



2004 Annual Report



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“Tomorrow’s Medicine, Here Today” is not just the slogan of our health system — it is much more. These four words represent the caliber of health care we provide to our patients every day, month and year. Our physicians and other medical professionals provide exceptional patient care, as well as serve as leaders in their fields, performing research that contributes to improved methods of diagnosis, innovative treatments and breakthroughs in the understanding of diseases.

The Medical College of Georgia exists for the purpose of improving health. Accomplishing that purpose requires much more than technical competence and scientific know-how. Technical expertise is irrelevant unless it is applied to improve the quality of life for individual patients and their families. Our clinical services, academic programs, and research are all focused on the overarching goal of improving the lives of our fellow human beings.

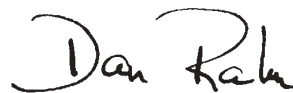
We bring the full weight of our skills and talents, innovations and creativity, and scientific curiosity and discovery to bear on understanding and fighting cancer. And, cancer is a worthy opponent.

Cancer is the second leading cause of death. According to a 2003 Centers for Disease Control and Prevention report, cancer was the cause of 22.9 percent of all deaths in 2001, second only to heart disease. The American Cancer Society estimates 1.3 million new cases of cancer in 2004 and 564,000 cancer-related deaths.

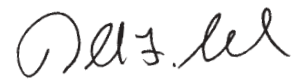
In the following pages, you will learn more about our work at the Medical College of Georgia and MCG Health System to take recent breakthroughs and apply them to the prevention, detection, evaluation and treatment of cancers. You will also learn of the ways in which we work with our community to support research and education.

Our pledge to you is that MCG and the MCG Health System will remain focused on cancer. We will do our part to reduce the toll that cancer takes on all of us and our families. Please join us in this effort. Together, we can make a difference.

Sincerely,



Dr. Daniel W. Rahn  
President  
Medical College of Georgia



Don Snell  
President and CEO  
MCG Health, Inc.



## from the cancer committee chair

Cancer is pervasive and insidious. The good news, however, is that the risk of getting and dying from cancer continues to decline and survival rates for many cancers continue to improve. According to the National Cancer Institute's "Annual Report to the Nation on the Status of Cancer, 1975-2001," the overall observed cancer incidence rates declined 0.5 percent each year from 1991 to 2001. Death rates from all cancers combined dropped 1.1 percent each year from 1993 to 2001. This data reflects progress in prevention, early detection and treatment.

These are very exciting times at MCG. While a total understanding of cancer remains an elusive target, we are rapidly gaining ground. In the following pages, you will read about some of our many efforts to prevent, diagnose and treat a variety of cancers. Those efforts include our

groundbreaking research as well as our patient- and family-centered care.

Sincerely,



Martha Terris, MD

Cancer Committee Chair



## cancer committee

**Martha Terris, MD**  
Cancer Committee Chair  
Urologic Oncology

**Andy Anderson**  
Materials Management

**Oscar Ballester, MD**  
Medical Oncology

**John Barrett, MD, Ph.D.**  
Radiation Oncology

**Wendy Bass**  
Oncology Pharmacy

**Ines Berger, MD**  
Anesthesiology

**James Brown, MD**  
Urologic Oncology

**Kim Cheely, RN, OCN**  
Patient Care Services

**Michelle Christiano, CIP**  
Clinical Trials Compliance

**Katrina Fortier**  
Quality Management

**Judith Giri, Ph.D.**  
Tumor Bank/Serum Repository

**Christine Gourin, MD**  
Head and Neck Surgery

**Richard Hessler, MD**  
Pathology

**Deborah Humphrey**  
Public Relations

**Melissa Jarriel, RHIA, CTR**  
Health Information  
Management Services

**Debbie Johnson**  
Social Work

**Amy Johnston**  
American Cancer Society

**Angela Lambert, RN**  
Administration

**Michael MacFee, MD**  
Gynecologic Oncology

**Steven McKinnon**  
Clinical Research Data

**Kathy Miles, NHA**  
Cancer Clinical Trials Office

**James Rawson, MD**  
Radiology

**Ted Rippert, DMD**  
Oral Surgery

**Carolyn Sanders, CTR**  
Registry Services

**David Terris, MD**  
Head and Neck Surgery

**Roger Vega, MD**  
Pediatric Oncology

**Shawn Vincent**  
Comprehensive Cancer  
Services

**Alfredo Voloschin, MD**  
Neuro-Oncology

**Tom Wang, MD**  
Surgical Oncology

**Miriam Whaley, RHIA, CTR**  
Registry Services

**Marilyn Yarmon, RHIA, CTR**  
Georgia Radiation  
Therapy Center

### Women's Voices Helped Shape Mammography Area

Input from patients is evident in MCG Health System's renovated mammography area. Many women facing a mammogram may be understandably apprehensive about the procedure. The redesign addresses concerns about comfort and privacy.

Renovations include the three mammography rooms, a stereotactic biopsy suite and the addition of a dedicated breast ultrasound room, all designed for additional patient privacy and convenience. The area offers a welcoming and soothing environment, complete with plush chairs in the waiting areas, where patients can help themselves to complimentary beverages.

A major focus is breast health education. A new patient education area features computer carrels and a TV/VCR combination for patient research and learning.



### Anti-Smoking Research Presented at International Conference

Dr. Martha Tingen, Associate Professor in the MCG School of Medicine, presented findings at the Sigma Theta Tau International Honor Society of Nursing, from her two-year program, "Project GIFT: Georgia Initiative to Fight Tobacco." The anti-smoking research uses a lifeskills educational program to empower sixth-grade youth (15 classes) and seventh-grade youth (10 classes) to avoid using tobacco. The youth are from the state's 19 public health districts. The program also directs parents who smoke to the state's toll-free Quit Line and other cessation strategies.

### Obesity a Factor for More Aggressive Prostate Cancer

Obese men have a higher incidence of more aggressive prostate cancer and higher recurrence rates after surgery than their slimmer counterparts, according to a study conducted at five federal medical facilities by urologist Dr. Martha K. Terris, senior author of the study.

The study, published in the February 1, 2004, issue of the *Journal of Clinical Oncology*, found that obesity was associated with higher-grade tumors, increased risk of positive surgical margins and higher biochemical failure rates among men with clinically localized prostate cancer treated with radical prostatectomy. Severely and moderately obese patients were at higher risk of failure than mildly obese patients, with risks two to three times higher than those of slimmer patients.

