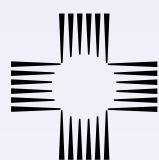


2010 Cancer Program Annual Report of 2009 Facts and Figures



ST. LUKE'S® Cancer Center

The Cancer Center
at St. Luke's
is accredited by:



Commission
on Cancer

*The mission of
the Cancer Center at St. Luke's
is to provide high quality,
personalized cancer care
to each patient
through a full range
of integrated,
state-of-the-art services,
ministering to the whole patient:
body, mind, and spirit.
St. Luke's delivers
Faithful, Loving Care.™*

On the Cover: Sara Sant' Ambrogio, MD, St. Luke's pathologist, reports a patient's cyto-pathology results to other physicians at the St. Luke's Thoracic Tumor Board (held every 2nd Friday of the month at St. Luke's). A radiology CT scan is in the background as part of the multidisciplinary conference discussion.

A MESSAGE FROM THE MEDICAL DIRECTOR

In 2009, the Cancer Center at St. Luke's celebrated the opening of its new St. Luke's Radiation Therapy and CyberKnife® center—an accomplishment toward which we have been working for several years. The year was also filled with several successful outreach events, valuable screenings and early-detection programs, new research clinical trials, new tumor boards, and an ongoing active and involved medical staff. In addition, the year was a time of leadership transition, as St. Luke's Episcopal Hospital enthusiastically welcomed its new CEO, Margaret Van Bree, DrPH.

The Cancer Committee met all the goals it had established for the year. Certainly St. Luke's strength resides in its excellent core of private practice clinicians. Additionally, we continue to benefit from the significant contributions of Baylor College of Medicine and The University of Texas Medical School in Houston physicians, whose medical students and residents participate in St. Luke's comprehensive cancer program.

As noted, the hospital demonstrated its commitment to oncology by completing the construction of a new radiation center. This beautiful, state-of-the-art facility is just a few blocks from the hospital, and offers patients the advantage of easy access and adjacent parking. This center contains three new linear accelerators, representing the most advanced technology available. New radiation services here include image guided radiation (IGRT), stereotactic radiosurgery (SRS), stereotactic body radiation (SBRT), respiratory gating, high-dose remote after-loading radiation (HDR), and a new 16-slice wide-bore CT simulator.

Unique to the radiation facility is the CyberKnife® robotic radiosurgery system. St. Luke's Episcopal Hospital and the Michael E. DeBakey VA Medical Center are the only hospitals in the Houston area that possess this technology. Due to its submillimeter accuracy and ability to track tumors as they move during radiation, the CyberKnife® offers the optimal means of sparing healthy tissue from the effects of radiation. It can treat small, localized tumors in any part of the brain or body, and—in contrast to traditional radiation—CyberKnife® radiation is completed in just one to five treatments. Compelling evidence now shows that 3-4 treatments with CyberKnife® for Stage I lung cancer may be as effective as surgical removal of the cancer. This revolutionary advance will greatly improve the quality of life for lung cancer patients, as well as provide curative therapy for patients who could not tolerate major surgery.

The Cancer Committee and the entire medical staff honored Philip Salem, MD, the first occupant of the Philip A. Salem, MD, Chair in Cancer Research established during 2008-2009 with \$2.5 million from philanthropic donations in his name. Very few hospitals in Houston have endowed chairs in oncology, and we are very proud of this contribution to our research efforts.

Through the guidance of Dr. Salem and the work of our cancer research nurse coordinator, Sopar Seributra, RN, CCRP, we have greatly expanded our research base. We have undertaken joint projects with M.D. Anderson Cancer Center comparing CyberKnife® treatment with standard surgical resection for patients with Stage I non-small cell lung cancer to determine the most effective and efficient approach for the patient. Our expansion includes a new



P-5 National Surgical Adjuvant Breast and Bowel Project chemoprevention protocol using a statin drug for prevention of colon polyps in patients with resected colon cancer. Recent membership in a CCOP (Community Clinical Oncology Program) will provide cancer control and quality research studies for our patients and oncology staff. William Fisher, MD; Luis Camacho, MD; Paul Holoye, MD; Susan Escudier, MD; and Lawrence Foote, MD, continue to unveil cancer research projects suited to their patients. The Saks Fifth Avenue Key to the Cure event in October 2009 provided investigators with funding for more women's cancer research, such as the endometrial cancer studies of Matthew Anderson, MD.

St. Luke's is acquiring a variety of additional technologies to enhance care for cancer patients. The hospital has recently purchased the superDimension® ("I-Logic™ Inreach") system, the most advanced and safest way to diagnose peripheral lung cancers. This device uses electromagnetic bronchoscopic navigation combined with 3D virtual bronchoscopy, to be complemented by endobronchoscopic ultrasound capability. St. Luke's has also recently purchased a state-of-the-art open MRI that possesses much higher field strength than earlier open models, producing much better image quality. This open MRI will improve cancer diagnosis and staging for the large number of our patients with claustrophobic symptoms.

We are pleased that participation in a variety of multidisciplinary tumor boards is increasing and new targeted cancer sites are gaining attention. We have added a Hematological Malignancies Tumor Board and started the Thoracic Tumor Board in early 2010. We are proud of our continued close association with Kelsey-Seybold Clinic and note its excellent monthly tumor board at the Main Campus. A new Neuroscience Tumor Board moderated by Daniel Yoshor, MD, neurological surgeon and Chief of Neurosurgery, and by Eric Bernicker, MD, began in the fall of 2010.

Special thanks go to Eric Bernicker, MD, for his leadership in our quality improvement committee (The Collaborative Practice Team) and Hematology/Oncology Section. Thanks also go to Gilchrist Jackson, MD, the Physician Liaison to the American College of Surgeons Commission on Cancer.

Our thanks go to our partners at CanCare, Saks Fifth Avenue, the Breast Cancer Network of Strength, the Pink Ribbons Projects, Susan G. Komen for the Cure, the Leukemia and Lymphoma Society, and the American Cancer Society for helping to improve life for cancer patients at St. Luke's.

Our patients also derive great benefit from our strong departments of pathology, diagnostic radiology, nuclear medicine and tumor registry. With our strong commitment to excellence, we strive to continue to provide the best cancer care for those in the Houston area and throughout the international community.

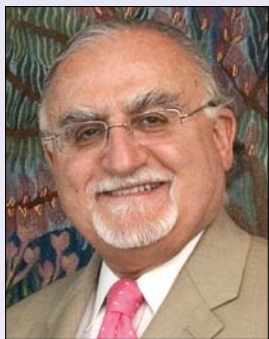
L. Steven Carpenter, MD

*Interim Medical Director, Cancer Center at St. Luke's
Chairman, Cancer Committee*

- **St. Luke’s Radiation Therapy and CyberKnife® Facility Opened August 20, 2009:** Radiation therapy services expanded at the new facility housing the existing IMRT linear system, the new Trilogy IGRT linear system, and the CyberKnife® stereotactic radiation therapy system. Promotional announcement about the new facility appeared in the Continental Airlines magazine in the spring of 2009.

- **CoC Outstanding Achievement Award – Cancer Program:** The Commission on Cancer awarded the Cancer Center at St. Luke’s the Commission’s Outstanding Achievement Award in the spring of 2009, following a triennial accreditation survey held November 2008. The Cancer Center achieved the maximum of nine commendations with no deficiencies out of the 36 standards evaluated during the accreditation survey by the Commission on Cancer of American College of Surgeons.

- **The Philip A. Salem, MD, Chair in Cancer Research at St. Luke’s Established:** St. Luke’s Episcopal Hospital honored Philip A. Salem, MD, with the Philip A. Salem, MD, Chair



Philip A. Salem, MD, Director, Cancer Research, St. Luke’s Episcopal Hospital, and Philip A. Salem Chair in Cancer Research

in Cancer Research at St. Luke’s. The Chair was established with \$2.5 million in philanthropic gifts. Dr. Salem presently holds the Chair and upon his retirement, he will assist

St. Luke’s in determining his successor. Dr. Salem has been the Director of Cancer Research at the Cancer Center at St. Luke’s since 1992. He was responsible for the hospital actively participating in the Texas Community Oncology Network, a cooperative research program with M.D. Anderson Cancer Center. The first and second National Surgical Adjuvant Breast and Bowel Project historic breast cancer

prevention trials were made available to St. Luke’s patients from 1995 to 2006 through Dr. Salem’s guidance and leadership. He received an American Cancer Society grant that he used to support investigator translational research on cancer, as well as provide salary for a full-time cancer research nurse coordinator.

- **Cancer Research Accrual Increased:** The Cancer Center at St. Luke’s totaled 796 participants in research trials in 2009. Major accruals are attributed to Matthew Anderson, MD; Brian Miles, MD; Thomas Wheeler, MD; and William Fisher, MD, who participate in tissue banks and several NCI-sponsored clinical trials. Tissue banking accounts for 632 participants and cancer clinical trials account for 164 patient participants in the following:

- SPORE Prostate Cancer Tissue Bank–102 participants
- daVinci Robotic Prostate Cancer Surgery Research–79 participants
- Gyn Oncology Research–73 participants in clinical trials, 4 in therapeutic trials and 470 women in translational ovarian or uterine tissue bank
- Pancreatic Cancer Research–6 patients in clinical trials and 60 patients entered in pancreatic cancer tissue bank
- CyberKnife® ReCKord Registry Study–accrual of 2 participants in 2009

- **Cancer Research Nurse Coordinator:** The Cancer Center at St. Luke’s now has a full-time research nurse who is responsible for coordinating the clinical trials for cancer research and building the cancer research base.

- **Cancer Screenings and Early Detection:** At the May 2009 citywide skin cancer screening, St. Luke’s nurses volunteered and assisted dermatologists in screening 30 participants at the Cancer Center at St. Luke’s. A breast cancer screening program is under way for underserved and uninsured women. The Cancer Center at St. Luke’s joined with the Breast Cancer Network of Strength in Harris County, the Pink

Ribbons Project and St. Luke’s Women’s Center/Mammography to provide free bilateral mammograms for 30 women in need. No breast cancer was detected in that group screening. Three women were sent for follow-up ultrasound, all of whose results were negative.

