

The George Washington University

Cancer Program and Cancer Registry

Annual Report 2011

The George Washington University Cancer Institute

The George Washington University Hospital

The George Washington Medical Faculty Associates

The Dr. Cyrus and Myrtle Katzen Cancer Research Center

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Research, Compassionate Care,
Education, and Service

LETTER FROM THE DIRECTOR

It's sometimes easy to think of cancer in the abstract: 1.6 million new cases annually, a breast cancer incidence of 126.7 per 100,000 women living in the District of Columbia; a prostate cancer mortality rate disparity of 54.9 to 22.4 among African Americans versus Caucasians. The numbers are an important point of analysis, but we can sometimes forget that those numbers represent people.

Since its inception in 2003, GWCI and its cancer program partners at GW's Medical Faculty Associates, the GW Hospital, and the Katzen Cancer Research Center have paired long-standing strengths in basic science research, cancer education, community health, and clinical care with major investments in cancer survivorship, patient navigation, and policy research initiatives to become one of the region's most comprehensive, patient-centered treatment and research institutes.

This approach has led to some important recent accomplishments. GW's translational scientists are developing new and better breast cancer screening options for women for whom standard mammography is less effective. Our basic scientists are exploring the cellular origins of cancer, from damage brought on by inflammation to signaling pathways gone awry. And GWCI's NCI-funded Patient Navigation Research Program is quantifying the impact patient navigation can have on access to treatment.

Earlier this year we welcomed Anne Willis as the new director of GWCI's Division of Cancer Survivorship. Anne brings a first-person perspective to survivorship, as a 14-year cancer survivor and one of the first patients in GWCI's Thriving After Cancer (TAC) clinic. Her presence will enhance services and educational opportunities for TAC patients to address their ongoing needs.

Recently, members of the National Patient Navigation Collaborative, which I co-chair with colleagues from the American Cancer Society and the University of Illinois at Chicago, came to GW for a meeting featuring the "father of patient navigation," Harold Freeman, M.D., to develop a strategic plan to "put patient navigation on the map."

GWCI's Center for the Advancement of Cancer Survivorship, Navigation, and Policy (CaSNP) commissioned a special Health Policy Working Group to break-down the Patient Protection and Affordable Care Act detailing its effect on cancer care and treatment. The group's findings are available online at www.gwumc.edu/acal. CaSNP also developed a comprehensive analysis of the state of cancer health care in the District of the Columbia. That analysis is being used throughout the city's departments to improve health care in the community.

Our goal has always been to create signature destination programs of local, regional, and international excellence, while breaking down access barriers to provide quality care to the medically underserved of our community.

Sincerely,



STEVEN PATIERNO, PH.D.
DIRECTOR OF THE GWCI





LETTER FROM THE CHAIR

It is with pleasure that I present the 2011 Annual Report of the Cancer Programs. We were proud to be third-time recipients of the Outstanding Achievement Award from the American College of Surgeons in 2010. It highlights our commitment to providing the best care and the best quality of life for each of our cancer patients. In the coming year, we will build on our accomplishments and aim for even loftier goals for 2012 and 2013. Our accomplishments from the previous year along with our goals for the coming year will guide our efforts.

Our program has expanded and includes the addition of new faculty and new services. We welcome several new physicians including Compton Benjamin, M.D., Ph.D., assistant professor in the Department of Urology; Khaled El-Shami, M.D., Ph.D., assistant professor in the Division of Hematology/Oncology; and Jonathan Sherman, M.D., assistant professor in the Department of Neurosurgery. Under the leadership of Robin Brannon R.D., C.S.O., GW Hospital expanded nutritional counseling to cancer patients. In addition, the hospital opened a new ostomy outpatient clinic and renovated the operating rooms. To provide counseling for head and neck cancer patients pre-operation, during hospitalization, and post-treatment, the ENHANCES program was organized by GW's Rehabilitation program.

The GW Outreach Subcommittee organized many successful screening and awareness programs for different cancers throughout the year. The Mammovan, Mobile Text Message Breast Self Exam Reminders, cancer education at the Foggy Bottom Neighbors block party, prostate screenings, and patient navigators have continued to help Washington, D.C., residents. A new partnership project between GWCI and GW Law School, the GW Cancer Pro Bono Project, was formed to offer cancer patients legal services. Furthermore, the "Thriving After Cancer" Survivorship Program has been so successful that the Commission on Cancer has asked to utilize the GW program plan as a "Best Practices" model for other cancer programs.

This year's Cancer Registry Report shows that the number of cancer patients entrusting their care to GW continues to grow, having increased from 1,306 in 2006 to 1,565 in 2010. This registry, a vital part of the GW Cancer Programs and has kept pace with the increasing cancer caseload during the last five years. We have added a Neuro-oncology registry, and our newly established Neuro-Oncology Tumor Board has been approved as Category I Continuing Medical Education.

I am proud to be a part of GW's multidisciplinary Cancer Programs. With the support of GWCI and outstanding cancer physicians, our program has a bright future. We look forward to a successful 2012 and a coming survey in October 2013.

Sincerely,



ROBERT S. SIEGEL, M.D.

CHAIR, CANCER COMMITTEE

DIRECTOR, DIVISION OF HEMATOLOGY AND ONCOLOGY

There's a caveat to the public health mantra "early detection saves lives." No matter how early the detection is, its life-saving praises cannot be sung without the accompaniment of prompt diagnosis and timely treatment.



RESEARCH

Nobel Laureate Brings Mission to Tackle Glioblastoma to GW

When Ferid Murad, M.D., Ph.D., University Professor and professor of Biochemistry and Molecular Biology at the GW School of Medicine and Health Sciences (SMHS), joined the GW faculty in April, he unpacked one nagging question: **How can deadly tumors be treated with minimal side effects?**

The question first begged an answer in the 1970s, when Murad's work with liver and renal tumor models first indicated a relationship between cyclic guanosine monophosphate (cGMP), an intercellular second messenger,

and tumor proliferation. But when Murad and his colleagues realized that their ambitions exceeded the day's technologies, they tabled the project for another time.

Now is that time, says Murad, who won the Nobel Prize in Physiology or Medicine in 1998 for uncovering the first biological effects of nitric oxide (NO). When NO interacts with a receptor on a cell's surface called guanylate cyclase (GC), he found, cGMP is released inside the cell to regulate its functions. NO is now known to be influential in countless biological processes, including smooth muscle relaxation, memory preservation, and, Murad thinks, cancer.

"NO and cGMP reprogram genes that influence the differentiation and proliferation of cells," he explains. "Because some of these effects are related to cancer proliferation, interrupting that process can be a novel way to treat cancers."

At GW, Murad is focusing on glioblastoma, a "very aggressive, nasty" type of brain cancer that he estimates kills up to 80 percent of its victims in fewer than three years. His goal is to enhance the expression of an isoform of the receptor GC and its product, cGMP, so that tumor cells can no longer hear the message "grow."

Murad and his team of investigators have already been able to quadruple the lifespan of mice injected with the altered tumor cells. "Can we do that with humans? I don't know, but I hope so," he says.

Murad brings his projects — which also include work with regenerative therapy and the development of a treatment for diarrhea in developing countries — from the University of Texas Health Science Center at Houston, where he was most recently director emeritus of the Institute of Molecular Medicine.

"Dr. Murad's presence on our faculty immediately catalyzes and elevates our strategic efforts in advancing scientific discovery, educating the next generation of physicians and scientists, and improving the health and lives of the people we treat," says Jeff Akman, M.D. '81, G.M.E. '85, interim vice president for Health Affairs and dean of SMHS.

Ferid Murad, M.D., Ph.D.



Clearing the Fog in Breast Cancer Screening

For most women, mammograms are the gold standard in care when it comes to early breast cancer detection. But for women with dense breast tissue, or an increased concentration of glandular and fibrous tissue, the technique is less effective.

Rachel Brem, MD, director of Breast Imaging and Intervention, professor of Radiology, and vice-chair for Research and Faculty Development in SMHS's Department of Radiology, is helping to give these women more options. As the principal investigator of the SOMO•INSIGHT Clinical Study, she is examining whether Full Field Digital Mammography along with the somo•v™ Automated Breast Ultrasound (ABUS) can improve breast cancer detection when compared to mammography alone in women with dense breasts.

In a mammogram, Brem explains, dense breast tissue is white and breast cancer is white. **"It's like trying to pick out a specific cloud in a cloud-filled sky."** Brem believes her study will confirm that this new 3D high-definition ultrasound imaging technology can serve as a more effective tool for those 40 percent of women with dense breasts.

"This is a very robust technology for finding additional cancers for women with dense breasts who would not otherwise have had their cancers identified during a routine screening," she says.

The SOMO•INSIGHT study is a multi-institutional trial examining a pool of more than 12,000 women nationally, including nearly 3,000 patients at GW. The study is looking for incremental increases in cancer detection numbers for women with dense breasts who are asymptomatic, but are not at high risk for developing breast cancer. After identifying study participants and collecting data for two and a half years, Brem is now analyzing the data.

According to Brem, the technique is a watershed moment in cancer research as technology moves breast cancer screening into the realm of individualized care. "It used to be 'one size fits all,' but now we can target the screening to the patient's specific needs," she says.