## Laparoscopic Surgical Techniques Added to Urology Services

New, minimally invasive surgical procedures to treat kidney and prostate disorders are being offered at MCG Health System, one of the few medical centers in Georgia to offer the laparoscopic technique for urologic disorders. Patients benefit from a less invasive procedure, which results in less blood loss, less pain, faster healing and less scarring.

Dr. James Brown performs the procedures and has extensive training in these techniques. For more information on laparoscopic techniques for urologic disorders, go to <http://www.mcg.edu/som/surgery/Urology/laparoscopy.htm>.

## Grant Accelerates Green Tea Research

The National Cancer Institute, under the program for exploratory investigations on new frontiers, provided approximately \$300,000 for the next two years so cell biologist Dr. Stephen Hsu and his colleagues can continue to compare healthy cells to cancer cells after exposure to compounds in green tea called polyphenols.

Dr. Hsu found that polyphenols actually activate two separate pathways, one for normal cells and one for cancer cells. While normal cells are shuttled to safety, the polyphenols destroy the cancer cells. The National Cancer Institute grant will help Dr. Hsu to identify the green tea-targeted genes.

Dr. Hsu discussed green tea's anti-carcinogenic properties during a cancer symposium in Atlanta.

The Georgia Department of Industry, Trade and Tourism's Office of Science and Technology hosted the symposium, "Translating Cancer Research into Care Across Cultures."

## Small Subset of Cells Plays Big Role in Controlling Immunity

A small subset of cells that tells the immune system whether or not to attack may be a future target for therapies to help patients fight tumors and keep transplanted organs. Dendritic cells roam the body, picking up invaders, such as a virus or cancer, then show their finds to the T-cells and tell them how to respond, according to a study conducted by Dr. Andrew L. Mellor, Georgia Research Alliance Eminent Scholar in Molecular Immunogenetics and Director of the MCG Immunotherapy Center.

## Study Identifies Ovarian Cancer Protein Markers

Dr. Daron G. Ferris, Director of the Gynecologic Cancer Prevention Center, is conducting a pilot study to identify new, more specific markers that will give gynecologic oncologists and their patients a better idea of how ovarian cancer is responding to treatment so they can change treatment if it is not working. The study also aims to identify markers that can be used as an effective screening test for this disease.

The Georgia Cancer Coalition, a charitable organization formed to improve cancer treatment in the state, funds the study.



## Monoclonal Antibody Study Underway

Gynecologic oncologist Dr. Sharad Ghamande is principal investigator on a study of a monoclonal antibody that prompts the immune system to target wayward ovarian cancer cells roaming the body in an effort to forestall cancer recurrence.

The tumor marker CA-125 is expressed in about 90 percent of ovarian cancer cells in patients with advanced disease. Patients receive an antibody to CA-125, which binds to CA-125 expressing cancer cells and this, in turn, triggers the immune system to be activated and destroy these cancer cells.

Gynecologic Oncology has been very active in both investigator-initiated and pharmaceutical company-sponsored clinical trials, and is an affiliate member of the Gynecologic Oncology Group and participates in clinical trials.

Nationally,  
there will be  
**1.3 million**  
cancer cases  
in 2004

## MCG Receives NCI Designation as Minority-Based Community Program

We are the 12th institution in the nation to receive the designation that strengthens access to the latest cancer treatment and prevention studies for minority patients and, ultimately, patients of all ages and races. The program seeks to specifically make National Cancer Institute-sponsored clinical trials available to minorities, a historically under-represented group in clinical trials. MCG was eligible because of its success in treating minorities: about 42 percent of its newly diagnosed cancer patients are African American and about 40 percent of patients enrolled in existing cancer clinical trials are black.

The Veterans Affairs Medical Center in Augusta and Athens Regional Medical Center are collaborators in the three-year, \$1.7 million grant that targets more than 1 million people in nearby Georgia and South Carolina counties.

## Cervical Cancer and Genital Warts Studied

Human Papillomavirus (HPV) causes abnormal Pap smears and genital warts. It is one of the most prevalent sexually transmitted diseases in sexually active women. The virus often causes no symptoms, so most women may not know they have been infected. If the infection persists, cervical cancer and/or genital warts may result.

Dr. Daron Ferris, Director of the Gynecologic Cancer Prevention Center, is working with a leading pharmaceutical company to test the effectiveness of a vaccine designed to prevent certain types of HPV associated with cervical disease and genital warts.

## from research to patient care

### Drug Studied to Slow or Prevent Prostate Cancer

Prostate cancer is the second leading cause of death for men with cancer in the Western world. We are part of a national study to see if a certain drug will slow down or prevent the development of cancer in men who have an elevated blood test for prostate cancer and a prostate biopsy negative for cancer.

The study involves men 50 to 75 years of age. Those interested in participating may contact the MCG Surgical Research Service at 706-721-0193 or may contact Mary Anne Park at [mpark@mcg.edu](mailto:mpark@mcg.edu) or Dr. James Brown at [jimbrown@mcg.edu](mailto:jimbrown@mcg.edu).

### Head and Neck Surgeon First to Remove Tumor With Harmonic Scalpel

Dr. Christine Gourin became the first surgeon in Georgia to use a harmonic scalpel to remove tumors of the parotid gland, the largest of the saliva glands. Dr. Gourin, a head and neck surgeon, co-authored a study on the effectiveness of the scalpel.

The harmonic scalpel, which uses ultrasonic vibrations to simultaneously cut tissue and seal blood vessels, has been used for other head and neck procedures such as thyroid removal, but never before to remove a tumor.

Because the facial nerve runs through the parotid gland, nerve damage and facial paralysis are risks of surgery. The harmonic scalpel is just as safe as conventional methods and results in less blood

loss and greatly reduced operative time for the patient. Because less blood is lost, the facial nerve may be even easier to identify during surgery.

### Acupuncture Used to Fight Pain, Nausea

Dr. Ines Berger, Interim Director of Pain Management, is using acupuncture for pain management as well as treatment for chemotherapy-induced nausea and vomiting.

Her techniques include Craig PENS (Percutaneous Electrical Nerve Stimulation), placing electrically stimulated needles near nerves that generate pain signals; auricular acupuncture, stimulating one or more acupuncture points on the outer ear representing various parts of the anatomy; and neuroanatomical acupuncture, using anatomical structures such as nerves and muscles to guide needle placement.

She also offers intrathecal morphine pumps as well as complex pain treatment options for inpatients and outpatients with cancer.