- **Tumor Boards and Cancer Conferences:** Some 115 tumor boards and cancer conferences were held during 2009. All the tumor boards sponsored by the Cancer Center at St. Luke’s are approved for one hour of CME Category I credit. During the year, St. Luke’s medical staff members have presented 464 cancer cases in the multidisciplinary forum with more than 713 physicians attending the conferences. Physicians presented 21 percent of the total analytic caseload of 2,129 cases at tumor boards.

- **Oncology Lecture Series 2009 at St. Luke’s Medicine Grand Rounds:** The Cancer Committee initiated a Cancer Awareness Lecture Series for Professional Education. St. Luke’s specialists presented programs at the Internal Medicine Grand Rounds, moderated by Barry Zeluff, MD. In September, Brian Miles, MD, presented a lecture on prostate cancer; in October, Hsin Lu, MD, and Susan Escudier, MD, presented a lecture on new methods of targeting and treating breast cancer; in November, Matthew Anderson, MD, presented a lecture on ovarian cancer; and in December, Dr. Carpenter presented a radiation oncology and CyberKnife® lecture. More than 100 physicians, residents and nurses attended each grand rounds held in the Denton A. Cooley Auditorium, St. Luke’s Episcopal Hospital.

- **Oncology Collaborative Practice Team Quality Initiatives in 2009, Achieved and Ongoing:** The Oncology CPT continued monitoring and enhancing quality initiatives within the cancer program. Operational, policy-related and process-related subject matter about the quality of cancer diagnosis, treatment and follow-up were discussed and solutions debated and resolved. See list of initiatives on page 4 of this report.

- Survival Study of Endometrioid Cancer Published in 2009 Annual Report:** The Cancer Center at St. Luke's published a ten-year uterine cancer survival study comparing St. Luke's Episcopal Hospital's statistics to comparable Cancer Information Reference File (CIRF) national statistics. Matthew Anderson, MD, Baylor College of Medicine gynecologic oncologist, studied and reported the age at diagnosis, stage at diagnosis, and survival by AJCC stage for corpus/endometrium cancer 1998-2008. St. Luke's statistics on uterine cancer and national statistics reflected similar outcomes. St. Luke's Cancer Registry identified 110 cases of uterine cancer in 2008. Over the 10-year period 1998-2008, St. Luke's physicians have diagnosed and treated 691 women with uterine cancer. Physicians and staff at St. Luke's strive to improve survival rates through basic and clinical research, early diagnosis, minimally invasive surgery, advanced therapies and application of discoveries made at the clinical research level. At St. Luke's, a Gynecologic Oncology Tumor Board is held each Tuesday from 8:00-9:00 a.m. to discuss diagnoses, treatments and management plans of action. The goal is to serve a wide spectrum of women and to contribute to local and worldwide advances being made against uterine cancer.
- Community Outreach Events:** Successful outreach events that engaged St. Luke's employees, volunteers, cancer survivors, and participants included the Susan G. Komen Race for the Cure, Relay for Life, Tour de Pink/Pink Ribbons Project, CanCare Survivor's Day Luncheon, Saks Fifth Avenue Key to the Cure, and several community health fairs. Lawrence Foote, MD, was a speaker at the Leukemia and Lymphoma Society's Cancer Patient and Caregiver Conference held March 6, 2009. All these events contribute to the early detection and prevention of cancer.

- Patient Visitations:** The Oncology auxiliary volunteers and CanCare volunteers, chaired by Mr. Kurt Berk, continue to make patient rounds weekly. The oncology volunteers visit inpatients and outpatients to provide assistance and support.
- Studer Group Participation:** Oncology medical and non-medical staff participated in the Studer Group Faithful, Loving Care™ throughout 2009 with quality initiatives from executive leaders, nursing staff, and the cancer program.

Patients at St. Luke's benefit from a full spectrum of diagnostic technologies and treatment modalities that are continuously enhanced.

- Radiation Therapy—IMRT (Intensity Modulated Radiation Therapy) and IGRT (Image Guided Radiation Therapy) with Trilogy®
- CyberKnife® Stereotactic Radiosurgery System
- superDimension® I-Logic™ System
- PET/CT Technology (fused metabolic images and anatomic images)
- Siemens CT-Scanners—4-, 16-, and 64-Slice; GE 8- and 16-Slice in Radiation Oncology
- Siemens High Field Strength 3 Tesla MRI Scanner
- Gene Therapy Research
- Endoscopic Ultrasound (EUS)
- DaVinci Robotic Surgery
- Digital Mammography
- Breast MRI following ACoS Guidelines
- Radiofrequency Ablation
- State-of-the-art operating room suites and dedicated inpatient surgical units to consolidate specialized care for breast, colorectal, lung, gastrointestinal, and other surgery patients
- Sentinel lymph node mapping for breast surgery and for melanoma
- Stereotactic biopsy and fine-needle biopsy
- Magnetic Resonance Imaging (MRI)
- Laparoscopic surgical procedures
- Mastectomy with immediate reconstructive surgery
- Breast conservation surgery
- Targeted cancer therapies
- Chemotherapy, biochemotherapy, hormone therapy, chemoprevention

The Cancer Committee at St. Luke's Episcopal Hospital is responsible for upholding *current* cancer program standards as set forth by the Commission on Cancer of the American College of Surgeons in the *Commission on Cancer Standards 2009, Revised Edition*.

The committee provides programmatic leadership in setting goals, as well as planning, initiating, implementing, evaluating, and improving all cancer-related activities at St. Luke's Episcopal Hospital. The committee enhances patient care through quality management initiatives; consultative prospective and educational cancer conferences covering major cancer sites; an active supportive care system for patients, families and staff; accessibility of clinical research; and accurate and timely accession, staging and follow-up of cancer patient data in the Cancer Registry. The committee consists of board-certified physician specialists and non-physician hospital staff representing hospital administration, quality assurance, social services, nursing, palliative care, pharmacy, cancer registry, and other cancer-related fields. The Interim Medical Director serving as Cancer Committee Chairman ensures that the committee includes physicians representing the major cancer sites treated at St. Luke's.

MATTHEW ANDERSON, MD, GYNECOLOGY ONCOLOGY

MICHAEL APPEL, MD, GENERAL SURGERY

KELTY BAKER, MD, HEMATOLOGY

OMAR BARAKAT, MD, GENERAL SURGERY, LIVER

ERIC BERNICKER, MD, CO-CHAIRMAN, HEMATOLOGY/MEDICAL ONCOLOGY

CYNTHIA BLIZZARD, MD, PALLIATIVE CARE

LUIS CAMACHO, MD, HEMATOLOGY/MEDICAL ONCOLOGY

L. STEVEN CARPENTER, MD, CHAIRMAN, RADIATION ONCOLOGY

RAMESH DHEKNE, MD, NUCLEAR MEDICINE

SUSAN ESCUDIER, MD, HEMATOLOGY/MEDICAL ONCOLOGY

WILLIAM FISHER, MD, GENERAL SURGERY, PANCREAS

LAWRENCE E. FOOTE, MD, HEMATOLOGY/MEDICAL ONCOLOGY

PAUL Y. HOLOYE, MD, HEMATOLOGY/MEDICAL ONCOLOGY

PHAN HUYNH, MD, RADIOLOGY

GILCHRIST JACKSON, MD, GENERAL SURGERY

PHILIP SALEM, MD, CO-CHAIRMAN, MEDICAL ONCOLOGY

LAURA SULAK, MD, PATHOLOGY

VIVEK YAGNIK, MD, RADIOLOGY

MARK LAROCCO, PHD, VICE PRESIDENT, PATIENT SAFETY OFFICER

CAROL AHLSCHLAGER, CTR, SUPERVISOR, CANCER REGISTRY

VALERIE BARON, RN, DIRECTOR, OUTPATIENT SERVICES

KURT BERK, AUXILIARY VOLUNTEER

CONNIE BOYD, RN, MSC, NEUROSCIENCE/ONCOLOGY

MICHELLE CASSITY, CTR, CANCER REGISTRY

JAMES COMEAUX, RPH, PHARMACY

PATRICK DENISON, RN, OCN, RADIATION NURSE

LUPE FUNK, CANCER REGISTRY

ALICIA BERGERON/LAURA WOOD, AMERICAN CANCER SOCIETY

ROSALYN JONES-WATERS, RN, OCN, ONCOLOGY QA/NURSING

NATASHA MCCLURE, RN, MBA, NURSE MANAGER, ONCOLOGY INPT

MARILYN NICKLEBERRY, RN, ONCOLOGY CASE MANAGER

DIANA RUFFIN, LMSW-ACP, PALLIATIVE CARE

SOPAR SERIBUTRA, RN, CCRP, RESEARCH NURSE

ELIZABETH WALKER, BA, CCRP, COORDINATOR, CANCER PROGRAM

CHAVA WHITE, LMSW-ACP, SOCIAL SERVICE

The Oncology Collaborative Practice Team continues as the quality assurance subcommittee of the Cancer Committee. The committee is chaired by Eric Bernicker, MD, who is also the Quality Improvement Coordinator appointed by the Cancer Committee. Members of the Oncology Collaborative Practice Team include physicians, nurses, administrators, pharmacist, social worker, and ancillary-care personnel who enhance all aspects of cancer patient care through quality initiatives in the hospital and the outpatient facilities. Quality care initiatives in 2009 included the following:

- Pharmacy offered alternatives for chemotherapeutic drugs in short supply, such as Mitomycin, Cisplatin and Leucovorin.
- Orders for non-formulary anti-neoplastic agents must be approved by the Oncology Section chief and his appointees.
- All anti-neoplastic agents must be administered by oncology-certified nurses or the hospital's IV team, predominantly on the oncology inpatient care unit or at the oncology outpatient infusion center.
- The committee recommended and approved that a 23-hour rule would be an automatic default for observation patients on the oncology inpatient care unit. The oncology case manager is responsible for identifying patients in observation and either admitting them in hour 23 or contacting the physician for discharge orders.
- The committee closely monitored HEO and PACS software as it was installed on all the wall computers on the oncology inpatient care unit. The committee provided feedback from users.
- The committee supported a plan that Information Technology staff will respond quickly if physicians have difficulties online with computer-related issues or require training at any time.
- The committee identified patient fall prevention as a major priority with

the oncology nursing staff, who are responsible for being proactive to prevent falls and for measuring outcomes.