Rachel Brem, MD, studies a Full Field Digital Mammography mamogram in her lab.

**“Dense breast tissue is white
and breast cancer is white. It’s
like trying to pick out a specific
cloud in a cloud-filled sky.”**

Detecting Bile-Duct Cancer in Southeast Asia

SMHS researchers received a \$2.5-million ROI grant from the National Cancer Institute to develop a technique for detecting a deadly form of bile duct cancer caused by parasites. The researchers are developing proteomic biomarkers for Cholangiocarcinoma (CCA), a cancer caused by the liver fluke *Opisthorchis viverrini*. **The food-borne parasite currently infects more than 40 million people, primarily in Southeast Asia** where parasite-infested fish are a staple of the local diet.

RESEARCH

“CCA is a serious cancer with a very poor prognosis,” says Paul Brindley, Ph.D., a tropical disease specialist and professor in GW’s Department of Microbiology, Immunology, and Tropical Medicine (MITM). Because patients often have nonspecific symptoms, such as abdominal pain and fatigue, the cancer “is usually not diagnosed until it’s well advanced, and sadly, people generally don’t live very long after it’s diagnosed,” he adds.

The GW researchers, led by Brindley and Jeffrey M. Bethony, Ph.D., associate professor in MITM, are partnering with scientists in Australia and Thailand to follow more than 1,000 individuals in northeastern Thailand who are at high risk of developing liver fluke-induced bile duct cancer. The team will scan tumor tissues and matched plasma from bile duct cancer patients to identify potential biomarkers near the disease site. Then, they will verify these markers by examining plasma from members of the study who are at risk for the cancer but are currently healthy.

Brindley and Bethony began the CCA cohort study as part of an International Collaborations in Infectious Diseases Research grant

awarded by the National Institute of Allergy and Infectious Diseases.

Digital Transcriptome Discovery Could Lead to Targeted Therapies for Breast Cancer

A GW cancer research team from the Department of Biochemistry and Molecular Biology published a first-of-its-kind study about the use of mRNA sequencing to look at the expression of the genome for three types of breast cancer at an unprecedented resolution. The study was published in the journal, *Scientific Reports*, a new open access journal for large volume data from the publishers of *Nature*.

Breast cancer is the leading cause of cancer death among women, but its heterogeneity makes translating current gene expression research into patient treatments difficult. By studying the transcriptional regulatory machinery responsible for the cellular changes that result in breast cancer, however, researchers hope to overcome this roadblock.

The team was led by senior author Rakesh Kumar, Ph.D., chair of the Department of

Parasites Linked to Deadly Bladder Cancer

Researchers at SMHS have identified a gene that enables the parasite *Schistosoma haematobium* to establish a foothold in its human host, a grip that ultimately may lead to a devastating form of bladder cancer.

Schistosomes, or helminth worms, are waterborne parasites that are responsible for two-thirds of the world’s 200 million to 400 million cases of schistosomiasis, a disease that results in an estimated 280,000 deaths each year.

In the July 2011 edition of the journal *Hepatology*, SMHS researchers describe the role of the metastasis-associated protein-1 (MTA1) gene in the proliferation of schistosomes. MTA1 is a crucial gene that controls the process of chromatin remodeling of cytokines, including those responsible for inflammation. The team infected

two strains of mice – one with an intact MTA1 gene and one without it – with parasite larva.

After analyzing the blood at various stages after infection, the researchers found that the mice with the gene had severe granulomatous lesions in the liver and a high worm count. “In the mice that did not have the gene, however, there were neither worms nor eggs,” says lead author Sujit Nair, Ph.D., assistant research professor in SMHS’s Department of Biochemistry and Molecular Biology.

The results indicate that the absence of the MTA1 gene does not compromise the mice’s susceptibility to the parasite infection, but it does limit the survival of schistosomes in the host. Researchers believe this persistent inflammation over time can lead to cancer.

Biochemistry and Molecular Biology in SMHS, and included collaborators from the John Hopkins College of Medicine and Baylor College of Medicine. The researchers compared the gene expression patterns of 17 patients with three different types of breast cancer to identify biologically relevant, therapeutically important, sets of targets in breast cancer. They defined a comprehensive digital transcriptome — RNA molecules found in a population of cells — and performed an extensive comparative analysis that yielded a staggering 1.2 billion reads at various levels of the transcriptional process.

While most research today is focused on preselected genes, GW's unbiased approach came up with an original snapshot of the breast cancer transcriptome. The team is working to gain a better understanding of the fundamental occurrences orchestrating the events that lead to a patient suffering from breast cancer.

“This study has implications beyond the current digital transcriptome of breast cancer,” says Kumar. The work may influence breast cancer genomics, the transcriptional regulation of cancer, and help build new biologic pathways in breast cancer, he says.

Proof for the Power of Patient Navigation

There’s a caveat to the public health mantra “early detection saves lives:” No matter how early the detection is, its life-saving praises cannot be sung without the accompaniment of prompt diagnosis and timely treatment.

It’s a phenomenon all too familiar in Washington, D.C., where minority populations suffer from significant disparities in access to care and, in effect, suffer from higher rates of prostate, breast, colorectal, and cervical cancers.

But thanks to GWCI’s participation in the **DC City-wide Patient Navigation Research Program (PNRP), a five-year study evaluating the effectiveness of patient navigation in breast cancer detection and treatment**, this trend may soon decelerate — and eventually come to a halt.

The preliminary results, which were presented at the American Association for Cancer

Research meeting in September, revealed that women who were helped by patient navigators experienced significantly less time between an abnormal screening and a definitive diagnosis than women who were not paired with patient navigators.



To conduct the study, which was launched in 2005 by the National Cancer Institute’s Center for Research on Cancer Health Disparities, **GWCI and its collaborators enrolled women with suspicious findings on mammograms or screenings and paired them with a patient navigator.** If necessary, the women were assigned to a linguistically competent peer counselor. Then, the time between first detection and diagnosis and, if a malignancy was detected, between diagnosis and initial treatment, was compared with non-navigated timelines.

Aside from improving minority and underserved women’s access to timely care, the program — which involved an unprecedented collaboration between four major medical institutions, two community partners, and the D.C. Department of Health — also set the groundwork for a comprehensive patient navigation network spanning Washington, D.C.

“We look forward to continuing our collaborations and using the study’s results to develop operationally- and cost-effective patient navigation interventions that will improve cancer care and reduce disparities across our city,” says Steven Patierno, Ph.D., director of GWCI and principal investigator of the D.C. City-wide PNRP.

To be an oncologist today means linking these once separate spheres — clinical care, basic, and translational science — into one, unbroken chain of knowledge.



CLINICAL CARE

CLINICAL CARE

An Evidence-Based Clinician

There is something compelling about The George Washington University and it wasn't long before Khaled el-Shami, M.D., Ph.D., assistant professor of Oncology and Medicine in GW's School of Medicine and Health Sciences, put his finger on what it is.

During a meeting early in his tenure, he and several colleagues began counting the former GW trainees among the faculty. There were many.

Khaled el-Shami, M.D., Ph.D.



“It shows how one can rise through the ranks, from being a student to a colleague, and then a mentor to new trainees,” says el-Shami, who completed his medical residency at GW. “That’s a very gratifying part of returning.”

El-Shami, who earned his Ph.D. in cancer immunology from Weizmann Institute of Science, sees cancer through the prism of the immune system. He considers the idea of marshaling one’s own immune system to ward off the spread of cancer remains an alluring possibility.

“I see cancer from the perspective of biology, rather than a particular anatomical organ system in which the cancer arose or spread to,” he explains. “The biology perspective provides a unifying theme: All cancers arise and evolve through acquisition of genetic and epigenetic abnormalities which result in the same phenotype — unchecked cell growth and metastasis.”

El-Shami, who spends about 60 percent of his time treating patients at GW’s Medical Faculty Associates (MFA), says **to be an oncologist today means linking these once separate spheres – clinician, basic, and translational science – into one, unbroken chain of knowledge.** “I have always been taught that the best clinical care is given in the context of good, ethical hypothesis-driven clinical research, and I could not agree more,” he says.

Since his return to the University, el-Shami has begun exploring the use of certain molecules to essentially unleash the immune system for patients with colon cancer and certain types of brain cancer to battle the enemy within. He refers to the current era of cancer treatment as the “Gleevec period,” named for a new and increasingly common class of drugs that attack cancer by altering the signaling pathways of cells.

“I am trying to hit the ground running,” says el-Shami. “GW is a fantastic institution with critical resources and a critical mass of knowledge in biology and medicine. Our unique location offers the possibility to serve as a powerhouse for cutting edge biomedical research.”

A Nurse Practitioner Connects Cancer Survivors' Pasts with Their Futures

In many ways, curing cancer can be hazardous to your health. Long-term and late effects of treatments, such as infertility, heart problems, weak bones, or depression, can haunt a person just at the moment they start feeling secure in their recovery.

"Thanks to advances in screening and treatment, more people are surviving cancers than ever before," says Carrie Tilley, a nurse practitioner at The Dr. Cyrus and Myrtle Katzen Cancer Research Center who heads up a new Adult Thriving After Cancer (TAC) clinic aimed at helping cancer survivors address the potential late-effects from cancer treatment.