In 2003, approximately

33,400

Georgians were diagnosed with cancer

## Best Approach to Thyroid Removal May Be Under the Arm

The best approach to removing a diseased thyroid may be from under the arm, according to a study conducted by Dr. David Terris, Chair of Otolaryngology – Head and Neck Surgery. Using an animal model, Dr. Terris and his colleagues were the first to compare five different minimally invasive approaches, where surgeons use small incisions, tiny telescopes and video monitors. In other countries, these approaches already are being tested clinically for removing thyroids with cancer and benign growths.

## Protective Mechanism Exploited by Tumors May Provide New Cancer Treatment

Like a parasite exploiting its host, some tumors protect themselves by recruiting non-tumor cells that normally help keep the immune system in check, according to Dr. David Munn, pediatric hematologist-oncologist and lead author of the study.

When the researchers looked into the lymph nodes where tumors drain – typically the first place tumors spread – they found that a subset of normal host immune cells were expressing an immunosuppressive enzyme also expressed by the fetus to help avoid rejection by the mother's immune system. They also found that when they gave a drug to block the enzyme, the immune system rallied.

Now they have shown in an animal model that these normal cells are a type of dendritic cell that

was previously ignored by the scientists because they believed the cells were involved in making antibodies, not in suppressing the immune system. By recognizing the actual role of these previously discarded cells, the MCG scientists and their collaborators have moved significantly closer to using this approach to help cancer patients.

## Researcher Explores Tumors' Survival Strategy

Dr. Kouros Motamed is studying endothelial cells where they live, in the complex environment that provides support and structure as well as regulation and direction. As he studies these cells that line blood vessels, this vascular biologist focuses on the proteins and growth factors that regulate their normal processes, including proliferation, differentiation, migration and death.

He wants to understand the normal process that is sometimes commandeered by tumors that, like normal tissue, need nutrients and oxygen to grow. A good example is SPARC – secreted protein acidic and rich in cysteine – that is commonly expressed in the healthy remodeling of tissue, such as during embryonic development and wound-healing. SPARC also is expressed in varying degrees by different cancers; expression is increased in breast cancer, prostate cancer and melanoma, and decreased in ovarian cancer. One of Dr. Motamed's goals is to find the contribution of SPARC endogenous to the mouse, including exploring its potential for inhibiting and promoting tumors. The more that is known about all of the regulatory elements, the better tumors and cancer can be battled.

### Light the Night Walk

Scores of MCG Health System employees walked two miles to support the Georgia Chapter of The Leukemia & Lymphoma Society. We raised nearly \$2,000.

### Prostate Cancer Awareness

We brought in the Viagra car driven by NASCAR driver Mark Martin, sponsored by Pfizer Pharmaceuticals, to increase awareness of prostate cancer. The car was on display along with MCG Urology faculty and American Cancer Society volunteers distributing prostate health literature. In addition, we offered low-cost prostate cancer screenings in recognition of Prostate Cancer Awareness month.

### Gynecologic Cancer Support

MCG offers the area's only Gynecologic Cancer Support Group, which meets the second Tuesday of every month on the 8th floor of the main hospital in room 8020 from 7 to 8:30 p.m. For more information, call 706-721-3992.

### Skin Cancer Screenings

Because there is a better than 95 percent cure rate for skin cancer that is detected and treated early, we partnered with 3M Pharmaceuticals to offer free skin cancer screenings.

### Relay for Life

Again this year, we were active participants in the American Cancer Society's Relay for Life of Richmond-Columbia County. We raised more than \$20,000.

### Head, Neck and Oral Cancer Screenings

Otolaryngology – Head and Neck Surgery offered free cancer screenings in recognition of National Oral, Head and Neck Cancer Awareness Week, sponsored by the Yul Brynner Head and Neck Cancer Foundation. The screenings checked for head, neck and oral cancers, which are more prevalent in the South than other areas due to increased tobacco and alcohol use.

### National Black Leadership Initiative

There are several cancers that strike African Americans in disproportionate numbers. To help prevent, diagnose and treat those cancers more effectively, we took a leadership role in assisting with the incorporation of the Augusta Chapter of the National Black Leadership Initiative on Cancer.

### Breast Cancer Support

The Breast Cancer Support Group meets on the second Thursday of the month from 7 to 8:30 p.m. in the Breast Health Center on the first floor of the main hospital building. For more information, call 706-721-0967.





The Cancer Registry collects data about each cancer patient diagnosed or treated at our facilities. Established in 1985, the Cancer Registry now contains more than 14,900 cases. Cancer data is submitted monthly to the Georgia Comprehensive Cancer Registry and annually to the National Cancer Data Base. In both of these larger databases, our data is pooled with data from other submitting facilities. The resulting statistics illustrate statewide and nationwide trends in cancer incidence, and help clinicians and researchers evaluate the efficacy of different types of treatment.

A Registry Services Administrator and a Registry Services Specialist II, both of whom are Certified Tumor Registrars, staff the MCG Cancer Registry. In 2003, the registrars collected demographic, tumor, staging and treatment data on more than 965 patients. Nine hundred fifteen of these patients were diagnosed or received first course treatment here and the others were treated here for recurrence or progression of their cancer. The registry staff follows more than 5,000 patients annually to obtain disease status information. The registrars also coordinate the weekly Multidisciplinary Cancer Conferences and bimonthly Cancer Committee Meetings, assist in preparations for the triennial American College of Surgeons Commission on Cancer accreditation survey, contribute to the Annual Report, and report data to clinicians and administrators.

For more information about our activities or the cancer information we collect, please call 706-721-1768.

Health professionals from MCG Health System and the Augusta VA Hospital meet on a regular basis to discuss challenging cancer cases during multidisciplinary cancer conferences. The conferences, which include a general Interdisciplinary Conference and specialty conferences for breast, gynecologic, head and neck, pediatric, thoracic and urologic cancers, provide an ideal forum for rendering a multidisciplinary opinion and for educating the medical staff. In addition, the following lectures and seminars were presented.

**Fibrinolysis in Pediatric Brain Tumors**

Amy Smith, MD  
Children's Hospital  
Denver, Colo.

**Molecular Therapeutic Approaches to Brain Tumors**

Frederick F. Lang, MD  
Associate Professor  
Department of Neurosurgery  
M.D. Anderson Cancer Center  
Houston, Texas

**Strategies to Block Breast Cancer Metastasis: Molecular Approaches to Targeting CXCR4**

Dr. Stephen C. Peiper  
Chairman of Pathology  
Professor of Pathology  
Medical College of Georgia  
Augusta, Ga.