- The committee developed and approved new physician order forms for rasburicase and bleomycin.
- The committee endorsed a new LEAN initiative on the oncology inpatient care unit to track and minimize the transfer time for oncology patients from the Emergency Department to the Oncology Unit. The time has decreased from 91 minutes to 50 minutes—with a goal of 45 minutes.



Dolores Black, RN, OCN, uses the HEO electronic charting system on St. Luke's oncology inpatient care unit.



Oncology nursing rounds provide quality care to patients. Left to right: Natasha McClure, RN, MBA, nurse manager; Betty Randall, RN; Estella Pezzat, RN; Kristen Thompson, RN; Jennifer Hoffman, RN; and Panetta Grice, PCA.

St. Luke's Cancer Registry is a case-specific database of detailed information about each patient's type of cancer and is a central component of St. Luke's Cancer Program. Monitoring survival statistics and disease recurrence improves the standard of care for cancer patients by pointing out areas of concern that need attention, as well as providing data to launch new research studies and clinical trials. The Cancer Registry also provides data to research investigators to enhance the planning of clinical research trials.

The data contribute to treatment planning, staging and continuity of care for patients. The most current data reveal that in 2009, the registry abstracted 2,226 cancer cases and tracked former patients—maintaining a 95% follow-up rate. Laura Sulak, MD, pathologist, served as the Cancer Committee Coordinator of Quality Control of the Cancer Registry. In 2009,



Laura Sulak, MD, St. Luke's pathologist and Cancer Committee Coordinator of Quality Control of the Cancer Registry

Dr. Sulak reviewed a minimum of 10% of all analytical cases and ensured accuracy of the data reporting. St. Luke's Cancer Registry is 100% compliant in reporting statistical data to the National Cancer Data Base and to the Texas Department of Health

St. Luke's database has grown to 36,228 diagnosed cases since the reference date in 1992.

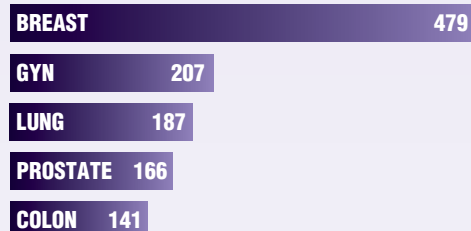
The cancer registrars at St. Luke's remain actively involved in the Texas Tumor Registrars Association and participate in the National Cancer Registrars Association meetings. The Cancer Registry's vital role at the Cancer Center at St. Luke's also includes active involvement in and organization of twelve St. Luke's tumor boards and cancer conferences per month. All Cancer Registry operations meet the current Standards of the Commission on Cancer.

2009 CANCER SITE REPORT

SITE	CLASS OF CASE			SEX		AJCC STAGE AT DIAGNOSIS						
	A	N/A	Reportable	M	F	0	I	II	III	IV	Unkn	NA
All Sites (2226)	1944	163	119	852	1255	178	510	371	251	203	225	206
Oral Cavity/Pharynx (23)	22	1	1	14	9	0	7	2	1	4	8	0
Digestive System (423)	386	37	17	223	200	6	84	99	69	85	28	15
Esophagus (7)	6	1	0	4	3	0	4	2	0	0	0	0
Stomach (30)	27	3	1	12	18	1	10	0	1	13	1	1
Small Intestine (12)	11	1	0	4	8	0	0	3	1	2	0	5
Colon (141)	130	11	6	77	64	3	21	32	39	24	11	0
Rectum (29)	26	3	4	19	10	0	11	6	1	4	2	2
Liver (60)	52	8	0	40	20	0	18	13	10	8	3	0
Pancreas (87)	83	4	2	48	39	1	7	33	7	26	9	0
Other Digestive (57)	51	6	4	19	38	1	13	10	10	8	2	7
Respiratory System (199)	184	15	6	108	91	2	46	7	40	41	43	5
Lung (187)	173	14	6	98	89	1	43	7	40	40	37	5
Larynx/Other Resp (12)	11	1	0	10	2	1	3	0	0	1	6	0
Soft Tissue (10)	9	1	1	4	6	0	1	1	1	1	5	0
Skin-Melanoma (27)	22	5	1	17	10	1	8	1	3	3	5	1
Breast (479)	454	25	26	6	473	132	125	95	27	6	69	0
Gynecology (207)	193	14	14	0	207	10	77	16	50	12	18	10
Cervix Uteri (31)	28	3	3	0	31	3	12	1	8	2	2	0
Corpus Uteri (115)	108	7	3	0	115	0	59	9	22	3	8	7
Ovary (40)	37	3	4	0	40	0	4	4	15	7	7	0
Other Gyn (21)	20	1	4	0	21	7	2	2	5	0	1	3
Male Genital (183)	169	14	16	183	0	0	8	117	22	10	12	0
Prostate (166)	154	12	16	166	0	0	0	117	19	10	8	0
Other Male/Genital (17)	15	2	0	17	0	0	8	0	3	0	4	0
Urinary (185)	175	10	6	137	48	27	81	17	22	15	10	3
Bladder (81)	73	8	3	68	13	24	22	9	4	8	5	1
Kidney (95)	93	2	2	64	31	0	58	5	17	7	5	1
Other Urin (9)	9	0	1	5	4	3	1	3	1	0	0	1
Brain & CNS (68)	63	5	4	27	41	0	0	0	0	0	0	63
Thyroid (89)	80	9	1	19	70	0	53	2	9	8	8	0
Lymphatic System (80) Hodgkin's/Non-Hodgkin's	73	7	8	43	37	0	18	14	7	17	17	0
Blood/Bone Marrow (40)	29	11	8	18	22	0	0	0	0	0	0	29
Unknown/Other (94)	85	9	10	53	41	0	2	0	0	1	2	80

References: American Cancer Society, Cancer Facts & Figures – 2009
 Analytic (A): diagnosed/treated at St. Luke's
 Non-analytic (N/A): diagnosed elsewhere

FIVE MAJOR SITES OF CANCER INCIDENCE AT ST. LUKE'S EPISCOPAL HOSPITAL IN 2009



PREVENTION AND EARLY DETECTION

SKIN CANCER SCREENING

As part of the annual Citywide Skin Cancer Screening in Houston on May 16, 2009, the Cancer Center at St. Luke's sponsored free skin cancer screenings. The Cancer Center, in cooperation with the Houston Dermatological Society, the American Academy of Dermatology, and the American Cancer Society, works each year to provide the annual program. St. Luke's board-certified dermatologists screened 30 participants with the assistance of St. Luke's registered nurses, who volunteered their time. As a result of the screenings, 18 patients were referred for follow-up exams; 8 patients were referred for biopsy; and one patient was referred for suspicion of a squamous cell carcinoma.

BREAST CANCER SCREENING

The Cancer Center at St. Luke's provided free breast cancer screening to uninsured and underserved minority women in Houston. St. Luke's Women's Center screened 30 women over the period of April 12, 14 and 21. As a result, three women were sent for follow-up at The Rose Clinic for non-invasive testing. No cancer was found. The Breast Cancer Network of Strength in Houston assisted in identifying women in need. Radiologists at St. Luke's Women Center provided digital mammography to the participants. The Pink Ribbons Project provided transportation for the participants to the screenings. The Cancer Center at St. Luke's provided funding for radiology interpretation and digital mammography services.

BREAK FREE SMOKING CESSATION PROGRAM

The Break Free smoking cessation program, in coordination with St. Luke's cardiology outpatient service, provided employees and the general public with access to smoking cessation education through the Internet. The program is ongoing throughout the year.

PUBLIC EDUCATION

LEUKEMIA AND LYMPHOMA SOCIETY'S CANCER PATIENT AND CAREGIVER CONFERENCE

Lawrence E. Foote, MD, a St. Luke's hematologist and medical oncologist, spoke at the Leukemia and Lymphoma Society's Cancer Patient and Caregiver Conference held March 6, 2009.

AMERICAN CANCER SOCIETY "LOOK GOOD, FEEL BETTER"

The Cancer Center at St. Luke's and St. Luke's Diagnostic and Treatment Center—Kirby Glen hosted the American Cancer Society's "Look Good, Feel Better" program during 2009. The program provides grooming and beauty tips to female cancer patients and helps them improve their looks and feel positive about their appearance during chemotherapy and radiation therapy treatments.

AMERICAN CANCER SOCIETY GREAT AMERICAN SMOKEOUT

The Cancer Center, in collaboration with the American Cancer Society, sponsored a Great American Smokeout exhibit with educational materials on smoking cessation in November 2009. The awareness event, held on St. Luke's Skybridge, offered Break Free, a smoking cessation program that can be accessed both through St. Luke's website and through cardiology outpatient services.

ST. LUKE'S PALLIATIVE CARE MEMORIAL SERVICE

A memorial service was held on October 24, 2009, at 2:00 p.m. in the St. Luke's Denton A. Cooley Auditorium. The program provides a means for families and friends to celebrate and honor the lives of their family members or friends who have recently died. The Palliative Care Service sponsors the event.

CANCER CENTER AT ST. LUKE'S WEBSITE

The Cancer Center at St. Luke's website is being updated and revised with a new format. The Cancer Center's pages include digital copies of the annual reports, beginning with the 2009 annual report of 2008 facts and figures. The website will follow through with information on treatment and diagnostic technologies available at St. Luke's, as well as a list of available cancer research projects.