"Unfortunately, we don't have guidelines for long-term follow-up care," she says. "We need to create a system to care for survivors for the rest of their lives."

Following the success of the Pediatric TAC clinic that launched nearly two years ago, providers at the GW MFA and GW Cancer Institute (GWCI) teamed up to open the Adult TAC cancer survivorship clinic in October 2011 for survivors who have completed their primary treatment. The Adult TAC clinic provides patients with a survivorship care plan, which includes a summary of their treatment and recommendations for long-term follow-up care. The clinic also focuses on the actual and potential late-effects of each individual's cancer treatment.

"Cancer therapeutics are pretty toxic," explains Tilley. If cancer-free people were accidentally exposed to cancer treatments, for example, they might be rushed to the hospital. While the prospects of untreated cancer are far worse, "survivors might develop any number of late-effects such as heart disease or depression," adds Tilley.

As part of the Adult TAC clinic, **a multidisciplinary team of health care professionals from the GW MFA and GWCI plan to explore the incidence of these late-effects facing cancer survivors.**

"I am eager to explore how prevalent these side effects actually are," says Tilley. "We may find themes based on the treatment, or how far removed a patient



is from treatment. We need to prove that [survivorship care] is cost-effective and beneficial."

The need for treatment information and a long-term care plan is often more accepted for adult survivors of pediatric cancer, who as children were less likely to have been active participants in their care than survivors who were diagnosed with cancer in adulthood. But even the most organized people can get lost in the immediacy of their treatment, says Tilley.

Crafting a post-treatment plan is a critical part of making sure that care is appropriately shifted between clinicians, since oncologists and surgeons "cannot possibly keep seeing every patient 25 years after their active treatment has ended," says Tilley. Another clinician should focus on the middle ground between acute cancer care and primary care.

GW's Adult Survivor Clinic is the first of its kind in the Washington, D.C., region. The clinic unites internal medicine clinicians, psychiatrists, clinical dietitians, and students from GW's exercise science program, together with an oncology nurse practitioner and a nurse navigator, to focus on post-treatment issues.

The clinic, says Tilley, benefits from having all of these pieces available and on-site. "We're lucky to have these resources, not only to be able to support patients in the clinic, but also to consult with GWCI's survivorship experts about the latest information and advances in survivorship care."

Eighty percent of adult survivors of pediatric cancer make it beyond five years after diagnosis, but they still frequently suffer from late effects such as cancer recurrence and higher rates of cardiac and pulmonary diseases.



SURVIVORSHIP

SURVIVORSHIP

An Uncharted Profession

In many ways, the field of patient navigation has gotten ahead of itself. Despite its demonstrated value, the profession — which guides patients through disease screening, diagnosis, treatment, and, in cancer, survivorship — is not yet a reimbursable service in the health care system and lacks a national training or credentialing standard that would solidify it as a professional field.

But thanks to a recent meeting hosted by the GW Cancer Institute (GWCI), the field is closer than ever to catching itself up.

For the first time since its creation, **members of the National Patient Navigation Collaborative (NPNC), an initiative between GWCI, the American Cancer Society, and the University of Illinois at Chicago, came together to develop a strategic plan** that will help to establish patient navigation as an integral part of the health care system.

The meeting brought together dozens of professionals from organizations and universities across the country. “There is now a collective that will speak with one voice and work together to further patient navigation for the purpose of

helping patients,” said Steven Patierno, Ph.D., director of GWCI and co-chair of the meeting.

The “father of patient navigation,” Harold Freeman, M.D., president and founder of the Harold P. Freeman Patient Navigation Institute, was a featured speaker at the event. **“Let’s take the evidence we have today to put patient navigation on the map** as something that’s appreciated and funded by the government,” he said. “The endpoint is to save lives of people who would otherwise die.”

Legal Ease

GWCI and the GW Law School have partnered to launch the **GW Cancer Pro Bono Project**, a new legal service for cancer patients. The program connects GW cancer patients with law students, who, under the supervision of licensed practicing attorneys, offer an array of legal assistance on advanced directives, employment law, insurance coverage, social security, wills, and more.

Steven Patierno, Ph.D., director of GWCI, co-chairs a meeting between members of the National Patient Navigation Collaborative.



Christina Cianflone, J.D., director of GWCI's Division of Cancer Prevention and Community Health, who worked for a legal clinic in law school, is credited with establishing the partnership. "As a law student, working for a clinic or a program like this can be incredibly rewarding," she says.

Under the arrangement, the students do not represent the patients or provide legal advice as practicing attorneys. Rather, they help to facilitate the creation of legal documents and refer more complex matters to outside services.

Since launching in early October 2011, the project has attracted far more student volunteers than expected. Why? "Because it's a good idea," says David M. Johnson, J.D., assistant dean for Public Interest and Public Service Law, and director of Advocacy Programs.

The National Patient Navigation Collaborative is an initiative between GWCI, the American Cancer Society, and the University of Illinois at Chicago.



Scholarly Health Policy

The "before" and "after" pictures of a cancer patient or survivor on either side of the implementation of the Patient Protection and Affordable Care Act can be drastically different. The law's effect can mean the difference between insurance coverage and no insurance coverage, homeownership and bankruptcy, even life and death.

At GWCI's Second Annual Cancer Health Policy Scholars Program, cancer researchers, clinicians, and advocates worked through various scenarios in order to understand just how. **The training provided a comprehensive orientation to cancer health policy, the federal policymaking process, major provisions of the Afford-**

able Care Act, and emerging health reform implementation issues.

"The program empowered attendees to be actively involved in the public policy process to ultimately improve patient outcomes," says Elisabeth Reed, program coordinator of GWCI's caSNP, which co-hosted the program along with GW's Department of Health Policy in the School of Public Health and Health Services

The training, which featured panels, lectures, and even a trip to Capitol Hill, was led by experts from GWCI, GW's Department of Health Policy, LIVESTRONG, the National Cancer Institute, and other prominent cancer organizations.

SURVIVORSHIP

Personal Business

A work-life balance is not a trait Anne Willis values much in a career. After all, when you're a cancer survivor working in the field of cancer survivorship, the concept doesn't really apply. "Cancer is so much a part of who I am and what I do," says Willis, a 14-year cancer survivor and **the new director of GWCI's Division of Cancer Survivorship.**

Willis, who was diagnosed with Ewing's Sarcoma at age 15, was one of the first patients

the center's unique executive training courses on navigation and survivorship.

She's excited to continue work with the National Cancer Survivorship Resource Center, a collaboration with the American Cancer Society through a cooperative agreement with the Centers for Disease Control and Prevention. So far, the Center is in the process of writing white papers to educate policy makers, creating resources for cancer survivors, and developing post-treatment resources and guidance for health care providers.

Symposium Highlights Challenges Faced by Adult Survivors of Pediatric Cancer

Lauren Antognoli was 17 years old when she underwent treatment for Hodgkins Lymphoma. Today, she's in her mid-20s and cancer-free. But, she says, "Even though the disease is eradicated from your body, it's not gone from you or your life."

Antognoli, who spoke at the GWCI Biennial Cancer Survivorship Research Symposium in May 2011, is just one of approximately 270,000 adult survivors of pediatric cancer in the United States. The symposium, which was sponsored by the EagleBank Foundation, the GW Hospital Women's Board, the American Cancer Society, and LIVESTRONG, brought together nearly 70 cancer survivors, researchers, doctors, and caregivers to share knowledge and discuss solutions related to the array of physical, psychological, and social challenges faced by survivors like Antognoli.

Eighty percent of adult survivors of pediatric cancer make it beyond five years after diagnosis, but they still frequently suffer from late effects such as cancer recurrence and higher rates of cardiac and pulmonary diseases.

Conference participants called for interventions on many fronts: psychosocial, health maintenance, community-based, health system, and professional training. They also stressed the importance of research on adult survivors of pediatric cancer, multidisciplinary and coordinated care, and education for survivors, educators, and the public.

"Even though the disease is eradicated from your body, it's not gone from you or your life."

in GWCI's Thriving After Cancer (TAC) clinic that launched in Fall 2010. Her positive experience with the program, plus her professional background in cancer survivorship, made her the perfect candidate to direct GWCI's Division of Cancer Survivorship.

"My experience with cancer really helps me figure out what we need to be doing and to connect with the people we are serving," She says. "Working at the Institute is exciting because everybody here is really dedicated to fighting cancer."

Since assuming the position in the Spring of 2011, **Willis has helped to enhance services and educational opportunities for TAC patients** to address their ongoing needs, and has led the development of classes for the broader community that prepare cancer patients for life after treatment.

Willis, who is also co-director of GWCI's Center for the Advancement of Cancer Survivorship (caSNP), Navigation and Policy, also anticipates making a national impact through

Psychosomatic Survivorship

Lorenzo Norris, M.D., assistant professor of Psychiatry and Behavioral Sciences at the GW School of Medicine and Health Sciences, listens intently, asks questions often, and scribbles notes so enthusiastically that they drown his table in paper and – when his notebook runs dry – napkins. At professional conferences, he’s learned it’s best to sit alone.