**HPV-16 E6 Oncoprotein-dependent Immortalization of Primary Keratinocytes**

Dr. Hubert Stoepler  
Professor  
Department of Pharmacology & Toxicology  
Philipps University  
Marburg, Germany

**Interactions Between Signaling Pathways in Transformation**

Prahlad T. Ram, Ph.D.  
Department of Pharmacology & Biological Chemistry  
Mount Sinai School of Medicine  
New York, N.Y.

**The Androgen Receptor Plays a Critical Role in Androgen Refractory Prostate Cancer**

Donald J. Tindall, Ph.D.  
Professor  
Department of Biochemistry and Molecular Biology  
Mayo Clinic  
Rochester, Minn.

**Mechanisms of Cell Death in Tamoxifen- and Mifepristone-treated MCF-7 Breast Cancer Cells**

V. Thomas Gaddy  
Graduate Student  
Cellular Biology & Anatomy  
Medical College of Georgia  
Augusta, Ga.

**An Update on Herpes Virus Group Infections in Solid Organ and Hematopoietic Transplant Recipients**

Per Ljungman, MD, Ph.D.  
Professor of Medicine  
Chief of Hematology  
Huddinge Hospital and the Karloinski Institute  
Stockholm, Sweden

**IGF-1 Inhibits Hormonally-mediated Apoptosis in Breast Cancer Cells**

April Welborne  
Graduate Student  
Cellular Biology & Anatomy  
Medical College of Georgia  
Augusta, Ga.

**TGF-beta Signaling Pathways in Prostate Tumorigenesis**

Natasha Kyprianou, Ph.D.  
Professor of Surgery  
Division of Urology  
Professor of Molecular & Cellular Biochemistry  
University of Kentucky  
Lexington, Ky.

**The Community Clinical Oncology Program: Why MCG Should Consider Becoming a MB-CCOP**

Lori M. Minasian, MD  
Attending  
Medical Ovarian Cancer Clinic  
Warren G. Magnuson  
Clinical Center  
National Institutes of Health  
Bethesda, Md.

**Exploring Beyond the Genome: A Proteomic Search for the Signature Fingerprints of Prostate Cancer**

Dr. Bao-Ling Adam  
Research Assistant Professor  
Eastern Virginia Medical School  
Norfolk, Va.

**The Myc Oncogene – A Walk Through the Garden of Forking Paths**

Robert Eisenman, Ph.D.  
Member  
Division of Basic Sciences  
Fred Hutchinson Cancer Research Center  
Seattle, Wash.

**Human Papillomavirus and the Development of Cervical Pre-cancer and Cancer**

Philip Castle, Ph.D., MPH  
Research Fellow  
National Cancer Institute  
Bethesda, Md.

**Racial and Ethnic Disparities in Health National Black Leadership Initiative on Cancer (NBLIC) II**

David Satcher, MD, Ph.D.  
Director of the New National Center for Primary Care and Principal Investigator  
NBLIC National Office  
Morehouse School of Medicine  
Atlanta, Ga.

**Genetic Polymorphism of Human CYP2A6: Functional Characterization and Potential Role in Tobacco-related Carcinogenesis**

Jun-Yan Hong, Ph.D.  
Professor  
School of Public Health  
University of Medicine and Dentistry of New Jersey  
Piscataway, N.J.

**Identification and Characterization of Target Molecules for Antigen-specific Immunotherapy of Epithelial Ovarian Cancer and Recent Advances in Antigen-specific Immunotherapy for Epithelial Cancer**

Kunie Odunsi, MD, Ph.D.  
Attending Staff Physician  
Division of Gynecologic Oncology  
Assistant Professor of Obstetrics & Gynecology  
State University of New York  
Buffalo, N.Y.

**Gene Amplification in Acinetobacter: A Bacterial Model for Understanding a Process Causing Virulence, Drug Resistance and Cancer**

Andrew Reams  
Ph.D. Candidate  
Department of Microbiology  
University of Georgia  
Athens, Ga.

**Ovarian Cancer Epidemiology and Prevention**

Joellen Schildkraut, Ph.D.  
Associate Professor  
Cancer Prevention, Detection and Control Research Program  
Duke Comprehensive Cancer Center  
Duke University Medical Center  
Durham, N.C.

**Management Options in Rectal Cancer**

Daniel Albo, MD, Ph.D.  
Assistant Professor  
Section of Surgical Oncology  
Department of Surgery  
Medical College of Georgia  
Augusta, Ga.

**Novel Uses of Dental Metals: Therapies From Cancer to Wound Healing**

John Wataha, DMD, Ph.D.  
Professor  
Oral Rehabilitation  
Medical College of Georgia  
Augusta, Ga.

**Blue Light as a Trigger for Cancer Cell Death**

Jill Lewis, Ph.D.  
Associate Professor  
Oral Biology & Maxillofacial Pathology  
Medical College of Georgia  
Augusta, Ga.

**Cerebral Perfusion & Dynamics/Intracranial Tumors**

Michael Hadsell, MD  
Assistant Professor, Anesthesiology & Perioperative Medicine  
Medical College of Georgia  
Augusta, Ga.

**Antiprogesterin Treatment Induces Growth Arrest and Apoptosis in Tamoxifen-resistant Breast Cancer Cell**

V. Thomas Gaddy  
Graduate Student  
Medical College of Georgia  
Augusta, Ga.

**Cerebral Flow/Volume Relationships in Tumor Vessels**

John Morato, MD  
Massachusetts General Hospital  
Boston, Mass.

**Nutritional Support in Cancer: Is It Oncologically Logical?**

Krishnan Sriram, MD  
Associate Professor, Trauma/Critical Care Service  
Department of Surgery  
Medical College of Georgia  
Augusta, Ga.

**Cancer Pain Management**

Kenneth E. Oswalt, MD  
Associate Professor  
Director of Pain Management  
Department of Anesthesiology & Perioperative Medicine  
Medical College of Georgia  
Augusta, Ga.

**Signal Transduction Pathway of EGCG-induced Cell Damage in Oral Cancer Cells**

Tetsuya Yamamoto, MD  
Associate Professor  
Kochi Medical School  
Kochi, Japan

**Designing Genetic Epidemiologic Studies: A Cancer Research Perspective**

Maurice Zeegers, Ph.D.  
Department of Epidemiology  
Maastricht University  
Maastricht, The Netherlands

**Functional Identity of SLC5A8, a Candidate Tumor Suppressor Gene Silenced in Colon Cancer**

Vadivel Ganapathy, Ph.D.  
Regents' Professor & Interim Chair  
Department of Biochemistry & Molecular Biology  
Medical College of Georgia  
Augusta, Ga.