ST. LUKE'S AUXILIARY ONCOLOGY VOLUNTEERS

St. Luke's Auxiliary and Service Line Chairman, Kurt Berk, continues comfort visits to oncology inpatients and outpatients in St. Luke's Episcopal Hospital and St. Luke's Cancer Center at the Kirby Glen outpatient location. Mr. Berk has been volunteering and visiting cancer patients for 15 years. Helen Weber of St. Luke's Auxiliary brings the Comfort Cart to the oncology inpatient care unit and delivers complimentary

sundries and supplies to patients and their families. Other Auxiliary volunteers who visit cancer patients at St. Luke's include Neal Valk, Francisca Nicolson, and Bill McCall (CanCare). In both the inpatient and outpatient care areas, the oncology volunteers distribute guardian angel pins, heart pillows, prayer blankets, sleep caps, turbans, and other comforts.

CANCER PATIENT SUPPORT NETWORK

Pastoral Care chaplains visit patients on the inpatient and outpatient care units to offer comfort. Organizations such as the Leukemia & Lymphoma Society, Sickle Cell Association of the Gulf Coast, Cancer Counseling, the American Cancer Society, and the National Cancer Institute provide literature and a continuum of support and services for patients and their families discharged from the hospital.

ONCOLOGY PATIENT EDUCATION LIBRARIES AND RESOURCE CENTERS

Patient education libraries are located on the oncology inpatient care unit and at the oncology outpatient infusion center and radiation therapy center. The libraries offer patients information from the National Cancer Institute, the American Cancer Society, and other organizations. Oncology nurses and the ancillary staff also provide individualized cancer education to patients and family members. Computers are available for patients to use for web searches of relevant information.

THE FIFTH ANNUAL BREAST HEALTH SUMMIT

The event took place on October 29 and 30, 2009, sponsored in part by St. Luke's Episcopal Health Charities, in cooperation with The Rose Foundation, the Houston Affiliate of the Susan G. Komen for the Cure, and several other hospitals and charitable organizations. The mission of the Breast Health Collaborative of Texas is to unite breast health advocates and providers in order to educate, advocate, and leverage resources in Texas for women at high risk for breast cancer or those diagnosed with breast cancer.

CANCER AWARENESS

SAKS FIFTH AVENUE KEY TO THE CURE

The Saks Fifth Avenue Key to the Cure Kick-Off party was held October 15, 2009, at the Saks Fifth Avenue's location in the Galleria area of Houston. Proceeds from the

party and a percentage of total sales from the following weekend were donated to the Cancer Center at St. Luke's. All funds are used for women's cancer research at St. Luke's Episcopal Hospital.



Enjoying the Saks Fifth Avenue Key to the Cure: Susan Kiley, vice president at St. Luke's (left), and Margaret Van Bree, DrPH, CEO, St. Luke's Episcopal Hospital and senior vice president, St. Luke's Episcopal Health System.



At the Saks Fifth Avenue Key to the Cure, left to right: Valerie Baron, St. Luke's director of outpatient services; Priscilla Anderson, RPh, St. Luke's outpatient pharmacist; and Shalonda Ervin, RN, OCN, St. Luke's Cancer Center outpatient nurse manager.

SUSAN G. KOMEN RACE FOR THE CURE 2009 –HOUSTON

The Cancer Center at St. Luke's coordinated and supplied back packs with medical supplies for the first aid medical team of 14 St. Luke's registered nurses. The nurses provided first aid along the entire race course at the Race for the Cure held October 3, 2009, in downtown Houston. More than 30,000 people participated in this breast cancer awareness event. As a Gold sponsor for the event, St. Luke's Episcopal Hospital distributed race towels at the St. Luke's booth. Proceeds from the event are used to award



Participating in the Komen Race for the Cure: Mark LaRocco, PhD, vice president at St. Luke's and wife, Jan LaRocco, a breast cancer survivor.

grants for breast cancer research and community breast cancer screening projects in the Houston area.

CANCARE SURVIVOR'S DAY LUNCHEON

A group of nurses, cancer registrars and administrators attended the annual CanCare Survivor's Day Luncheon at the Westin Galleria Hotel in late May 2009. Actress Lynn Redgrave, breast cancer survivor, was the inspirational keynote speaker at the luncheon.

ACS RELAY FOR LIFE

The Cancer Center supported the Texas Medical Center ACS Relay for Life in January. Nurses stationed on St. Luke's Skybridge promoted the event and enrolled participants. Rosalyn Jones-Waters, BSN, RN, OCN, led a team of nurses from St. Luke's that participated in the American Cancer Society event held at Rice University April 17-18.

TEXAS MONTHLY MAGAZINE AND WEBSITE –CANCER CONTROL WEEK

A promotion for skin, breast, prostate and colon cancer screening appeared in the April 2009 copy of *Texas Monthly* and on its website. The ad also promoted the Cancer Center's free skin-cancer screening for the public on May 16, 2009.

COLON CANCER AWARENESS

On St. Luke's intranet ("The Source"), the Cancer Center at St. Luke's published an informative article promoting colon cancer screening. It was distributed to about 4,000 employees.

- AMERICAN COLLEGE OF SURGEONS COMMISSION ON CANCER ACCREDITATION: 2008-2011 AS A TEACHING HOSPITAL CANCER PROGRAM
- RECIPIENT OF THE COMMISSION ON CANCER OUTSTANDING ACHIEVEMENT AWARD 2008 SURVEY
- MULTIDISCIPLINARY CANCER COMMITTEE
- MEDICAL DIRECTOR OF THE CANCER CENTER AT ST. LUKE'S
- CANCER REGISTRY WITH AUTOMATED DATA MANAGEMENT AND PATIENT FOLLOW-UP, AND NATIONAL CANCER DATA BASE AND STATE OF TEXAS CANCER REGISTRY PARTICIPANT
- PATIENT CARE EVALUATION AND QUALITY CARE OUTCOMES STUDIES
- CANCER PREVENTION, EDUCATION, AND SCREENING PROGRAMS
- ONCOLOGY PATIENT EDUCATION LIBRARIES AND RESOURCE CENTERS LOCATED ON THE ONCOLOGY INPATIENT CARE UNIT AT ST. LUKE'S EPISCOPAL HOSPITAL AND AT THE CANCER CENTER AT ST. LUKE'S OUTPATIENT SERVICES LOCATION
- TWELVE MULTIDISCIPLINARY CANCER CONFERENCES AND TUMOR BOARDS EACH MONTH, DESIGNATED BY ST. LUKE'S EPISCOPAL HOSPITAL FOR 1 HOUR OF AMA PRA CATEGORY 1 CREDIT™ THROUGH THE TEXAS MEDICAL ASSOCIATION
- PROFESSIONAL EDUCATION OPPORTUNITIES FOR THE MEDICAL AND NURSING STAFFS
- CLINICAL TRIALS AND CANCER RESEARCH PROGRAM AFFILIATED WITH NSABP, SPORE, INDUSTRY AND OTHERS
- COMMUNITY OUTREACH PROGRAMS: EDUCATION, EARLY DETECTION AND SCREENING
- ONCOLOGY SERVICE AUXILIARY VOLUNTEERS FOR PATIENT VISITATIONS
- FULL RANGE OF SERVICES FOR DIAGNOSIS AND TREATMENT OF CANCER
- BOARD-CERTIFIED PHYSICIANS AND ONCOLOGY SPECIALISTS
- ONCOLOGY CERTIFIED NURSING STAFF/MAGNET NURSING AWARD
- DEDICATED 34-BED ONCOLOGY INPATIENT CARE UNIT AND 13-STATION CANCER CENTER AT ST. LUKE'S OUTPATIENT ONCOLOGY INFUSION CENTER
- THREE-VAULT ST. LUKE'S RADIATION THERAPY AND CYBERKNIFE® CENTER
- SERVICE LINE MANAGEMENT FOR CONTINUUM OF CARE
- ST. LUKE'S RESIDENCY PROGRAM AND ACADEMIC AFFILIATIONS WITH BAYLOR COLLEGE OF MEDICINE AND THE UNIVERSITY OF TEXAS MEDICAL SCHOOL AT HOUSTON
- PALLIATIVE CARE SERVICE
- REHABILITATION AND PHYSICAL THERAPY
- PAIN MANAGEMENT NURSE
- DIETITIAN FOR ONCOLOGY INPATIENTS AND OUTPATIENTS
- ONCOLOGY SOCIAL SERVICE PROFESSIONAL
- MAMMOGRAPHY PROGRAM ACCREDITED BY THE AMERICAN COLLEGE OF RADIOLOGY AND THE STATE OF TEXAS
- PATHOLOGY DEPARTMENT AND LABORATORY ACCREDITED BY THE COLLEGE OF AMERICAN PATHOLOGISTS (CAP) AND DEPARTMENT OF HEALTH AND HUMAN SERVICES CLIA LABORATORY CERTIFICATION
- ST. LUKE'S EPISCOPAL HOSPITAL ACCREDITED BY THE JOINT COMMISSION FOR ACCREDITATION OF HEALTHCARE ORGANIZATIONS (JCAHO)
- ST. LUKE'S EPISCOPAL HOSPITAL ACCREDITED BY DNV (DET NORSKE VERITAS)

by Eric Bernicker, MD, and John Goss, MD

Because St. Luke's is able to bring together specialists across a wide spectrum of disciplines, cancer-specific survival here is superior to the national average.

OVERVIEW

In the United States, approximately 24,000 new cases of liver cancer occur annually, of which 80% are hepatocellular carcinoma (HCC). Worldwide, HCC is the fifth most common malignancy, with approximately a million new cases diagnosed annually.

Death rates for liver cancer have continually increased in the U.S. since the early 1980s, and about 19,000 liver cancer deaths are expected in 2010. Both the rate of incidence and the rate of mortality are more than twice as high in men as in women.

Although viral hepatitis (B and C) account for less than half of liver cancer deaths in the U.S., they constitute the major risk factor for HCC worldwide. In the U.S., rates of HCC are higher in immigrants from such areas as China, Southeast Asia, and sub-Saharan Africa. The major risk factors in the U.S.—in addition to viral hepatitis—are alcoholic cirrhosis, hemochromatosis, and nonalcoholic steatohepatitis.