Norris’s passion for, and success in, the field of psycho-oncology is so apparent that it’s hard to believe he’s relatively new to the sub-specialty. Trained in psychosomatic medicine – a field that emphasizes the interaction between mind, brain, and body – Norris first focused on issues of capacity and delirium when he came to GW in 2006. But after working with a string of cancer patients and survivors who were referred to him by colleagues, he couldn’t help but want more.

“All diseases are unique, but cancer is different. It’s the gravity, the complexity, and the interdisciplinary teamwork it requires,” Norris explains. Today, Norris is fully immersed in the world of cancer survivorship at GW. As director of the GW Medical Faculty Associate’s

Psychiatric Consultation-Liaison Service, he helps promote communication and collaboration between members of cancer patients’ health care teams. He treats patients in GWCI’s TAC Clinic, and is beginning work with a similar clinic for survivors of adult-onset cancer.

Norris also spearheads Survivorship Psychiatric Services (SPS), a joint effort between GWCI and the MFA that provides targeted psychiatric services to help patients transition through the cancer care continuum.

One goal of SPS is to help medical students and residents feel comfortable working with cancer patients. “It’s not just about medication or treatment or extending life, but very much about the patient’s quality of life,” he explains.

In the future, **Norris hopes to enhance psychiatric support for cancer survivors, create educational materials about the psycho-social care of survivors,** and build collaborations in cancer care both inside of GW and across Washington, D.C.

“If we can take this energy that, first and foremost, comes from patients, I think some great things are going to happen,” he says.



The Patient Protection and Affordable Care Act is perhaps the most significant health care legislation in generations, but in the two years since its passage, few Americans know much about the law or how it will affect them personally.



COMMUNITY

Mobilizing Youth to Combat Smoking

GW Cancer Institute (GWCI), together with more than 10 community education partners, is working to reduce youth smoking through a \$150,000 grant from the Washington, D.C. Department of Health. The grant **enlists local youth-based community groups to help spread the word about the risks of tobacco and to educate local merchants about their responsibilities** to restrict the sale of tobacco products to the city's minors.

GWCI intentionally focused on community mobilization in association with the youth advocacy groups in an effort to make the project more sustainable. "The more youth and parents we have on board, the more support there will be for enforcing the laws and supporting area retailers who enforce the laws," explains Julie Ost, a former program associate in the Division of Cancer Prevention and Community Health, who oversaw the grant.



laws should be strengthened to have the greatest effect on youth and tobacco product vendors.

Annual Luncheon Celebrates Breast Cancer Survivorship

Breast Cancer is personal to Christie Teal, M.D., assistant professor of Surgery in the George Washington University School of Medicine and Health Sciences (SMHS) and director of the GW Breast Care Center, in the GW Medical Faculty Associates. Teal has undergone an elective double mastectomy and her mother is a two-time survivor.

But at the Breast Care Center's annual luncheon in October, Teal and her colleague Anita McSwain, M.D., who is also a breast cancer survivor, turned the focus to their patients. The event, which brought together nearly 300 survivors, doctors, and patient navigators, was larger than ever before.

"A survivor is a person who continues to function or prosper in spite of opposition, hardships, or setbacks,"

**With smoking, prevention
is the key. The fight isn't over
because people are still smoking.**

With smoking, prevention is the key, says Ost. And, although many anti-smoking campaigns have already been successful, **Ost says the fight isn't over "because people are still smoking."**

As a part of the grant, faculty members Stephanie David and Jen Leonard from the Department of Health Policy in GW's School of Public Health and Health Services (SPHHS) are analyzing the city's youth tobacco access laws. They will make recommendations about which

said Tracy Grant, a breast cancer survivor who produced a documentary about her experience and served as the lunch's keynote speaker. Family members, friends, and doctors are also survivors, she said.

Grant emphasized the importance of attitude when facing breast cancer. "You didn't choose to get breast cancer, but you can make the choice to get back up and fight — no matter what the outcome," she said.

GWCI Receives Susan G. Komen Grant for Survivorship, Navigation Efforts

GW Cancer Institute (GWCI) recently received a **\$500,000 grant from Susan G. Komen for the Cure**, focused on Breast Cancer Survivorship. The three-year grant promises to help GWCI extend the care continuum for Washington, D.C., area breast cancer survivors, improving post-treatment care and increasing the number of survivors receiving survivorship care plans.

"We are delighted to be working with Christie Teal, M.D., associate professor of Surgery, on this effort," says Steven Patierno, director, GW Cancer Institute. "In addition to a number of citywide survivorship

initiatives this grant provides the support necessary to sustain a number of important ongoing initiatives at GWCI and the GW Medical Faculty Associates' Breast Care Center."

The Komen funding will enable GWCI to expand capacity in its Thriving After Cancer Program, providing clinical care and survivorship care plans for 190 breast cancer survivors. The grant also will help the institute increase citywide capacity to address breast cancer survivors' needs by providing annual training to 30 navigators in the Cancer Patient Navigation Network.



Decoding the Affordable Care Act

The Patient Protection and Affordable Care Act is perhaps the most significant health care legislation in generations, but in the two years since its passage, few Americans know much about the law or how it will affect them personally.

So GWCI's Center for the Advancement of Cancer Survivorship, Navigation and Policy (CaSNP) established a Cancer Health Policy Working Group to inspect the law's potential impact on cancer prevention, detection, treatment, navigation, and survivorship. The group is composed of representatives from throughout the GW community, as well as leaders and researchers at GWCI.

"We determined what aspects of cancer care the law improved, adequately addressed, or left out," explains Christina Cianflone, director of GWCI's Division of Cancer Prevention and Community Health and one of the working group members.

Focusing on the uninsured, the privately insured, Medicare recipients, and Medicaid recipients, the team crafted an easy **breakdown of the law's benefits and gaps, which is available online at www.gwumc.edu/aca/**.

Overall, the working group judged the Affordable Care Act's influence on cancer care favorably, thanks in



large part to measures such as consumer protections aimed at safeguarding coverage for those with pre-existing conditions. "These changes promise to have a big impact, in a very positive way, on the cancer patient community," says Cianflone.

Avon Foundation Supports Patient Navigation, Breast Cancer Tests

GWCI and SMHS received two grants from the Avon Foundation totaling \$400,000.

A \$250,000 award supports three patient navigation and education programs: a partnership with the **Capital Breast Care Center** to help underserved women receive screening and follow-up care, patient navigation services offered by the GW Breast Imaging and Intervention Center, and GWCI's m-health Breast Self-Exam Reminder Text Message Program.

The other grant, awarded to SMHS for the third consecutive year, is a \$150,000 Avon grant that supports research on a new test to assess risk of breast cancer. The project is led by Patricia Berg, Ph.D., professor of Biochemistry and Molecular Biology in SMHS.

"The support of the Avon Foundation allows us to continue to improve access to screenings and follow-up care for women in the most vulnerable populations," says Christina Cianflone, director of GWCI's Division of Cancer Prevention and Community Health, who accepted a check for the projects during the closing ceremony of the local Avon Walk for Breast Cancer, May 1.

Marine Corps Marathon

Braving morning temperatures below 40 degrees and a freak blast of winter weather the day before, a team of 61 GW alumni, students, faculty, staff, and friends joined more than 21,000 other runners to race in the 36th Annual Marine Corps Marathon and the Marine Corps 10-kilometer race, Oct. 30, 2011.

The group, all members of the second annual GWCI marathon team, turned the support of friends and family — as well as hours of training, sore feet, and blisters — into more than \$25,000 for GWCI’s efforts to increase support for survivorship initiatives, provide patient navigation for those in need of services, and to develop treatments to target cancer cells.

“This was my first marathon, and I ran in memory of my stepfather who died of throat

cancer in 2004,” says Quintin Steele, a 26-year-old veteran and a student at GW.

Marguerite “Peg” Barratt, M. Phil. ’78, Dean of GW’s Columbian College of Arts and Sciences, also ran with the GWCI team. To stay motivated, Barratt says she “thought about the people who had donated to GWCI in memory of those whom they had lost.”

GWCI expanded its marathon team nearly six-fold and also launched a 10K team.

“It’s clear that one of our greatest strengths is the support we receive from our local community,” says Steven Patierno, Ph.D., director of GWCI.

Registration is underway for the 2012 Marine Corps Marathon and 10K race. **For more information about the GWCI teams, to register, or to support the runners, logon to www.gwumc.edu/gwci/marine.html.**





2011 GW HOSPITAL CANCER
REGISTRY ANNUAL REPORT

THE GEORGE WASHINGTON UNIVERSITY HOSPITAL 2011 CANCER REGISTRY ANNUAL REPORT (BASED ON 2010 DATA)

The GW cancer registry has grown consistently over the past five years (Figure 1). The number of patients diagnosed and/or treated (analytic cases) at The George Washington University Hospital (GW Hospital) has risen from 1,037 in 2006 to 1,422 in 2010 (Figure 1). Of these patients, 1,179 or 83 percent were diagnosed and treated at GW Hospital. The remaining 243 cases or 17 percent were diagnosed-only cases.

The five major cancer sites treated at GW Hospital continue to be breast, lung, prostate, colon, and kidney cancers (Figure 2). There was a slight increase in the number of lymphoma and hematopoietic, thyroid and other endocrine glands, and nervous system cases, as well as a significant increase in digestive and head neck cancers. Digestive cancers rose from 9.4

percent in 2009 to 12.2 percent in 2010, while head and neck cancers increased from 2.5 percent in 2009 to 3.8 percent in 2010 (Table 1).