**Myeloid Leukemia, Approaches to Understanding Progenitor Cells and the Disease State Using the Murine Model System**

Vincent Sollars, Ph.D.  
Postdoctoral Fellow  
Kimmel Cancer Center  
Thomas Jefferson University  
Philadelphia, Pa.

**Cancer Therapy Based on Ras and p53**

Frank McCormick, Ph.D., FRS  
David A. Wood  
Endowed Chair  
Tumor Biology and Cancer Research,  
Microbiology & Immunobiology  
UCSF Comprehensive Cancer Center & Cancer Research Institute  
University of California  
San Francisco, Calif.

# distribution by site and stage: 2003 analytic cases

Site of Cancer	Total	0	I	II	III	IV	Unknown <sup>†</sup>
Lip	1	0	0	1	0	0	0
Tongue	8	1	0	1	4	2	0
Salivary Glands	2	0	0	2	0	0	0
Floor of Mouth	9	0	2	1	0	6	0
Gum and Other Mouth	12	0	0	0	3	7	2
Nasopharynx	5	0	0	2	1	2	0
Tonsil	11	0	0	0	1	10	0
Oropharynx	2	0	0	0	0	2	0
Hypopharynx	14	0	0	0	0	14	0
Other Oral Cavity & Pharynx	1	0	0	0	0	0	1
<b>Oral Cavity &amp; Pharynx</b>	<b>65</b>	<b>1</b>	<b>2</b>	<b>7</b>	<b>9</b>	<b>43</b>	<b>3</b>
Esophagus	15	0	1	1	1	10	2
Stomach	3	0	0	0	1	1	1
Small Intestine	8	0	0	0	3	1	4
Colon (excluding Rectum)	39	1	8	8	6	14	2
Rectum & Rectosigmoid Junction	26	0	2	9	3	8	4
Anus, Anal Canal & Anorectum	5	0	1	2	1	1	0
Liver & Intrahepatic Bile Duct	8	0	1	1	3	3	0
Gallbladder	2	0	0	2	0	0	0
Other Biliary	1	0	0	1	0	0	0
Pancreas	22	0	0	5	2	11	4
Retroperitoneum	1	0	0	0	1	0	0
Peritoneum, Omentum & Mesentery	3	0	0	0	0	0	3
Other Digestive Organs	4	0	0	0	0	0	4
<b>Digestive System</b>	<b>137</b>	<b>1</b>	<b>13</b>	<b>29</b>	<b>21</b>	<b>49</b>	<b>24</b>
Nose, Nasal Cavity & Middle Ear	5	0	0	0	1	4	0
Larynx	31	3	9	0	8	11	0
Lung & Bronchus	91	0	9	7	22	49	4
<b>Respiratory System</b>	<b>127</b>	<b>3</b>	<b>18</b>	<b>7</b>	<b>31</b>	<b>64</b>	<b>4</b>
Bones & Joints	2	0	1	0	0	1	0
Soft Tissue including Heart	3	0	0	0	0	0	3
<b>Bones, Joints &amp; Soft Tissue</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>
Melanomas of the Skin	49	12	24	6	6	1	0
Other Non-Epithelial Skin	6	0	0	1	1	0	4
<b>Skin (Excluding Basal &amp; Squamous)</b>	<b>55</b>	<b>12</b>	<b>24</b>	<b>7</b>	<b>7</b>	<b>1</b>	<b>4</b>
<b>Breast</b>	<b>74</b>	<b>8</b>	<b>22</b>	<b>25</b>	<b>13</b>	<b>5</b>	<b>1</b>
Uterine Cervix	35	1	7	12	8	4	3
Corpus and Uterus, NOS	49	0	17	12	7	5	8
Ovary	27	0	8	1	10	5	3
Vagina	2	1	0	0	0	1	0
Vulva	16	7	2	5	1	1	0
Other Female Genital Organs	3	0	0	1	2	0	0
<b>Female Genital System*</b>	<b>132</b>	<b>9</b>	<b>34</b>	<b>31</b>	<b>28</b>	<b>16</b>	<b>14</b>

Site of Cancer	Total	0	I	II	III	IV	Unknown <sup>†</sup>
Prostate	59	0	1	40	9	7	2
Testis	8	0	5	1	0	0	2
Penis	3	1	1	0	0	0	1
Other Male Genital Organs	1	0	0	0	0	0	1
<b>Male Genital System</b>	<b>71</b>	<b>1</b>	<b>7</b>	<b>41</b>	<b>9</b>	<b>7</b>	<b>6</b>
Urinary Bladder	27	5	6	4	5	6	1
Kidney & Renal Pelvis	36	0	13	4	10	6	3
Other Urinary Organs	2	0	0	1	0	1	0
<b>Urinary System</b>	<b>65</b>	<b>5</b>	<b>19</b>	<b>9</b>	<b>15</b>	<b>13</b>	<b>4</b>
<b>Eye &amp; Orbit</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>
Brain	22	0	0	0	0	0	22
Cranial Nerves—Other Nervous System	3	0	0	0	0	0	3
Benign/Borderline Primary							
Intracranial and CNS	2	0	0	0	0	0	2
<b>Brain &amp; Other Nervous System</b>	<b>27</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>27</b>
Thyroid	23	0	11	1	4	5	2
Other Endocrine including Thymus	2	0	0	0	0	0	2
<b>Endocrine System</b>	<b>25</b>	<b>0</b>	<b>11</b>	<b>1</b>	<b>4</b>	<b>5</b>	<b>4</b>
Hodgkin's Lymphoma	9	0	2	2	2	1	2
Non-Hodgkin's Lymphoma	37	0	7	8	6	6	10
<b>Lymphoma</b>	<b>46</b>	<b>0</b>	<b>9</b>	<b>10</b>	<b>8</b>	<b>7</b>	<b>12</b>
Myeloma	13	0	0	0	0	0	13
Lymphocytic Leukemia	14	0	0	0	0	0	14
Myeloid & Monocytic Leukemia	28	0	0	0	0	0	28
Other Leukemia	2	0	0	0	0	0	2
<b>Blood &amp; Bone Marrow</b>	<b>57</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>57</b>
<b>Other &amp; Unknown Site</b>	<b>27</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>24</b>
<b>Total 2003 Analytic Cases</b>	<b>915</b>	<b>40</b>	<b>160</b>	<b>167</b>	<b>148</b>	<b>211</b>	<b>189</b>

<sup>†</sup> Includes primary sites that do not have an AJCC staging scheme

\* Excludes In-Situ Cervical Carcinoma

The Cancer Registry accessioned 915 analytic cases diagnosed in 873 patients in 2003.