Any patient with cirrhosis is at increased risk of developing HCC; in fact, cirrhosis is present in 70-90% of patients with HCC. In patients with cirrhosis, the annual conversion rate to HCC is 3-6%. Research is ongoing for treatment of cirrhosis with interferon to potentially reduce the risk of progression to cancer.

HCCs are usually hypervascular, with blood supplied predominately from the hepatic artery. Therefore, HCCs appear hypervascular during the arterial phase of a CT or MRI study, as well as relatively hypodense during the delayed phase due to early washout of the contrast material by arterial blood. HCCs tend to invade the portal vein, so an enhancing portal vein thrombus is highly suggestive of HCC.

Treatment of HCC is complex and usually best managed by a multidisciplinary liver transplant team. For patients without cirrhosis, surgical resection is the treatment of choice. In the cirrhotic patient with preserved liver function and a Model for End-Stage Liver Disease (MELD) score of 10 or lower, surgical resection should be considered. If surgical resection is not possible due to poor liver function (a MELD score under 10), and the HCC meets Milan criteria (one nodule under 5 cm, or two or three



*Eric Bernicker, MD
Hematologist/Medical Oncologist
Medical Clinic of Houston, LLP
Chief, Oncology Section,
St. Luke's Episcopal Hospital*



*John Goss, MD
Surgeon
Chief, Transplant Service,
St. Luke's Episcopal Hospital*

nodules all under 3 cm, with no gross vascular invasion or evidence of extrahepatic spread of the disease), orthotopic liver transplantation becomes the treatment of choice and represents the patient's best chance for long-term survival. Liver transplantation provides the non-resectable patient with the potential of a 5-year survival rate of 75-80%.

When a patient does not meet criteria for surgical resection or liver transplantation, a number of palliative efforts can be considered, including radiofrequency ablation, ethanol ablation, cryosurgery, microwave ablation, transarterial chemoembolization, yttrium-90 microspheres, and intravenous or oral systemic chemotherapy. However, all of these measures are palliative and do not present a chance for curing the disease.

ST. LUKE'S AND NATIONAL DATA

For the calendar year 2009, St. Luke's cancer registry identified 66 HCC cases, and over the 10-year period 1999-2009, St. Luke's Episcopal Hospital has treated a total of 350 patients with liver cancer.

When it comes to the distribution of liver cancer by patient gender, the statistics from St. Luke's and the National Cancer Data Base (NCDB) closely parallel each other. Cases treated by St. Luke's were 72.4% male and 27.6% female, while those in the NCDB were 73.65% male and 26% female. (While St. Luke's has analyzed cases over a ten-year period, each comparison in this report reflects the span of years for which NCDB has compiled statistics—in this case the years 2000-2007.)

As shown in Figure 1, comparison of the ages at which liver cancer patients are diagnosed shows St. Luke's and

NCDB figures to be similar—with minor distinctions to be noted. Since St. Luke's treats an adult population, we have no liver cancer patients under age 20, and our proportion of patients in their sixties, seventies, and eighties is somewhat higher than the national figures, especially when it comes to those patients in their eighties.

A comparison between the stages at which liver cancer was initially diagnosed is shown in Figure 2. Although both St. Luke's and NCDB show a number of patients acknowledged to have been at an unknown stage—27% and 24% respectively—we are pleased to note that the 24% of St. Luke's patients diagnosed at Stage I significantly exceeds the NCDB's 17% at Stage I. Those diagnosed at Stage II and Stage III are relatively even, with a higher percentage

FIGURE 1
ST. LUKE'S VS. NCDB STATISTICS OF AGE AT DIAGNOSIS OF LIVER CANCER 2000-2007

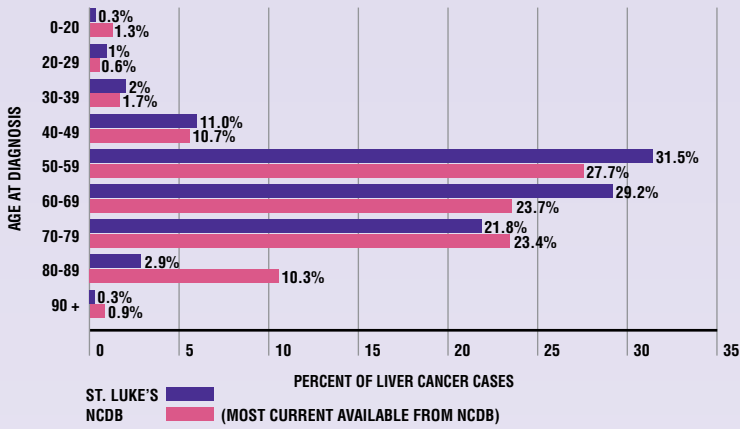


FIGURE 2
ST. LUKE'S VS. NCDB STATISTICS OF STAGE AT DIAGNOSIS OF LIVER CANCER 2000-2007

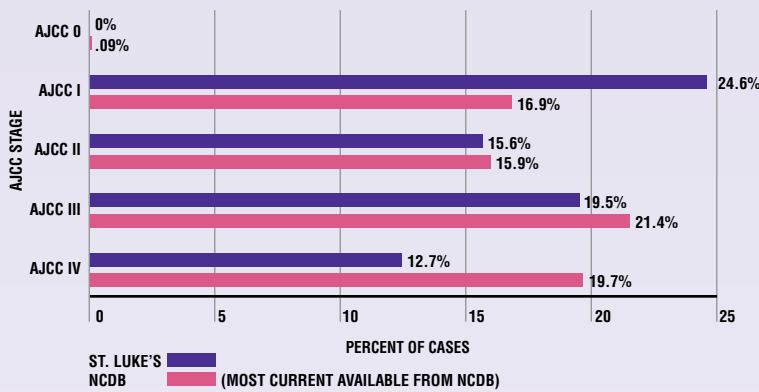
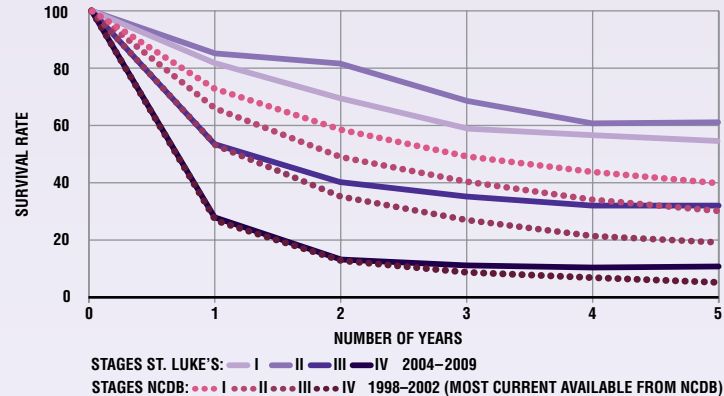


FIGURE 3
ST. LUKE'S VS. NATIONAL SURVIVAL BY AJCC STAGE, LIVER CANCER



of patients at Stage IV in NCDB's statistics (20%) than in St. Luke's statistics (13%).

The most significant distinction between data from St. Luke's and NCDB is reflected in Figure 3: Liver Cancer Survival by Stage. (The most recent five-year data from St. Luke's is compared to the latest available five-year data from NCDB.)

At each stage, a higher percentage of St. Luke's liver cancer patients have survived at the five-year point than have patients in NCDB statistics: St. Luke's 60% at Stage I versus the 40% from NCDB; likewise, 65% versus 30% at Stage II; 30% versus 18% at Stage III; and 10% versus 5% at Stage IV. It is interesting to note on the graph that at St. Luke's, Stage I survival 5 years after diagnosis is lower than Stage II. This reversal is due to fact that the age of the patients were advanced when diagnosed. There were Stage I patients diagnosed at age 72, 75, 77, 79 and in the '80s who, after resections, survived five years or more, but due to advancement in age, not their disease, they expired.

While clinicians are gratified that St. Luke's statistics equal or exceed the national rates, we are ever mindful that all of us have a long way to go in research, prevention and treatment of liver cancer in order to achieve our goals.

SUMMARY

As discussed here, St. Luke's data related to age, stage at diagnosis and five-year survival rates for liver cancer patients is either in line with or superior to the most recent NCDB data available. Because St. Luke's is able to bring together specialists across a wide spectrum of disciplines, cancer-specific survival is superior to the NCDB average. Hepatologists and radiologists are able to screen patients at high risk for developing HCC and find the disease at a point where intervention is more likely to achieve a cure. An experienced transplant team is able to use its expertise to transplant and then closely monitor patients and get outstanding results. For patients who cannot be transplanted, medical oncologists and interventional radiologists are able to utilize new technologies to prolong patients' meaningful survival with both systemic therapies and local liver-directed interventions. Because of the volume of patients with liver disease seen at St. Luke's, there are few clinical situations that have not been seen and dealt with often. Lastly, the promise of new therapies for HCC is greater now than ever before. For many years, conventional chemotherapy drugs were tried in patients with metastatic HCC with low response rates and significant toxicities. The introduction of Nexavar®, an oral medication that attacks a number of pathways that drive cancer cell growth, has added a new weapon to the war against HCC, one that has manageable side effects. Other targeted therapies such as Avastin® and Tarceva® are advancing through clinical trials and hold promise as well. New genetic tests should allow researchers to better understand what promotes particular tumor growth and allow personalized treatments to be developed that are more specific for cancer cells and less toxic to patients. And increased public awareness of hepatitis C should allow carriers to be detected and hence screened earlier.

By all means at their disposal, physicians and staff at St. Luke's are working to enhance the survival rate and quality of life for their patients with liver cancer. Through research, early diagnosis, and a wide range of medical and surgical interventions, the team is contributing its expertise to the numerous advances being made against liver cancer.

by **Luis H. Camacho, MD,** and **Mark Sutton, MD**

Genetic research, especially related to the von Hippel-Lindau (VHL) complex... continues in hope that findings may assist clinicians in the early diagnosis and effective treatment of this cancer.

