral and trans-dermal analgesic drugs are the foundations of pharmacologic therapy. These are indicated along with chemotherapy, palliative radiotherapy, and adjuvant analgesic drugs concurrent with physical and psychosocial modalities where appropriate. The guidelines emphasize that the use of analgesics in pain management must always occur in the context of comprehensive assessment and multimodality treatment. World Health Organization (WHO) provides a framework for the rational use of oral medication to effectively treat pain of increasing magnitude. Opioid therapy is considered the main stay approach for patients with moderate or severe pain. The basic principles of analgesic use pertain to children as well as adults.

At the University of Chicago Pain Management Center, oral therapy is always initiated with non-opioids as tablets, capsules, elixirs, and long-acting preparations. Patients are encouraged to take medicines on an around-the-clock basis as opposed to an as needed (PRN) basis. If needed, weak opioid analgesics and adjuvant drugs are used to treat side-effects.

Trans-dermal narcotics are utilized early in patients with bowel obstruction and concerns for poor oral absorption. Judicious use of trans-mucosal opioids can be quite effective in patients with mucositis and stomatitis, and in patients with “event pain”, like dressing change. These patients also benefit from administration of opioids via PCA (patient controlled analgesia).

Pain management staff manages pain in-house, as well as, in the pain clinic in order to maintain continuity of care. Patients are sometimes temporarily hospitalized to optimize medication doses using PCA as a tool. Patients may get continuous intravenous opioids via PCA at home; initiated by the pain management team, this can be further managed by the home care team. PCA adjusts for variations in response to therapy that result from inter-patient differences in pharmacokinetics and pharmacodynamics. It also allows patients considerable control over the experience of pain.

Intra-spinal administration of opioids controls pain following a variety of surgical procedures and in cancer pain. By binding to spinal cord opioid receptors at the level of injection, intra-spinal opioid administration can produce prolonged analgesia at doses that, if applied systemically, will have a shorter effect. Due to direct administration of spinal opioids, one experiences lower incidence of sedation and nausea. Long-term use of intra-spinal opioids has been advocated for cancer pain. Many pain management specialists now believe that selected patients, who are very sensitive to opioid side effects, may benefit from early administration of intra-spinal opioid infusions. These can be infused via fully implanted systems or percutaneous tunneled external catheters. External catheters may have risk of infection, which is decreased by fully implanted systems. Novel agents for intra-spinal administration (e.g. Clonidine) are now available and administered when indicated.

Neuro-ablative procedures are performed when indicated. Adjuvant drugs, like tricyclic antidepressants, antihistamines, ion channel blockers, SSRI’s and SNRI’s benzodiazepines and Clonidine are helpful in neuropathic pain. Also, steroids can ameliorate painful nerve or cord compression from cancer.

The pain management team provides pain consultations on a 24-hour basis. Patients receive care from board certified pain management specialists on an inpatient or outpatient basis. Efforts to bring online information (e.g. pancreatic cancer website) continue. This will ensure that patients can view available information from home and improve communication. The center is always eager to customize care to the patients while minimizing the costs of therapy. The center continues to explore the use of new and innovative treatments in pain management.
As chaplains in the Spiritual Care Department, we are full members of the healthcare team who provide for the emotional, spiritual, and psychological needs of patients, families, and staff. Specifically, through professional training and certification, we assist patients and often times their families to understand more fully life’s events as they relate to their spiritual and emotional well-being. From the patient’s life experience, we offer pastoral counseling, prayer, or reflection.

Collectively, we as chaplains have our story…and valuing the growing spirit in each other, as well as our patients and those we come in contact with, are a part of that story. The mission statement of the University of Chicago Medical Center reminds us that we are providing for the physical, emotional, psychological, and spiritual nature of the sick and the dying, as well as being attentive to the dignity and individuality of all people. Therefore, we employ the core value of compassion as the ‘gluten’ for holistic healing as we care for all of our patients, families, visitors, staff and volunteers.