Total Ga.	752
Total S.C.	113
Total Other States	8

<b>TOTAL</b>	<b>873</b>
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**Georgia**

Appling	4
Bacon	1
Baldwin	12
Bartow	1
Ben Hill	2
Berrien	2
Bibb	3
Bleckley	1
Brantley	2
Brooks	1
Bryan	1
Bulloch	12
Burke	27
Butts	2
Candler	1
Carroll	2
Chatham	3
Clarke	6
Clayton	2
Clinch	1
Cobb	4
Coffee	4
Colquitt	1
Columbia	128
Cook	3
Crawford	1
Crisp	1
Dawson	1
Dodge	11
Dooly	2
Dougherty	3
Douglas	4
Early	1
Effingham	1
Elbert	5
Emanuel	18
Forsyth	1
Gilmer	1
Glascock	5
Glynn	5
Grady	2
Greene	8
Gwinnett	2
Habersham	2
Hancock	5
Hart	1
Henry	3
Houston	7

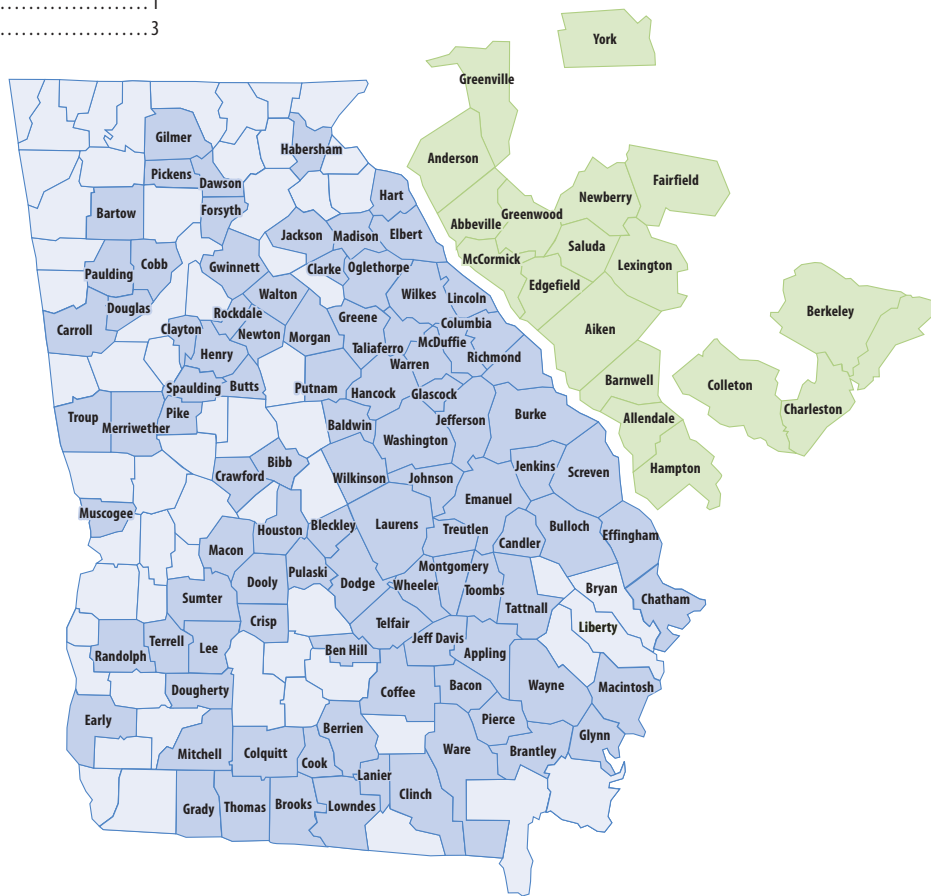
Jackson	2
Jeff Davis	4
Jefferson	13
Jenkins	7
Johnson	6
Lanier	2
Laurens	16
Lee	1
Liberty	2
Lincoln	7
Lowndes	7
McDuffie	25
Macintosh	1
Macon	1
Madison	3
Merriwether	1
Mitchell	2
Montgomery	1
Morgan	2
Muscogee	4
Newton	4
Oglethorpe	2
Paulding	1
Pickens	1
Pierce	1
Pike	3
Pulaski	1
Putnam	7
Randolph	1
Richmond	233
Rockdale	4
Screven	4
Spaulding	2
Sumter	1
Taliaferro	3
Tattnall	1
Telfair	3
Terrell	1
Thomas	1
Toombs	7
Treutlen	3
Troup	2
Walton	5
Ware	5
Warren	11
Washington	19
Wayne	1
Wheeler	2
Wilkes	16
Wilkinson	2

**South Carolina**

Abbeville	1
Aiken	75
Allendale	1
Anderson	4
Barnwell	6
Charleston	1
Colleton	2
Edgefield	7
Fairfield	1
Greenville	1
Greenwood	4
Hampton	1
Lexington	1
McCormick	3
Newberry	1
Saluda	3
York	1

**Other States**

Alabama	1
Hawaii	1
Michigan	1
Missouri	1
North Carolina	1
New York	1
Tennessee	1
Virgin Islands	1



According to the American Cancer Society, 122,400 new cases of head and neck cancer were diagnosed in the United States in 2003.<sup>1</sup> Cancer of the larynx accounted for 9,500 cases or 8 percent. According to the most recent data available from the SEER (Surveillance, Epidemiology and End Results) Cancer Statistics Review, 82 percent of all new larynx cancer cases were diagnosed in Caucasians and 14 percent of cases were diagnosed in African Americans.<sup>2</sup> From 1992 to 1999, the five-year survival rate for larynx cancer was 65 percent for all sites. Patients with localized disease had a five-year survival rate of 83 percent, while patients with more advanced disease fared more poorly, with five-year survival rates for regional and distant metastatic disease of 48 percent and 20 percent, respectively.<sup>2</sup>

In 2003, the multidisciplinary Head and Neck Tumor Board at MCG evaluated 262 new cases of head and neck cancer (*Figure 1*). Cancer of the larynx accounted for 33 cases or 13 percent. This represents a higher incidence than the national average. Two-thirds of patients presented with advanced stage disease (stage III or IV) (*Figure 2*) with more than half of all cases diagnosed as Stage IV at presentation (*Figure 3*). African Americans comprised 42 percent of all patients with larynx cancer, which is significantly higher than the national average

(*Figure 4*). Of Caucasian patients, 73 percent presented with advanced stage (III or IV) disease, while 58 percent of African American patients presented with advanced stage disease (*Figures 5 and 6*). The majority of patients were diagnosed between 40 and 60 years of age (*Figure 7*). There was no significant difference in age distribution by race.