Tables 2A and 2B show a comparison between GW Hospital cancer cases and national American Cancer Society (ACS) data for male and female patients. Although ACS data indicates a slight decrease in urinary bladder and lung cancers overall, there was a significant increase in the number of cases of these cancer in the female population. Colorectal cancer among female patients increased from 3.5 percent in 2009 to 7.4 percent in 2010; from 8.3 percent in 2009 to 10.0 percent in 2010 in female lung cancer patients, and from 3.0 percent in 2009 to 5.1 percent in 2010 in female urinary bladder cancer patients.

Figure 1: 2010 Trend in Numbers of New Cancer Patients Diagnosed and/or Treated at GW Hospital

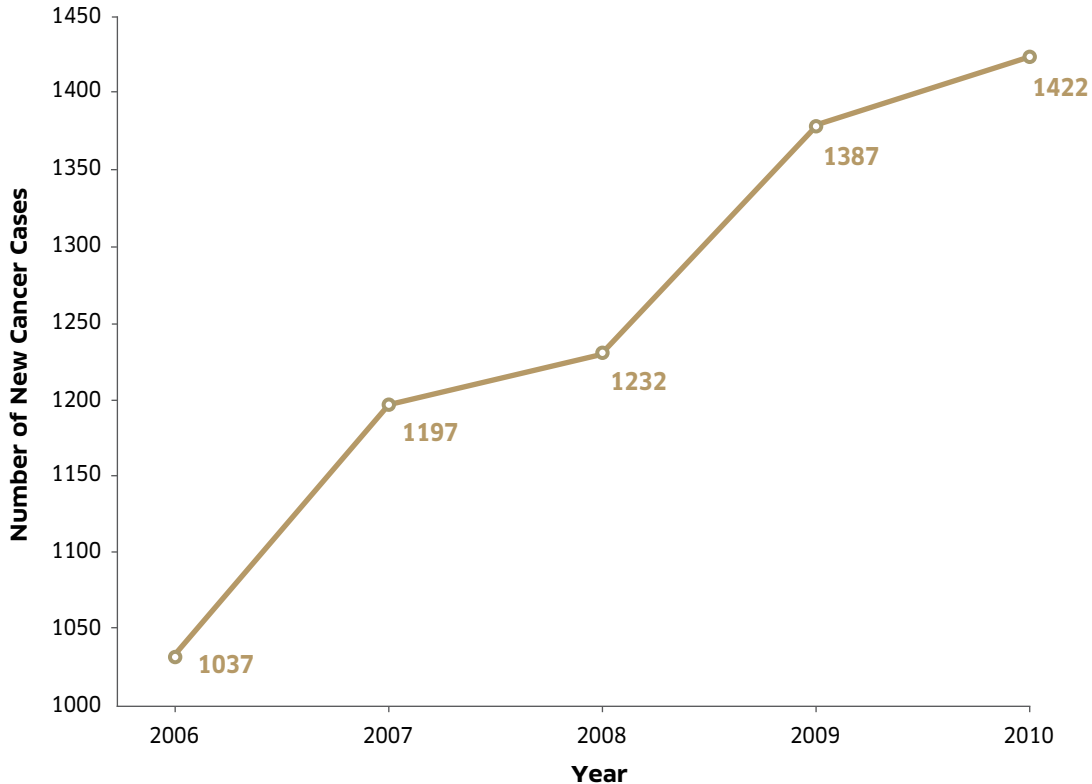


TABLE 1: The George Washington University Hospital (GW Hospital) 2010 Cancer Cases By Anatomic Site

Primary Site	# Cases	% Cases	Class of Cases		Race***			AJCC Stage at Diagnosis (Analytic Cases Only)						
			Analytic	Non-Analytic**	W	B	O	0	I	II	III	IV	88	UNK
HEAD AND NECK	60	3.8	54	6	31	20	9	0	15	6	8	22	3	0
Tongue	10	0.6	9	1	9	1	0	0	4	2	1	2	0	0
Salivary Gland	8	0.5	6	2	4	0	4	0	2	0	1	3	0	0
Floor of Mouth	4	0.3	4	0	3	1	0	0	0	0	1	3	0	0
Gum and Other mouth	7	0.4	7	0	4	2	1	0	1	0	1	4	1	0
Tonsils	1	0.1	1	0	1	0	0	0	1	0	0	0	0	0
Oropharynx	6	0.4	5	1	3	3	0	0	1	0	0	4	0	0
Hypopharynx	2	0.1	2	0	1	1	0	0	1	0	0	1	0	0
Nasopharynx	5	0.3	4	1	0	3	2	0	2	0	1	1	0	0
Other oral cavities	3	0.2	2	1	1	1	1	0	0	0	0	1	1	0
Nasal Cavity/Sinuses	2	0.1	2	0	0	2	0	0	0	0	0	1	1	0
Larynx	12	0.8	12	0	5	6	1	0	3	4	3	2	0	0
DIGESTIVE SYSTEM	187	12.0	173	14	81	80	26	7	35	34	30	49	16	2
Esophagus	10	0.6	8	2	6	3	1	0	0	3	1	3	0	1
Stomach	23	1.5	23	0	13	5	5	0	2	0	2	12	6	1
Small Intestine	9	0.6	8	1	3	5	1	0	1	0	2	3	2	0
Colon/Rectum	92	5.9	82	10	38	42	12	6	18	17	17	18	6	0
Anus/Anal canal	10	0.6	10	0	3	7	0	0	2	5	3	0	0	0
Liver	13	0.8	12	1	7	4	2	0	4	3	2	2	1	0
Gall bladder & other	7	0.5	7	0	3	3	1	0	4	0	1	2	0	0
Pancreas	21	1.3	21	0	7	10	4	1	2	6	2	9	1	0
Retroperitoneum	2	0.1	2	0	1	1	0	0	2	0	0	0	0	0
RESPIRATORY SYSTEM	136	8.7	129	7	70	56	10	0	37	9	33	46	3	1
Bronchus & Lung	135	8.6	128	7	69	56	10	0	37	9	33	45	3	1
Pleura	1	0.1	1	0	1	0	0	0	0	0	0	1	0	0
SOFT TISSUES	5	0.3	3	2	1	2	2	0	1	1	0	1	0	0
BONE	1	0.1	0	1	0	0	1	0	0	0	0	0	0	0
LYMPHOMA	60	3.8	37	23	27	15	18	0	18	7	1	10	0	1
Non-Hodgkin's	43	2.7	27	16	21	11	11	0	14	5	1	6	0	1
Hodgkin's	17	1.1	10	7	6	4	7	0	4	2	0	4	0	0

NOTE:

* Analytic – initially diagnosed at GW Hospital and all or part of first course of therapy at GW Hospital, or case diagnosed elsewhere and all or part of first course of therapy at GW Hospital

** Non-analytic case – initially diagnosed and treated elsewhere, referred to GW Hospital for recurrence or subsequent therapy and physician office cases

*** Race – W=White; B=Black; O=Other

AJCC Staging at Diagnosis is either clinical or pathological staging

TABLE 1: The George Washington University Hospital (GW Hospital) 2010 Cancer Cases By Anatomic Site

Primary Site	# Cases	% Cases	Class of Cases		Race***			AJCC Stage at Diagnosis (Analytic Cases Only)						
			Analytic	Non-Analytic **	W	B	O	0	I	II	III	IV	88	UNK
BREAST	285	18.2	260	25	114	123	48	57	95	64	29	13	0	2
FEMALE GENITAL	32	2.0	26	6	13	16	3	0	9	5	7	3	2	0
Cervix Uteri	7	0.4	5	2	1	5	1	0	3	0	2	0	0	0
Corpus Uteri	16	1.0	15	1	9	6	1	0	5	3	2	3	2	0
Ovary	5	0.3	4	1	1	3	1	0	1	1	2	0	0	0
Vulva/Vagina	3	0.2	2	1	1	2	0	0	0	1	1	0	0	0
Placenta	1	0.1	0	1	1	0	0	0	0	0	0	0	0	0
MALE GENITAL	344	21.9	333	11	169	132	43	1	21	223	65	23	0	0
Prostate Gland	321	20.5	310	11	153	126	42	0	1	221	65	23	0	0
Testis	18	1.1	18	0	14	3	1	0	17	1	0	0	0	0
Penis	5	0.3	5	0	2	3	0	1	3	1	0	0	0	0
URINARY SYSTEM	215	13.7	207	8	118	72	25	42	99	29	26	8	1	2
Urinary Bladder	90	5.7	85	5	49	30	11	38	20	15	6	5	0	1
Kidney	110	7.0	107	3	59	39	12	0	72	14	19	2	0	0
Renal Pelvis/Ureter	15	1.0	15	0	10	3	2	4	7	0	1	1	1	1
NERVOUS SYSTEM	60	3.9	59	1	30	17	13	0	0	0	0	0	59	0
Brain/Spinal Cord	37	2.4	36	1	18	12	7	0	0	0	0	0	36	0
Meninges & others	23	1.5	23	0	12	5	6	0	0	0	0	0	23	0
ENDOCRINE SYSTEM	69	4.4	65	4	32	23	14	0	31	7	11	2	12	2
Thyroid Gland	55	3.5	53	2	29	14	12	0	31	7	11	2	0	2
Other glands & Thymus	14	0.9	12	2	3	9	2	0	0	0	0	0	12	0
HEMATOPOIETIC	72	4.6	44	28	32	18	22	0	0	0	0	0	44	0
Multiple Myeloma	21	1.3	14	7	7	11	3	0	0	0	0	0	14	0
Leukemia	31	2.0	21	10	15	6	10	0	0	0	0	0	21	0
Other	20	1.3	9	11	10	1	9	0	0	0	0	0	9	0
SKIN	24	1.6	19	5	16	3	5	1	7	6	2	0	1	2
Melanoma	17	1.1	16	1	13	1	3	1	6	6	2	0	0	1
Other Skin Cancer	7	0.5	3	4	3	2	2	0	1	0	0	0	1	1
UNKNOWN	15	1.0	13	2	10	4	1	0	0	0	0	0	13	0
ALL SITES	1565	100.0	1422	143	744	581	240	108	368	391	212	177	154	12