The way in which each chaplain enables the values of the University of Chicago Medical Center is primarily connected to what is expected of us, such as confidentiality, good listening skills, regular visits, support for individuals and families, linking individuals and families with staff, religious services, sacraments, and prayer. We provide information and guidance regarding medical ethical decisions, and other questions that may surface within the time spent here. Grief ministry/counseling is offered for those who are processing the loss or death of a loved one, as well as pastoral counseling for those who are searching for the meaning of the most often asked question, “Why me?” This question is often on the minds and hearts of my patients on the hematology/oncology units. As a chaplain on the this unit, I am very privileged to journey with patients and their loved ones during their time here at the University of Chicago Medical Center. Some patients are here for a longer stay than others and often times they will have more than a few admissions during the course of their chemotherapy and/or radiation treatments. Because of the frequency and/or longer stays for some patients, I have the opportunity to process, when invited, the contents of their minds and hearts, and in many cases, to offer assistance to patients and families in making good decisions for themselves and their loved ones. My role as chaplain is not to offer a generic answer, but to assist those in question what might be true for them. This is where the patient and loved ones and I work together to help strengthen their spirituality and/or deepen their faith. The intention is to enable patients to use the uncertainty and suffering that comes with life’s difficulties as a means for growing closer to God or whomever they choose to call God. Some of my patients have been agnostic and some have been atheists…still we try to find a connection with a source that can offer a level of comfort especially while waiting for test results, or when receiving results that are not favorable. Also, I have been privileged to celebrate the joy and gratitude often accompanying a successful outcome of treatment or surgical procedure.

We come as ministers, pastoral counselors, Doctors of Ministry, teachers, guides, as well as other such modes of study, to listen and provide what is necessary during difficult times in the lives of those who are ill. We are available to assist those who are working toward regaining balance and harmony in mind, body, and spirit. As we work along side the nurses, social workers, medical staff and other healthcare specialists, we help to provide healing and health to those who come to the University of Chicago Medical Center.
History of the University of Chicago Medical Center

1927 The University of Chicago’s School of Medicine matriculated its first class. In recognition of the Pritzker family’s generous support, the medical school was named the Pritzker School of Medicine in 1968.

1927 On November 1, 1927, the University of Chicago officially opens Billings Hospital, its first hospital uniting research, teaching, and patient care.

1930 The clinical and basic sciences are combined under the new Division of Biological Sciences.

1930 Bobs Roberts Memorial Hospital, an 80-bed facility, opens to pediatric patients.

1931 The Chicago Lying-in Hospital opens with 140 beds for obstetrics and gynecology.

1931 The McElwee-Hicks Hospital, a 100-bed facility dedicated to orthopedics, opens with support from private donors and the Home for Destitute Crippled Children.

1938 The University of Chicago’s School of Medicine expands its teaching and research when it merges with the Chicago Lying-in Hospital.

1961 The construction of Goldblatt Pavilion is completed. This Pavilion connects Billings Hospital with Chicago Lying-in.

1967 Patients of Bobs Roberts Memorial move to the newly built Silvain and Arma Wyler Children’s Hospital.

1977 The Surgery-Brain Research Pavilion opens to provide five floors of research space and 17 new operating rooms.

1983 Bernard A. Mitchell Hospital opens as the primary adult inpatient facility including emergency and intensive care. It began with a 24-bed hematology unit on the sixth floor including eight isolation rooms equipped with air filtration systems.

1996 Duchossois Center for Advanced Medicine (DCAM) opens with state-of-the-art outpatient care. DCAM is a 525,000-square-foot facility, the largest and most technologically advanced building of its kind in the city of Chicago.

2005 University of Chicago opens Comer Children’s Hospital, a seven-story teaching hospital that includes one of the country’s largest and most advanced newborn intensive-care units.

2007 Reflecting the unified leadership of the biological sciences, medical research, education and clinical care, the University of Chicago Hospitals is renamed as the University of Chicago Medical Center.

2008 Jules and Gwen Knapp Center for Biomedical Discovery will open for groundbreaking research and initiatives of the University of Chicago Biological Sciences Division. The facility will house laboratories, office space, and the Cancer Research Center.

2008 In 2008, construction of the New Hospital Pavilion (NHP) will begin. The NHP will work in conjunction with Mitchell Hospital, Comer Children’s Hospital and the Duchossois Center for Advanced Medicine. It is currently designed for 900,000 square feet of public, procedure, and patient space.
1937 Dr. Charles Huggins conducts hormone and cancer research at the University of Chicago.