Early stage disease (in situ, stage I or stage II) was treated with single modality therapy (surgery or radiation therapy), while advanced stage disease (stages III or IV) was treated with multimodality therapy consisting of either surgery followed by radiation therapy or concurrent chemoradiation therapy (*Figure 8*). One patient with stage IV disease was treated with surgery alone due to a history of prior irradiation to the head and neck.

The majority of patients received their care at MCG. The Head and Neck Tumor Board is comprised of members from Otolaryngology – Head and Neck Surgery, Radiation Oncology, Medical Oncology, Oral Surgery, Radiology and Pathology. The Tumor Board meets weekly to evaluate new head and neck cancer cases and to report follow-up on treated cases.

<sup>1</sup> Cancer Statistics, 2003. *CA Cancer J Clin*, 2003; 53:5-26

<sup>2</sup> SEER Cancer Statistics Review 1975-2000, National Cancer Institute

Figure 1 • Head and Neck Tumors 2003

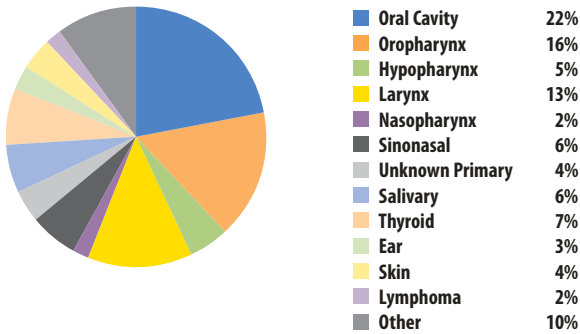


Figure 2 • Early vs. Advanced Stage Disease

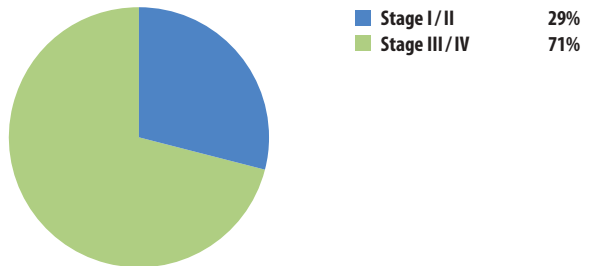


Figure 3 • Stage at Diagnosis

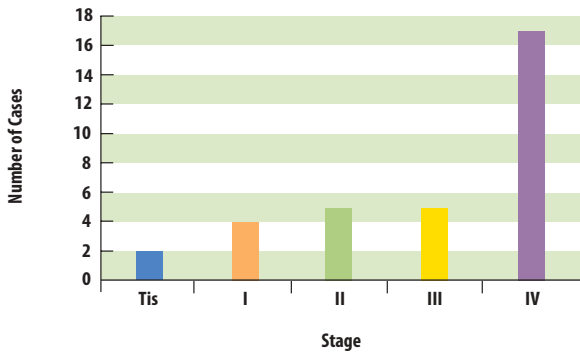


Figure 4 • Race

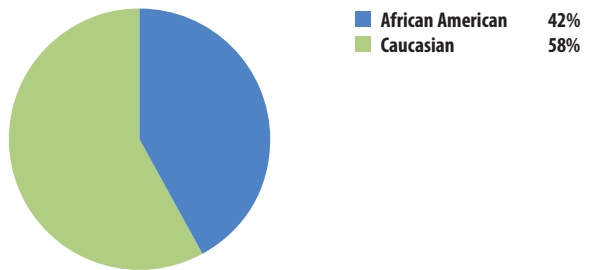


Figure 5 • Stage Distribution in Caucasian Patients

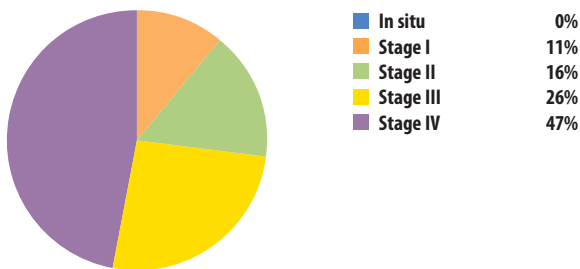


Figure 6 • Stage Distribution in African American Patients

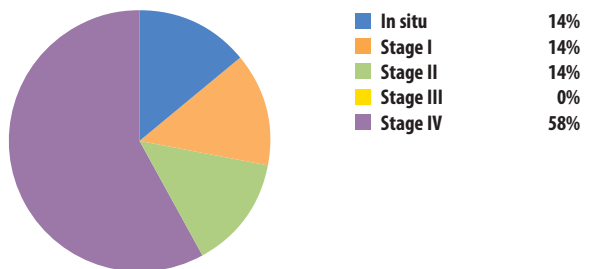


Figure 7 • Age at Diagnosis

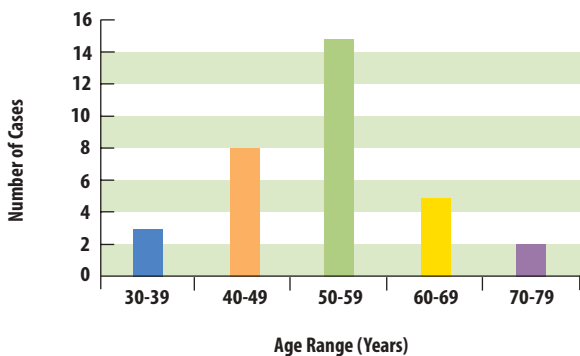


Figure 8 • Treatment Modality by Stage

	Tis	I	II	III	IV	TOTAL
No Treatment	0	0	0	0	0	0
Surgery Only	2	1	3	0	1	7
Surgery & Radiation	0	0	0	2	7	9
Surgery, Radiation & Chemotherapy	0	0	0	0	0	0
Radiation Only	0	2	2	0	0	4
Radiation & Chemotherapy	0	0	0	4	9	13
Chemotherapy Only	0	0	0	0	0	0
<b>TOTAL</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>6</b>	<b>17</b>	<b>33</b>

According to the American Cancer Society, an estimated 1,334,100 new cancer cases were diagnosed in the United States in 2003. Cases diagnosed in Georgia accounted for an estimated 33,400 cases, with MCG Health System reporting 2.7 percent of Georgia's cases.