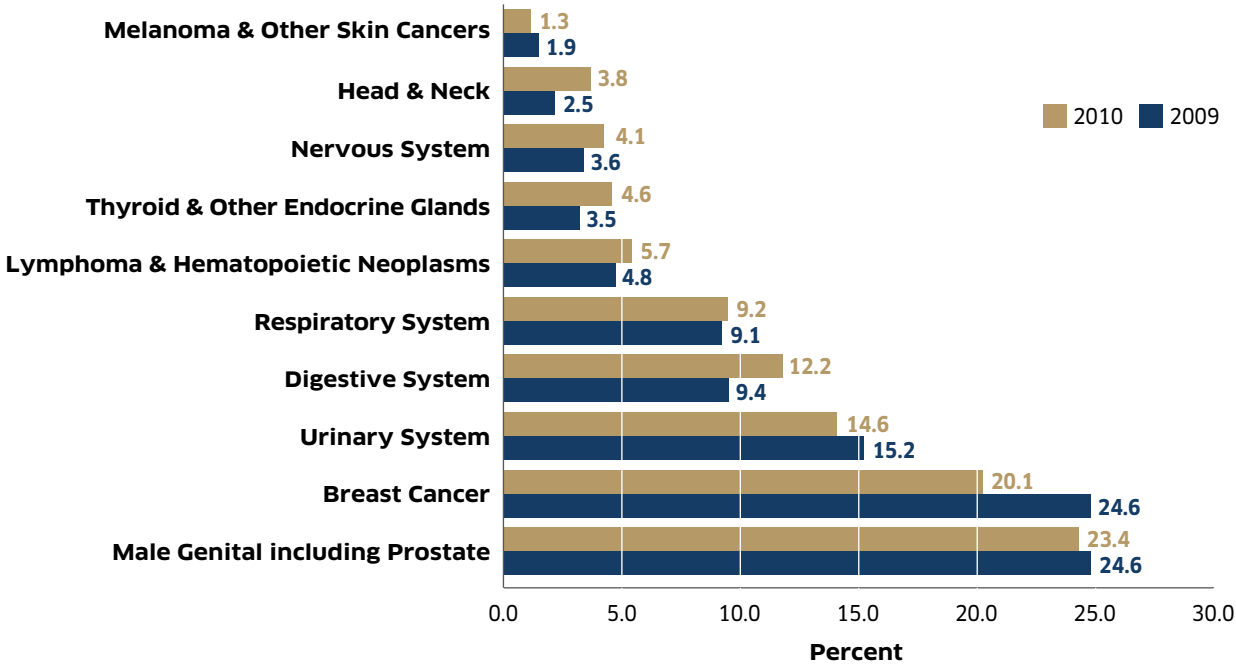
Table 2a: THE GEORGE WASHINGTON UNIVERSITY HOSPITAL (GW Hospital) & AMERICAN CANCER SOCIETY (ACS) 2008-2010 ANALYTIC CASES – THE MOST FREQUENT CANCERS IN MALE

Primary Site	2010 cases (%)		2009 cases (%)		2008 cases (%)	
	GW Hospital	ACS	GW Hospital	ACS	GW Hospital	ACS
Prostate	310 (40.0)	217,730 (28.0)	329 (43.6)	192,280 (25.0)	320 (47.1)	186,320 (25.0)
Kidney/Pelvis/Ureter	83 (10.7)	35,370 (4.0)	81 (10.7)	35,430 (5.0)	58 (8.5)	33,130 (4.0)
Lung	63 (8.0)	116,750 (15.0)	72 (9.5)	116,090 (15.0)	58 (8.5)	114,690 (15.0)
Urinary Bladder	52 (6.7)	52,760 (7.0)	60 (8.0)	52,810 (7.0)	40 (5.9)	51,230 (7.0)
Colon/Rectum	34 (4.4)	72,090 (9.0)	29 (4.0)	75,590 (10.0)	26 (3.8)	77,250 (10.0)
Leukemia	31 (4.0)	24,690 (3.0)	13 (1.7)	25,630 (3.0)	13 (1.9)	25,180 (3.0)
Brain/Other CNS	29 (3.7)	11,980 (1.5)	19 (2.5)	12,010 (2.0)	15 (2.2)	11,780 (2.0)
Non-Hodgkin's Lymphoma	20 (2.6)	35,380 (4.0)	25 (3.3)	35,990 (5.0)	12 (1.8)	35,450 (5.0)
Testis	18 (2.3)	8,480 (1.0)	12 (1.6)	8,400 (1.0)	9 (1.3)	8,090 (1.0)
Thyroid	16 (2.1)	11,890 (1.5)	8 (1.0)	11,070 (1.0)	11 (1.6)	10,030 (2.0)
Stomach	14 (1.8)	12,730 (2.0)	3 (0.4)	12,820 (2.0)	3 (0.4)	13,190 (2.0)
Others	106 (13.7)	189,770 (24.0)	103 (13.7)	188,010 (24.0)	119 (17.0)	178,840 (24.0)
Total	776 (100.0)	789,620 (100.0)	754 (100.0)	766,130 (100.0)	684 (100.0)	745,180 (100.0)

Table 2b: THE GEORGE WASHINGTON UNIVERSITY HOSPITAL (GW Hospital) & AMERICAN CANCER SOCIETY (ACS) 2008-2010 ANALYTIC CASES – THE MOST FREQUENT CANCERS IN FEMALE

Primary Site	2010 Cases (%)		2009 Cases (%)		2008 Cases (%)	
	GW	ACS	GW	ACS	GW	ACS
Breast	256 (39.7)	207,090 (28.0)	297 (46.8)	192,370 (27.0)	233 (42.4)	182,460 (26.0)
Lung	65 (10.0)	105,770 (14.0)	54 (8.5)	103,350 (14.0)	50 (9.0)	100,330 (15.0)
Kidney/Pelvis/Ureter	39 (6.0)	22,870 (3.0)	50 (7.8)	22,330 (3.0)	51 (9.0)	21,260 (3.0)
Thyroid	40 (6.2)	33,930 (5.0)	34 (5.4)	27,200 (4.0)	37 (6.7)	28,410 (4.0)
Brain/Other CNS	30 (4.7)	10,040 (1.0)	33 (5.2)	10,060 (1.0)	24 (4.4)	10,030 (1.0)
Corpus Uterine	15 (2.3)	43,470 (6.0)	23 (3.6)	42,160 (6.0)	11 (2.0)	40,100 (6.0)
Colon/Rectum	48 (7.4)	70,480 (10.0)	22 (3.5)	71,380 (10.0)	25 (4.5)	71,560 (10.0)
Urinary Bladder	33 (5.1)	17,770 (2.0)	21 (3.3)	18,170 (3.0)	20 (3.6)	17,580 (3.0)
Non-Hodgkin's Lymphoma	16 (2.5)	30,160 (4.0)	12 (1.9)	29,990 (4.0)	14 (2.5)	30,670 (4.0)
Ovary	4 (0.6)	21,880 (3.0)	8 (1.3)	21,550 (3.0)	7 (1.3)	21,650 (3.0)
Pancreas	9 (1.4)	21,770 (3.0)	10 (1.6)	21,420 (3.0)	9 (1.6)	18,910 (3.0)
Others	91 (14.1)	154,710 (21.0)	71 (11.1)	153,240 (22.0)	70 (13.0)	149,040 (22.0)
Total	646 (100.0)	739,940 (100.0)	635 (100.0)	713,220 (100.0)	551 (100.0)	692,000 (100.0)

Figure 2: Trend for New Analytic Cases by Sites and Year of Admission





LUNG AND URINARY/BLADDER
CANCER REPORT

NON SMALL-CELL LUNG CANCER (NSLC)

GW HOSPITAL AND NCDB 2000-08 | BY IMAD TABBARA, M.D., PROFESSOR OF MEDICINE

Lung cancer remains the most common malignancy worldwide. According to the American Cancer Society *2011 Facts and Figures*, an estimated 221,130 cases of lung and bronchus cancers were diagnosed in the United States, with approximately 156,940 deaths. Based on this data, lung cancer remains the leading cause of cancer-related deaths in men and women. It is estimated that as much as 25 percent of non small-cell lung cancer (NSLC) cases present as Stage I and II, 30 percent present as Stage III, and the remaining 45 percent present as Stage IV. Patients with resected Stage I disease have a five-year survival rate of 40–50 percent, whereas few patients with Stage IV disease reach a five-year survival point.