OVERVIEW

Kidney cancer is among the 10 most common malignancies in America. Currently, approximately 58,000 new cases of kidney cancer and the renal pelvis are diagnosed annually, and renal cell carcinoma accounts for 92% of these cases.¹ Altogether, neoplasms of the kidney account for 2-4% of all cancers. Since 1975, the incidence rates of renal cancer have been increasing by 1.8% a year for men and 2.4% a year for women; however, in recent years death rates have been decreasing. For women, those rates have decreased 0.6% annually since 1992, and for men, the rates have decreased 1.5% since 2002. In 2010, the number of deaths in the United States from renal cancer is expected to be approximately 13,000. The most common histological type is clear-cell, which includes almost 90% of metastatic renal cell carcinoma (RCC). Other types include papillary and chromophobe histologies.

Traditionally, renal cancer has presented at advanced stages, with 30% of patients diagnosed with metastatic disease. At that point, such symptoms as blood in the urine, pain or a lump in the lower back or abdomen, fatigue, weight loss, fever, or swelling in the legs may appear, and effective treatment is extremely difficult. Early-stage disease typically presents no symptoms, and there are no reliable screening tests for individuals at normal risk. However, early diagnosis has improved within recent years due to incidental detection via ultrasound, CT, and MRI scans. Cancers detected early are much more amenable to surgical resection and cure.

Many important advances in the management of renal cancer have occurred in recent years. Genetic research, especially related to the von Hippel-Lindau (VHL) complex on the short arm of the third chromosome, continues in the hope that findings may assist clinicians in the early diagnosis and effective treatment of this cancer.

Advances in surgical technique have also greatly improved management of renal cancer. In the past, the gold standard had been radical nephrectomy. However, advances in robotic, laparoscopic, and minimally-invasive techniques—such as heating or freezing the tumor only—have allowed urologists to remove cancerous tissue while sparing the normal portion of the kidney.

Lesions that are smaller than 4 centimeters, not centrally located, and bilateral or on a solitary kidney are the ones most amenable to partial nephrectomy or a percutaneous approach. These lesions are also being assessed for the appropriateness of minimally-invasive techniques. Certainly, very large tumors still require removal of the entire kidney, but most can be addressed laparoscopically with lower morbidity to the patient and an extremely high cure rate.



*Luis H. Camacho, MD, MPH,
Director of Research, Oncology
Consultants, Houston, Texas*



*Mark Sutton, MD,
Service Chief, Urology,
St. Luke's Episcopal Hospital*

Advances also continue in cases in which the cancer has spread into the vessels. Collaborative surgery with vasculature and cardiovascular surgery teams has allowed vascular control and has achieved respectable cure rates.

Unfortunately, when patients develop metastatic disease, options are limited. While the outcome of treatments for RCC has been historically disappointing, advances in our knowledge of the biology and molecular abnormalities of RCC during the past decade have led to significant advances in therapies for this group of patients.² Treatments with cytokines (Interferon alpha and Interleukin-2), and targeted agents such as sunitinib, sorafenib, temsirolimus, everolimus, bevacizumab, and pazopanib substantially improve their outcomes and bring renewed hope to kidney cancer patients with advanced disease. Furthermore, these initial steps have led to larger research efforts focusing on immune system modulators and other novel cellular targets.

RESEARCH

The von Hippel-Lindau (VHL) tumor-suppressor gene has a critical role in the pathogenesis of RCC (Figure 1).³ The VHL syndrome is a hereditary condition characterized by an increased risk of developing bilateral clear cell RCC. In the majority of sporadic (nonhereditary) clear cell RCCs, the tumor-suppressor protein encoded by VHL is functionally inactive, primarily as a result of genetic mutations or DNA hypermethylation. Mutations of VHL result in the accumulation of hypoxia-inducible factor (HIF), which stimulates new vessel formation through the overexpression of vascular endothelial growth factor (VEGF) and platelet-derived growth factor (PDGF). These important discoveries and the association of these receptors with signaling proteins located downstream within cancer cells led to the design and implementation of several clinical

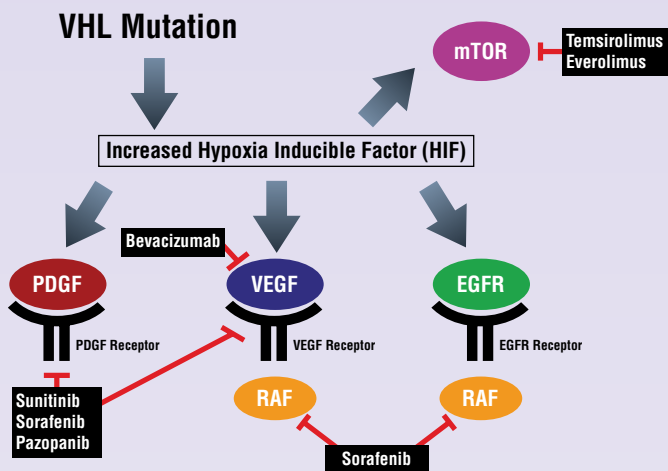
trials testing the antitumor activity of agents directed against the targets implicated in the molecular mechanisms of RCC. As a result, multiple agents have been approved for the treatment of this disease within the past 10 years, and a number of other tyrosine kinase inhibitors are in the process of drug development.

ST. LUKE'S AND NATIONAL DATA

For the calendar year 2009, St. Luke's cancer registry identified 68 renal cell carcinoma patient cases. Over the 10-year period 1999-2009, St. Luke's Episcopal Hospital has treated a total of 415 patients with renal cell carcinoma.

Distribution of renal cell carcinoma patients by gender showed similar statistics between the National Cancer Data Base (NCDB) and St. Luke's. The NCDB and St. Luke's had approximately 60% men and 40% women diagnosed with renal cell carcinoma covering the 7-year period provided by the NCDB Benchmark reports 2010.⁴

FIGURE 1



Adapted from Kirchner et al. Expert Rev. Anticancer Ther.

LEGEND

- VHL: Von Hippel-Lindau Protein Complex
- mTOR: Mammalian Target of Rapamycin
- HIF: Hypoxia Inducible Factor
- PDGFR: Platelet Derived Growth Factor Receptor
- VEGFR: Vascular Endothelial Growth Factor Receptor
- EGFR: Epidermal Growth Factor Receptor
- RAF: Rapidly Growing Fibrosarcoma

Mutations in the Von Hippel Lindau gene result in accumulation of the Hypoxia Inducible Factor (HIF) that leads to increased angiogenesis activity through upregulation in the expression of the vascular endothelial growth factor (VEGF) and platelet derived growth factor (PDGF). RAF is a key protein in the MAPK pathway located downstream of these receptors. MAPK signals are important for cell proliferation. Finally, HIF is also closely associated with the mammalian target of Rapamycin (mTOR) pathway. Inhibiting mTOR results in decrease levels of HIF. FDA approved targeted agents (black boxes) and their inhibitory role (red bars) in the pathways associated with the pathogenesis of RCC are also depicted.

A comparison of ages at which renal cell carcinoma patients are diagnosed shows St. Luke's and the NCDB with similar statistics. St. Luke's has a slightly higher proportion of renal cell carcinoma patients diagnosed in their 50s and 60s than the NCDB national averages. St. Luke's proportion of patients in their 70s is slightly lower than national statistics.

A comparison between the stages at which renal cell carcinoma was initially diagnosed is shown in Figure 2. St. Luke's exceeds national statistics in the number of renal cell carcinoma patients diagnosed at Stage I. At St. Luke's, 54% of renal cell patients were diagnosed at Stage I with national statistics from the NCDB showing 48% diagnosed at Stage I. Likewise, Stage II and Stage III exceed national statistics slightly, while the number of Stage IV diagnoses at St. Luke's is 3% under NCDB results for the past seven years.

Five-year survival rates, seen in Figure 3, are approximately 8% better at St. Luke's than NCDB statistics for Stage I; 5% better in the NCDB data than St. Luke's for Stage II; and 4% better for St. Luke's than national for Stage III. Importantly, the 5-year survival rate for patients with Stage IV renal cell carcinoma treated at St. Luke's is 30% compared with a 9% rate reported in the NCDB statistics.

For the first time in history, patients with advanced renal cell carcinoma have several opportunities to control their tumor growth and occasionally, to achieve important periods of tumor control.⁵

SUMMARY

Recent advances in the biology and genetics of RCC have resulted in substantial progress in the armamentarium of therapeutics for

FIGURE 2

ST. LUKE'S VS. NCDB STATISTICS OF STAGE AT DIAGNOSIS OF RENAL CANCER 2000-2007

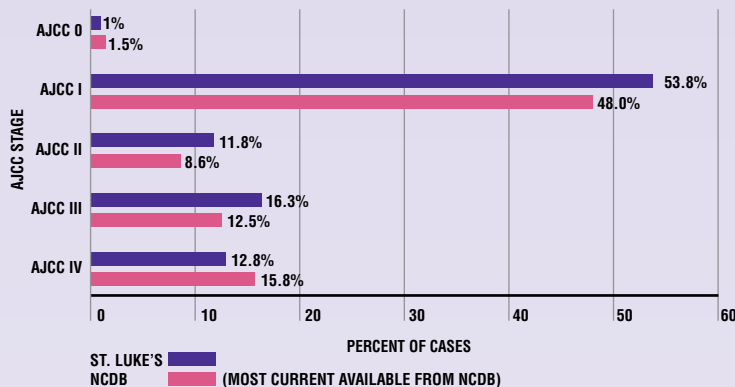
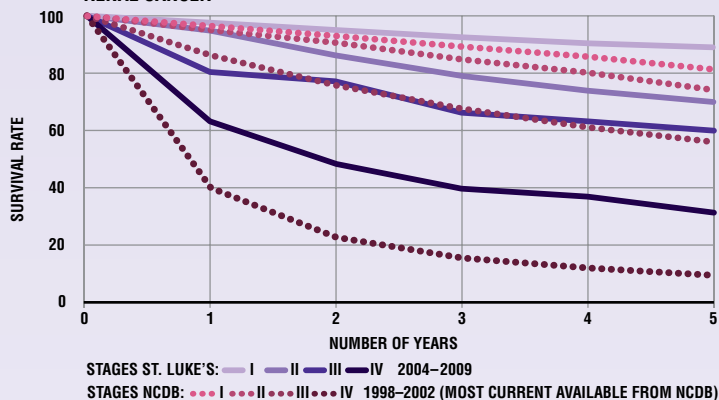


FIGURE 3

ST. LUKE'S VS. NATIONAL SURVIVAL BY AJCC STAGE, RENAL CANCER



patients with this condition. At least six new agents have received FDA approval for the treatment of patients with metastatic disease in the past decade. Similarly, advances in radiation and surgical techniques make therapies for limited disease less invasive and less toxic.