1939 A 75-year-old man with advanced prostate cancer is the first patient to be treated with orchiectomy, a new approach to cancer therapy developed by Dr. Charles Huggins. Huggins published the first reports of this approach in 1941.

1943 Dr. Leon Jacobson, one of the first to test the effects of nitrogen mustard, marks the beginnings of chemotherapy.

1945 Dr. Leon Jacobson performs the first bone marrow transplant on a mouse.

1950 Seven stories of clinic and laboratory space, in addition to 60 beds open in the Nathan Goldblatt Memorial Hospital for Cancer Research.

1951 Dr. Charles Huggins founded the Ben May Laboratory for Cancer Research, which applied the multidisiplinary approach to the study of experimental medicine and cancer.

1953 The Atomic Energy Commission funds the construction of the Argonne Cancer Research Hospital, a 50-bed facility for the study of radiation therapy for cancer patients.

1966 Dr. Charles Huggins wins the Nobel Prize for cancer research at the University of Chicago.
1972  Dr. Janet Rowley demonstrates that cancer is a genetic disorder.

1973  University of Chicago is named one of the first official cancer centers with NCI-designation.

1992  Dr. Olufunmilayo Olopade, the Walter L. Palmer Distinguished Service Professor, opens the Cancer Risk Clinic.

1993  At age 97, Dr. Walter L. Palmer, the Richard T. Crane Professor Emeritus in Medicine, dies on October 28th at Bernard Mitchell Hospital. He was one of the original eight faculty members of what is now the Pritzker School of Medicine.

1994  Recombinant Advisory Committee of the U.S. National Institutes of Health unanimously approved the gene therapy protocol, submitted by Dr. Nicholas Vogelzang and Vical, Inc., on March 4, 1994. At the University of Chicago, a man with kidney cancer is the first patient in the Chicago-area to be treated with in vivo gene therapy.

1995  Researchers at the University of Chicago Medical Center brings the first computer-assisted system to read mammograms into clinical use.

1997  At age 95, Dr. Charles Huggins dies at his Hyde Park home on January 12th. He was the last survivor of the original eight faculty members of the medical school.

1998  Dr. Janet Rowley, the Blum-Riese Distinguished Service Professor, is awarded the Lasker Award and the National Medal of Science.
1998  Geoffrey Greene, PhD, professor in the Ben May Institute of Cancer Research at the University of Chicago, and David Agard, PhD, Howard Hughes Medical Investigator at the University of California San Francisco, discover the molecular mechanism by which tamoxifen blocks the effects of estrogen, a process that has been shown to prevent breast cancer in some women at high risk.

1998  The National Cancer Institute (NCI) designates the University of Chicago Cancer Research Center (UCCRC) as a “Comprehensive Cancer Center,” in recognition of the center’s excellence in basic, clinical, and prevention and control research.

2000  An internationally recognized expert on lymphoma and chemotherapy development, Dr. John E. Ultmann (1925-2000), Professor of Medicine and former Director of the Cancer Research Center, dies at his Hyde Park home on October 23rd from complications of lymphoma.

2004  Dr. Elwood Jensen, the Charles B. Huggins Distinguished Service Professor Emeritus, won the Lasker Award for Basic Medical Research. His work had significant impact on the treatment and prevention of breast cancer.

2006  The National Cancer Institute awards a Specialized Programs of Research Excellence (SPORE) grant to the University of Chicago Cancer Research Center for a series of projects designed to benefit women at high risk for breast cancer. Principal investigator, Olufunmilayo Olopade, Professor in Hematology/Oncology and Human Genetics, works closely with co-principal investigators Gini Fleming, Professor in Hematology/Oncology and Director of the Medical Oncology Breast Program, and Maryellen Giger, Professor in Radiology, leading a team of 11 basic-clinical and population-science investigators at the University.

2006  According to the 2006 “Best Hospitals” issue of U.S. News & World Report (17 July 2006), the University of Chicago Hospitals is rated as one of the best in the United States and the highest ranked in Illinois. The University of Chicago Hospitals Cancer Program is ranked #1 in the state of Illinois, and #8 across the nation.
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Editor, Coordinator and Contributing Author

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