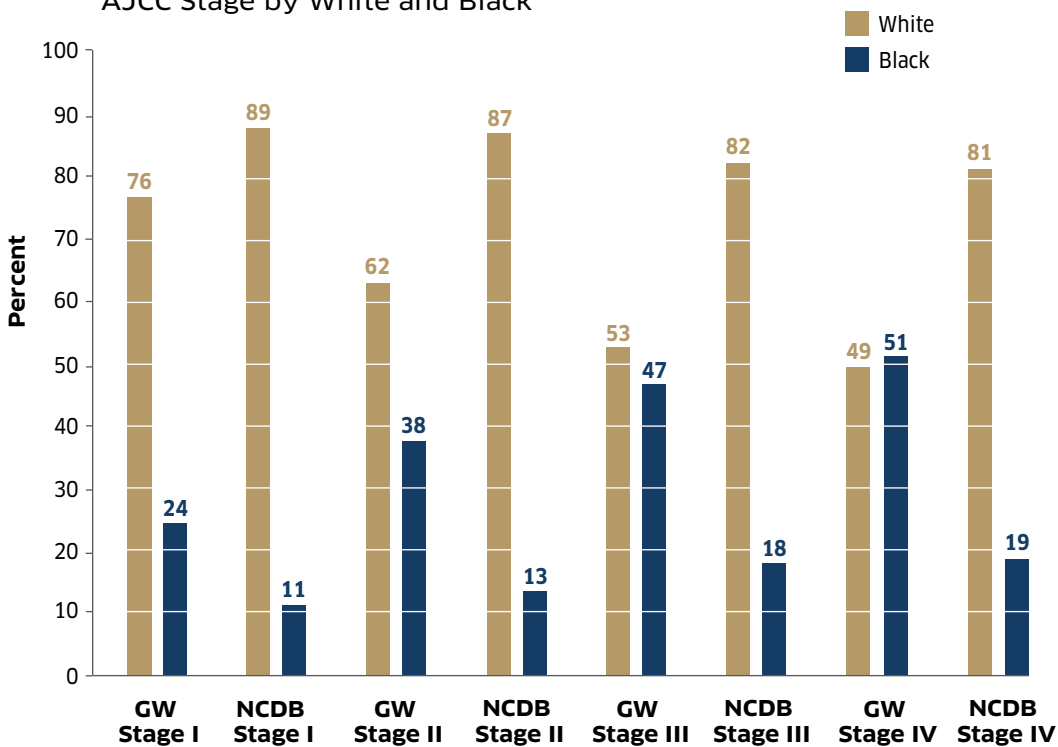
In this lung cancer data report from The George Washington University Hospital (GW Hospital), we included all patients with NSLC selected by the International Classification of Diseases for Oncology (ICD-O-3). We relied on the American Joint Committee on Cancer

(AJCC) staging system, but when pathologic staging was not performed we used Clinical staging. Cases with unknown stage and race other than Caucasians (W) or African American (B) were excluded from this analysis.

Between 2000 and 2008, a total of 604 patients with NSLC were diagnosed or treated at GW Hospital. These cases were compared to 280,470 cases diagnosed at 241 teaching and research hospitals in the United States during the same period of time and reported to the National Cancer Data Base (NCDB).

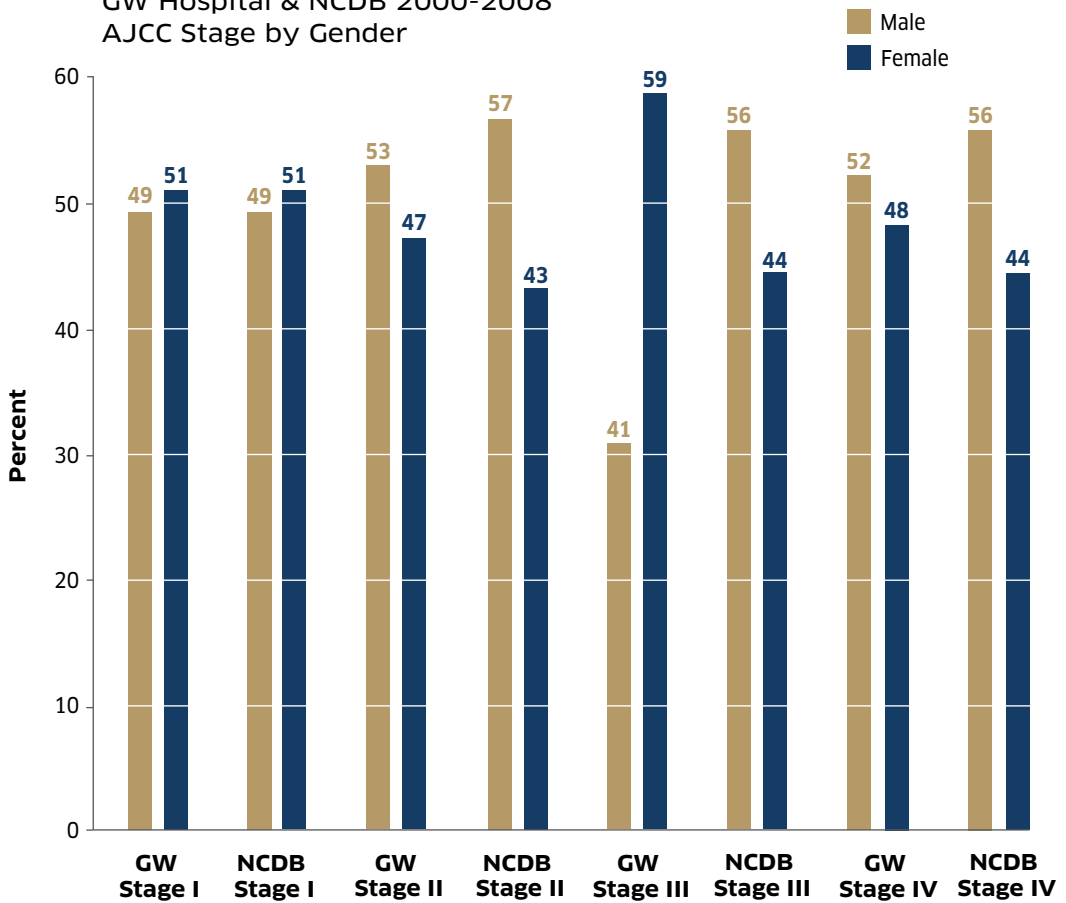
In patients with early stage disease (I and II), there were significantly more Caucasians compared to African Americans in both the GW Hospital and NCDB series (76 percent vs. 24 percent at GW Hospital, and 89 percent vs. 11 percent in NCDB data). A comparable incidence of Caucasians and African Americans was also noted among the GW Hospital patients with Stages III and IV. However, in the NCDB data there were significantly more Caucasians

**Figure 1: Non-Small Cell Lung Cancer
GW Hospital & NCDB 2000-2008
AJCC Stage by White and Black**



PHOTOGRAPHY: MICHAEL LEONG

**Figure 2: Non-Small Cell Lung Cancer
GW Hospital & NCDB 2000-2008
AJCC Stage by Gender**



than African Americans with Stages III and IV disease. This variation between the data may be explained by the larger number of Caucasians in the NCDB population versus those in the GW Hospital data (78 percent vs. 58 percent, respectively).

Males continue to have a higher risk for developing lung cancer than females. There is a continuing decrease in the male/female ratio due to the increasing number of women developing NSLC. The GW Hospital data in **Figure 2** demonstrates a slightly higher incidence of women presenting with Stage I and III disease as compared to men, suggesting that gender may no longer be a significant risk factor for NSLC.

NSLC is typically a disease of older patients, with more than 50 percent of cases

occurring in those patients older than 50 years of age. **Figure 3** shows a higher incidence of Stage IV disease in the 20–29 age group in both the GW Hospital and NCDB data. Epidemiologic studies are needed to explain this finding.

Initial therapy for Stage I and II NSLC patients is summarized in **Figure 4**. Resection of one or two lung lobes constituted the main therapy in 88 percent and 57 percent of GW Hospital patients respectively. A similar trend was noted in the NCDB data (76 percent and 49 percent respectively). A small number of patients with Stage I and II disease received additional radiotherapy or had a pneumonectomy. For Stage III and IV disease, combination chemotherapy and radiotherapy continue to represent the most common therapy in both the GW Hospital and NCDB groups.