Our review of the St. Luke's Cancer Registry data concerning age at diagnosis, stage at diagnosis and 5-year survival for 415 patients with renal cell carcinoma treated by our group of physicians over the same period of time is in line with or slightly above NCDB statistics that cover 91,167 renal cell carcinoma patients.⁴ These statistics encourage our health care team at St. Luke's to continue searching for the cure to cancer with renewed enthusiasm.

REFERENCES

1. Jemal A, Siegel R, Xu J, Ward E: Cancer Statistics, 2010. C A Cancer J Clin. 2010.
2. Motzer RJ, Bander NH, Nanus DM: Renal-cell carcinoma. N Engl J Med 335:865-875, 1996.
3. Kirchner H, Strumberg D, Bahl A, Overkamp F: Patient-based strategy for systemic treatment of metastatic renal cell carcinoma. Expert Rev. Anticancer Ther. 10(4), 585-596 (2010).
4. NCDB Benchmark Comparison, National Cancer Data Base (NCDB)/ Commission on Cancer (CoC), 2010.
5. Ravaud A, Wallerand H: Molecular Pathways in Metastatic Renal Cell Carcinoma: The Evolving Role of Mammalian Target of Rapamycin Inhibitors. European Urology Supplements 8. 793-798 (2009).

by Susan Escudier, MD

Active research has contributed to an increased number of patients entering remission and/or staying in remission. We are better able to predict survival and treatment response using molecular tools.

Of the 43,000 new cases of leukemia diagnosed each year in the United States, approximately 12,000—or 37 percent—are acute myeloid leukemia (AML), and of these, nearly 9,000 individuals die each year. AML in most cases affects adults, with an average age of 67 years old, and the disease is slightly more frequent in men than in women.

AML is one of four main types of leukemia, the others being chronic myeloid leukemia (CML), acute lymphoblastic leukemia (ALL), and chronic lymphocytic leukemia (CLL). ALL and CLL are derived from lymphocytes. AML develops from immature cells that would normally become myeloid cells (white cells other than lymphocytes).

The term “acute” in its name indicates that this form of leukemia typically progresses quickly. From its beginning in the bone marrow, the disease moves into the blood, and may spread to such parts of the body as the lymph nodes, spleen, liver, and central nervous system. In AML, bone marrow cells do not mature properly, but continue to reproduce in an uncontrolled fashion. Without treatment, most AML patients live just a few months.

Researchers are working to identify the cell changes that lead to AML; they have found that certain risk factors are associated with AML, including Down syndrome and other genetic disorders, some types of chemotherapy, radiation therapy used to treat other cancers, and tobacco smoke. A number of AML symptoms are common to many illnesses, including fever, fatigue, aching joints, shortness of breath, pale skin, swollen gums, and unusual bleeding or bruising.

The diagnosis is made from blood and bone marrow testing, including bone marrow aspiration and bone marrow biopsy. Cytogenetic analysis in the lab examines the chromosomes and the mutations in those chromosomes.

Treatment of patients with AML involves chemotherapy, both induction therapy and consolidation therapy. The goal of induction therapy is to kill as many AML cells as possible, bring blood cell counts back to normal, and provide the patient with a complete remission. Consolidation therapy is necessary to eliminate any remaining AML cells. For some patients this may include allogeneic or autologous stem cell transplant.

Active research has contributed to an increased number of patients entering remission and/or staying in remission. We are better able to predict survival and treatment response using molecular tools. New drugs and combinations of drugs have improved the outcome in some subtypes of AML. Nonmyeloablative stem cell transplant (mini-transplant) has extended the benefits of transplant even to patients in their 60s. Researchers also study cytokines, natural substances normally made by cells that can also be created in the lab. At the most basic research level, they are also investigating the genetic changes that cause a normal cell to become an AML cell.



Susan Escudier, MD,
Texas Oncology, PA
Associate Professor of Medicine,
Baylor College of Medicine
Associate Chief,
St. Luke's Oncology Section

ST. LUKE'S EXPERIENCE

During the ten-year period 1999-2009, St. Luke's treated 126 cases of AML, and during 2009, 11 cases were seen.

A comparison between five-year survival rates for patients at St. Luke's and patients included in NCDB's statistics reveals close parallels. The one-year survival rate reported by NCDB was 50 percent vs. St. Luke's 47 percent; two-year survival from NCDB was 34 percent vs. St. Luke's 36 percent; three-year survival from NCDB was 28 percent vs. St. Luke's 30 percent; four-year survival from NCDB was 25 percent vs. St. Luke's 24 percent; and five-year survival from both NCDB and St. Luke's was 24 percent.

SUMMARY

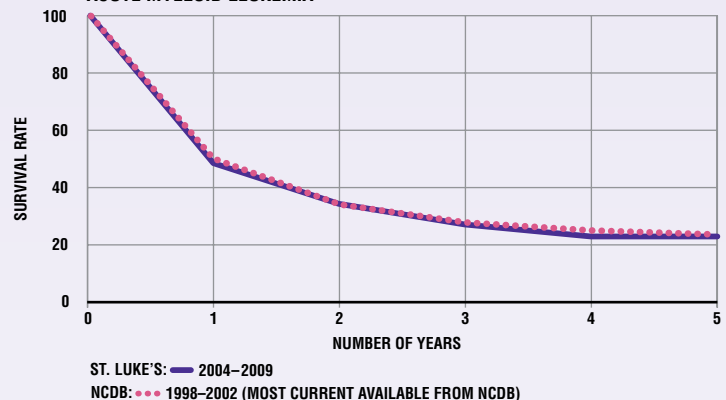
At St. Luke's we have established a Hematological Malignancies Tumor Board at which AML patients' cases, as well as other leukemias and lymphomas, can be discussed by a multidisciplinary group of physicians to determine the exact diagnosis and treatment for

individual patients.

Taking care of the acute leukemia patient requires a team approach, including excellent nursing care, infusion therapy, transfusion services, and pharmacy. The support from consult services such as infectious disease, critical care and nephrology is essential to supporting the patient through chemotherapy, which often requires a month in the hospital. Our social services and discharge planning help the patient and his family navigate the social and personal issues with this disease.

In the future we look forward to more personalized approaches to provide the most effective therapy with the least toxicity to enhance survival and quality of life.

FIGURE 1
ST. LUKE'S VS. NATIONAL SURVIVAL,
ACUTE MYELOID LEUKEMIA



TUMOR BOARDS AND CANCER CONFERENCES

A total of 115 tumor boards and cancer conferences were held during calendar year 2009. All the tumor boards sponsored by the Cancer Center at St. Luke's are approved for one hour of CME Category I by the Texas Medical Association.* The Radiology/GI Conferences have not yet been CME-approved, but are very well attended. St. Luke's medical staff members presented



Medical staff exchange information at tumor boards.

approximately 464 cancer cases throughout the year in the multidisciplinary forum, with more than 713 physicians attending the conferences during the period January to December 2009. Specialty tumor boards and cancer conferences include:

- Gynecological Oncology Tumor Board—weekly
- Pancreas Tumor Board—weekly
- Hematological Malignancies Tumor Board—monthly
- Kelsey-Seybold Tumor Board—monthly
- Breast Cancer Conference—monthly
- GI/Radiology Conference—weekly

Note: added in 2010

- Thoracic Tumor Board
- Neuroscience Tumor Board

*St. Luke's Episcopal Hospital is accredited by the Texas Medical Association to provide continuing medical education for physicians.

St. Luke's Episcopal Hospital designates these educational activities for a maximum of 1 AMA PRA Category 1 Credit™ per tumor-board occurrence. Physicians should claim only credit commensurate with the extent of their participation in the activity.

ONCOLOGY CERTIFIED NURSING EDUCATION

St. Luke's oncology nursing staff is actively engaged in continuing education. Oncology nurses participate in oncology certification programs with the Oncology Nursing Society.

These certifications help ensure that the staff is well equipped with the best oncology patient-care skills, safety standards and techniques.

Oncology nurses learn hospital policies and procedures as they relate to Oncology. The nurses are then skill-certified by Rosalyn Jones-Waters, BSN, RN, OCN, Oncology Nursing Quality Coordinator. Frequent inservice training reinforces their skills and training.

ONCOLOGY NURSING INSERVICES

Rosalyn Jones-Waters, BSN, RN, OCN, organized and developed educational inservices for the nursing staff and ancillary staff. A series of lectures included the following:

- Principles of Radiation Therapy
- Renal Cell Carcinoma
- Hypercalcemia Lecture
- Pancreatic Cancer Lecture
- Stress Management Lecture
- Infection Control: Multi-Drug Resistant Organisms (MDROs)
- Colangiocarcinoma Lecture
- Avastin (Bevacizumab): Anti-VEGF Therapy
- Central Line Infection Prevention
- Management of Thrombotic Events in the Acutely Ill Medical Patient
- Tumor Lysis Syndrome Lecture
- Prostate Cancer Management Lecture for Internal Medicine Grand Rounds—Grand Rounds combined with educational information on AJCC Staging and National Guidelines
- New Methods of Targeting and Treating Breast Cancer
- Ovarian Cancer Management

ST. LUKE'S INTERNAL MEDICINE GRAND ROUNDS

The following physicians presented oncology lectures to the physicians, interns, medical students, nursing staff and ancillary staff. A question-and-answer period followed each lecture:

- "Prostate Cancer Diagnosis and Treatment," Brian Miles, MD (September 14)
- "Ovarian Cancer," Matthew Anderson, MD (September 28)

- "New Approaches to Target and Treat Breast Cancer," Susan Escudier, MD, and Hsin Lu, MD (October 19)

CANCER REGISTRY PROFESSIONAL EDUCATION

Carol Ahlschlager, CTR, Supervisor of the Cancer Registry; Lupe Funk, Cancer Registrar; and Michelle Cassity, CTR, participated in the Texas Cancer Registrars' Association meeting held in Houston, Texas, March, 2009.