Continuing a trend from past years, lung and bronchus, breast and prostate cancers were the cancers most frequently diagnosed and treated at MCG Health System. These percentages agree with the state and national estimates for the top three cancer sites for 2003. In the nation, the gender distribution for all cancers was estimated to be almost equal, with 50.6 percent of cancers occurring in males and 49.4 percent occurring in females. MCG's gender distribution nearly matches these estimates: 467 of the cancers diagnosed or treated at MCG were in male patients and 448 were in female patients.

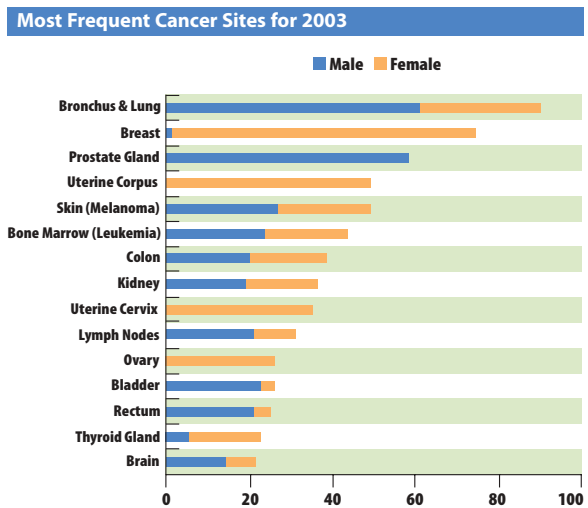
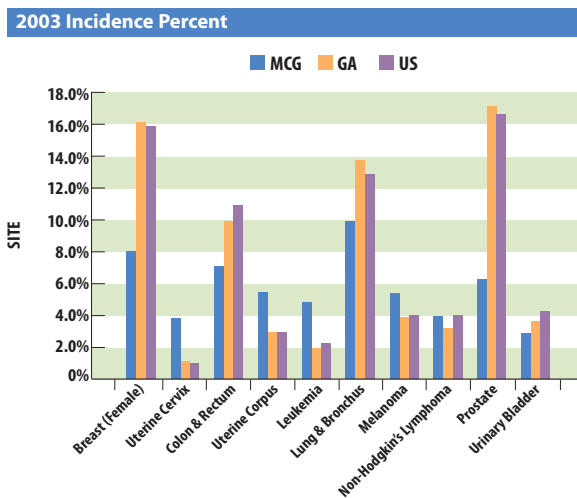
The ACS predicted 212,600 new, invasive breast cancers would be diagnosed in the United States in 2003, accounting for 15.9 percent of all cancers and for 32 percent of cancers in women. At MCG, breast cancers accounted for 8 percent of cancers,

remaining the top cancer site diagnosed and treated in women. Eighty-nine percent of MCG's breast cancers were invasive and 11 percent were in situ (non-invasive). The race distribution for breast cancer at MCG was 58.1 percent African American and 41.9 percent Caucasian. For 2003, the highest breast cancer incidence rate was predicted for the 50 to 59 age range for women in the United States. The MCG incidence rate for women in this age range matches the predicted national rate, with the 50 to 59 age range accounting for 37.9 percent of the invasive breast cancers.

The cancer patient volume at MCG continued to increase in 2003, with more new patients from both Georgia and South Carolina. Eighty-six percent of the patients came from Georgia, 13 percent came from South Carolina, and 1 percent came from other states and territories. Georgia patients presented from 98 different counties, representing more than 61 percent of the total counties in the state.

**References:**

- American Cancer Society, Cancer Facts and Figures 2003
- American Cancer Society, Breast Cancer Facts and Figures 2003-2004



# glossary

## **Analytic Case**

Cancer case initially diagnosed and/or treated at MCG.

## **Non-Analytic Case**

A patient initially diagnosed and treated elsewhere receiving subsequent care at MCG.

## **Reference Date**

The date after which all eligible cancer cases must be included in the MCG Cancer Registry database. This date is January 1, 1985.

## **Tumor Grade**

A method used to describe a tumor's resemblance to the normal tissue from which it arose.

*Grade 1* – Well differentiated

*Grade 2* – Moderately differentiated, intermediate differentiation

*Grade 3* – Poorly differentiated

*Grade 4* – Undifferentiated, anaplastic

## **Neoplasm**

Abnormal growth, such as a tumor.

## **Summary Stage**

*In Situ* – A neoplasm that fulfills all the microscopic criteria for malignancy except invasion.

*Localized* – A neoplasm that is confined to the site of origin.

*Regional* – A neoplasm that has spread by direct extension to immediately adjacent organs or tissue and may have metastasized to regional lymph nodes or organs, appearing to have spread no further.

*Distant* – A neoplasm that has spread beyond immediate adjacent organs or tissues by direct extension and may have developed either a secondary or metastatic tumor.

*Unknown* – A neoplasm whose stage cannot be determined from the medical record or from a medical authority.

## **TNM Stage**

A staging system developed by the American Joint Committee on Cancer that takes into account the tumor (T) size and/or depth of invasion, lymph node (N) involvement and distant metastases (M). For each applicable site, a combination of T, N and M elements gives a classification of stage I, II, III, IV or unknown. A higher stage usually suggests a less favorable prognosis.

**References:** American Cancer Society, National Cancer Institute, National Cancer Data Base, American Joint Committee on Cancer

# contact us

## **For Patients:**

For more information on our Comprehensive Cancer Program or to schedule an appointment, call 706-721-CARE (2273) or 1-800-736-CARE (2273).

## **For Physicians:**

Specially trained Health Referral Specialists answer calls 24 hours a day, seven days a week, and connect you directly with the MCG physician you request or the on-call physician.

**MCG Physicians Direct:** 1-800-733-1828

You can:

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- Consult with faculty physicians
- Follow up on patient status
- Access clinical studies and receive research updates
- Access other MCG professional programs and services, including continuing medical education and the medical library

**MCG Transfer Direct:** 1-877-561-5600

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Our experienced paramedics will:

- Arrange emergency patient transfers
- Arrange helicopter transport
- Stay on the line while you speak with an attending physician or specialist
- Handle your request for the Pediatric Transport Team

**On the Web:** [MCGHealth.org/cancer](http://MCGHealth.org/cancer)



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