CLINICAL RESEARCH EDUCATION

Sopar Seributra, RN, CCRP, and Elizabeth Walker, BA, CCRP, both members and certified by the Society of Clinical Research Associates, participated in several educational research seminars in the Texas Medical Center in Houston, Texas, including:

- "Monitoring for Quality: Risk-Based Monitoring—ACRP Webinar by Leslie Ball, MD, Director, Division of Scientific Investigations, Center for Drug Evaluation and Research, FDA—December 9, 2009
- "Working with Our Sponsors: Is the Concept of a Site-Sponsor Team Possible?" St. Luke's Advanced Liver Therapies and Texas Liver Coalition, October 27, 2009
- "Protecting Human Research Participants," National Institutes of Health
- "Optimal Handling of Laboratory Samples—Improve Your Data Quality," TMH, July 1, 2009
- "Regulatory 101," Juliette Dean, RN, CCRP, Texas Heart Institute, August 25, 2009
- "The Informed Consent Process: Achieving Its Purpose or Achieving Our Obligations?" TMH, June 24, 2009
- "Informed Consent: Protecting and Empowering Research Subjects," Madelene Ottosen, RN, MSN, CCRC, UT Health Science Center-Houston, June 23, 2009
- "HIPPA: What Every Clinical Researcher Needs to Know," Charles Burbank, St. Luke's Episcopal Health System, May 26, 2009

St. Luke's Cancer Center offers patients access to frontline cancer research by providing clinical trials led by physician investigators specializing in oncology. Investigators offer national clinical studies, as well as original hospital-based studies. Contact St. Luke's Cancer Research Program Office at 832-355-6777 if you have questions.

BREAST CANCER PREVENTION

SLEH 2006 Study of Tamoxifen and Raloxifene in the Prevention of Breast Cancer (STAR-NSABP). Contact Sopar Seributra, RN, Nurse Coordinator for STAR Study at 832-355-6777. *PI-Philip A. Salem, MD, et al.* (Follow-up only. Closed to accrual.)

CYBERKNIFE®

SLEH 2954 ReCKord™ CyberKnife® Registry Protocol. 2009. *PI-L. Steven Carpenter, MD.*

LUNG

International Randomized Study to Compare CyberKnife® Stereotactic Radiotherapy with Surgical Resection in Stage 1 Non-Small Cell Lung Cancer: Lung Cancer STARS (Stereotactic Radiotherapy vs. Surgery) Trial. (H-25703) *PI-L. Steven Carpenter, MD.* 2009. *For information, contact Sopar Seributra, RN, 832-355-6777.*

PANCREAS

A Phase II Double-Blind, Placebo Controlled, Multi-Center Adjuvant Trial of Efficacy, Immunogenicity, and Safety of G1-4000; An Inactivated Recombinant Saccharomyces Cerevisiae Expressing Mutant RAS Protein Combined with a Gemcitabine Regimen Versus a Gemcitabine Regimen with Placebo, in Patients with Post-resection R0/R1 Pancreatic Cancer with Tumor Sequence Confirmation of RAS Mutations. *PI-William Fisher, MD.* (H-20777) 2007. *Contact BCM Elkins Pancreas Center at 1-877-PANC CTR. Open for accrual.*

A Randomized, Phase II/III Study of TNFerade Biologic with 5-FU and Radiation Therapy for First-Line Treatment of Unresectable Locally Advanced Pancreatic Cancer. *PI-William Fisher, MD.* (H-17553) 2006. *Open for accrual.*

A Multinational, Randomized, Double-Blind Study, Comparing The Efficacy of Afibercept Once Every 2 Weeks Versus Placebo in

Patients Treated with Gemcitabine for Metastatic Pancreatic Cancer. *PI-William Fisher, MD.* (H-22228) (Sanofi-Aventis) *Open for accrual.*

NLG-0205: A Phase II Study of Hyperacute-Pancreatic Cancer Vaccine in Combination with Chemotherapy and Chemoradiotherapy in Subjects with Surgically Resected Pancreatic Cancer. *PI-William Fisher, MD.* (H-24846) (New Link Genetics) *Open for accrual.*

SCI-RP-PAN-P2-001: A Randomized, Double-Blind, Placebo Controlled, Phase II Study Evaluating the Efficacy and Safety of Rp101 in Combination with Gemcitabine Administered as First-Line Treatment to Subjects with Unresectable, Locally Advanced, or Metastatic Pancreatic Adenocarcinoma. *PI-William Fisher, MD.* (H-22698) (SciClone) *Open for accrual.*

A Phase III Randomized, Controlled Study to Evaluate the Safety and Efficacy of PANVAC™-VF in Combination with GM-CSF Versus Best Supportive Care or Palliative Chemotherapy in Patients with Metastatic (Stage IV) Adenocarcinoma of the Pancreas Who Have Failed a Gemcitabine-Containing Chemotherapy Regimen. *PI-William Fisher, MD.* (H-17145) 2005. *Follow-up only—Closed to accrual.*

A Phase III Randomized Open-Label Study Comparing Gemcitabine Plus Cetuximab (IMC-C225) Versus Gemcitabine as First-Line Therapy of Patients with Advanced Pancreas Cancer. *PI-William Fisher, MD.* (H-17233) 2005. *Follow-up only—Closed to accrual.*

ADV-TK Gene Therapy in Combination with Chemoradiation for Pancreas Cancer. *PI-William Fisher, MD.* (H-14421) 2005. *Closed.*

A Phase III, Randomized Study of Gemcitabine (Fixed-dose Rate Infusion) and Oxaliplatin Versus Gemcitabine (Fixed-Dose Rate Infusion) Versus Gemcitabine (30-Minute Infusion) in Pancreatic Carcinoma. *PI-William Fisher, MD.* (H-15825) 2005. *Follow-up only—Closed to accrual.*

An Open Label Phase 2 Trial of Talabostat and Gemcitabine in Patients with Stage IV Adenocarcinoma of the Pancreas. *PI-William Fisher, MD.* (H-19149) 2006. *Follow-up only—Closed to accrual.*

An Intergroup Randomized Phase II Study of Bevacizumab (NSC 704865) or Cetuximab (NSC 714692) in Combination with Gemcitabine and in Combination with Chemoradiation (Capecitabine and Radiation) in Patients with Completely Resected Pancreatic Carcinoma. *PI-William Fisher, MD.* (H-19176) 2006. *Follow-up only—Closed to accrual.*

A Phase II Study of ARQ 501 in Combination with Gemcitabine in Adult Patients with Treatment Naïve, Unresectable, Pancreatic Adenocarcinoma. *PI-William Fisher, MD.* (H-19234) 2006. *Follow-up only—Closed to accrual.*

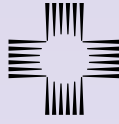
Pancreas Center Tissue Bank Specimen Collection. *PI-William Fisher, MD.* (H-16215) 2005-2009 and *Ongoing.*

PROSTATE

SPORE Tumor Marker Data: St. Luke's urologists who are SPORE investigators participate in SPORE data collection and represent research excellence in prostate cancer clinical trials. *St. Luke's Cancer Registry participates in data collection. Ongoing.*

**THE CANCER CENTER AT ST. LUKE'S
NUMBERS TO KNOW**

CLINICS	PHONE	FAX
St. Luke's Radiation and CyberKnife®	832-355-7118	832-355-7103
Outpatient Referral Clinic/Kirby Glen Physician Referrals and 2 nd Opinions	832-355-7139	832-355-6965
Outpatient Infusion Center at Kirby Glen	832-355-7119	832-355-6965
Mammography, Women's Center	832-355-8130	832-355-8123
OFFICES		
Medical Director, The Cancer Center at St. Luke's	832-355-7138	832-355-3352
Coordinator, Cancer Program	832-355-3490	832-355-3352
Nurse Manager, Kirby Glen	832-355-7139	832-355-6965
Cancer Registry, Supervisor	832-355-6701	832-355-3352
Cancer Research Nurse Coordinator	832-355-6777	832-355-3352
St. Luke's Oncology Inpatient Nurse Manager	832-355-2317	832-355-2059
Tumor Board Coordinator	281-888-1062	281-888-1062



ST. LUKE'S®

Episcopal
Health System

6720 Bertner Ave.

Texas Medical Center

Houston, Texas 77030

www.StLukesTexas.com

(832) 355-1000

St. Luke's Episcopal Health System (StLukesTexas.com) includes St. Luke's Episcopal Hospital in the Texas Medical Center, founded in 1954 by the Episcopal Diocese of Texas; St. Luke's The Woodlands Hospital; St. Luke's Sugar Land Hospital; St. Luke's Lakeside Hospital; and St. Luke's Episcopal Health Charities, a charity devoted to assessing and enhancing community health, especially among the underserved. St. Luke's Episcopal Hospital is home to the Texas Heart® Institute, which was founded in 1962 by Denton A. Cooley, MD, and is consistently ranked among the top 10 cardiology and heart surgery centers in the country by U.S. News & World Report. Affiliated with several nursing schools and three medical schools, St. Luke's Episcopal Hospital was the first hospital in Texas named a Magnet hospital for nursing excellence, receiving the award three times.