Figure 3: Non-Small Cell Lung Cancer
 GW Hospital & NCDB 2000-2008 Age at Diagnose by AJCC Stage

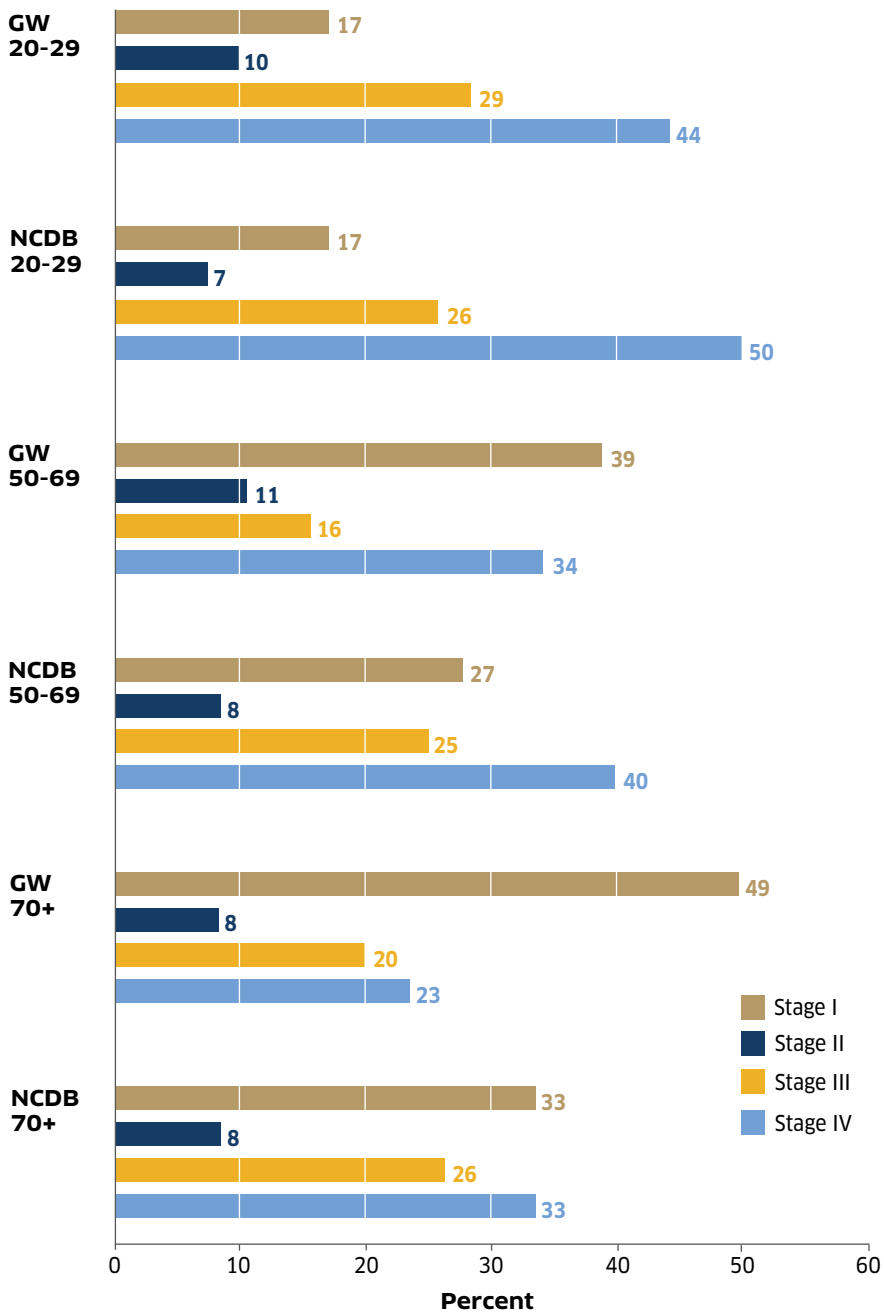


Figure 4: Stage I and II - Non-Small Cell Lung Cancer
 GW Hospital & NCDB 2000-2008 Initial Therapy: Surgery and/or Radiation

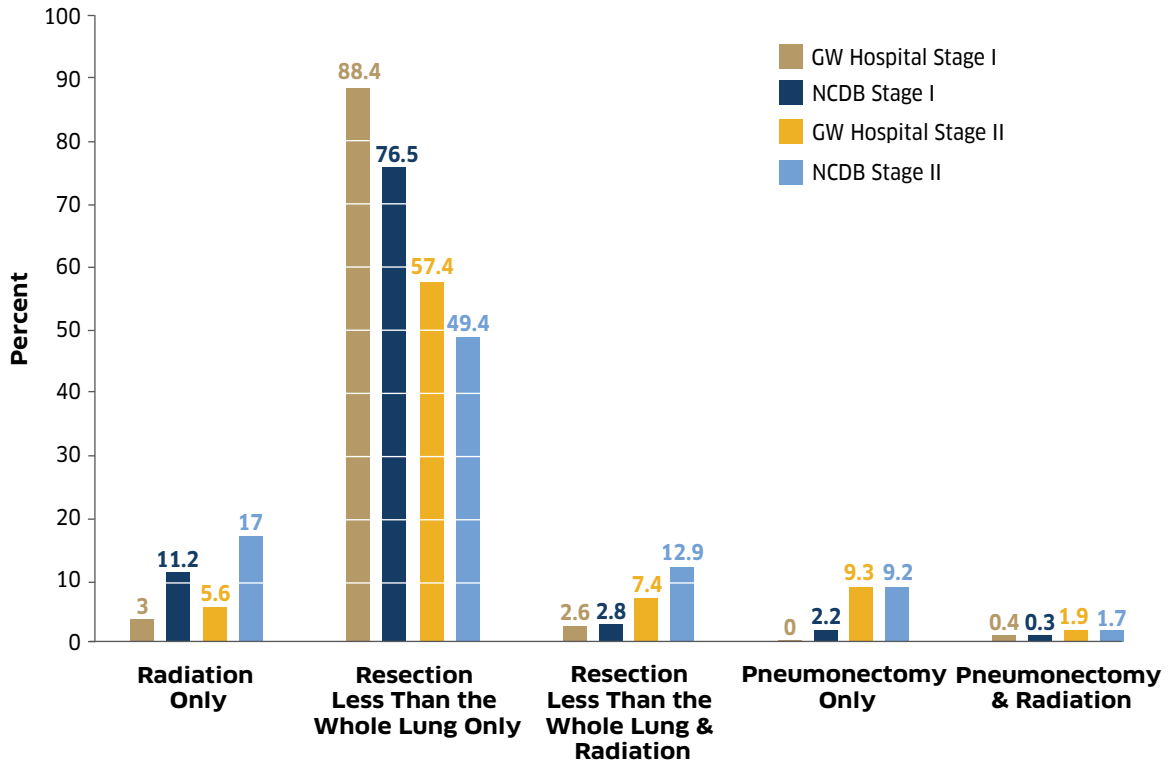
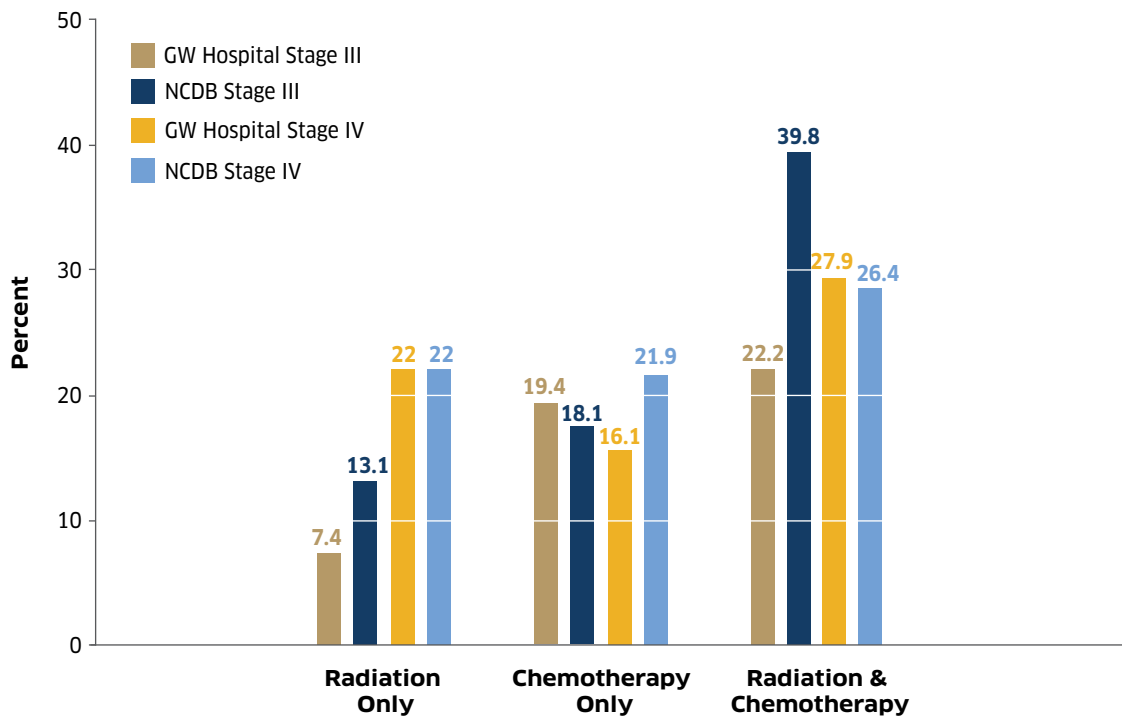


Figure 5: Stage III & IV Non-Small Cell Lung Cancer
 GW Hospital & NCDB 2000-2008 System Chemotherapy and/or Radiation



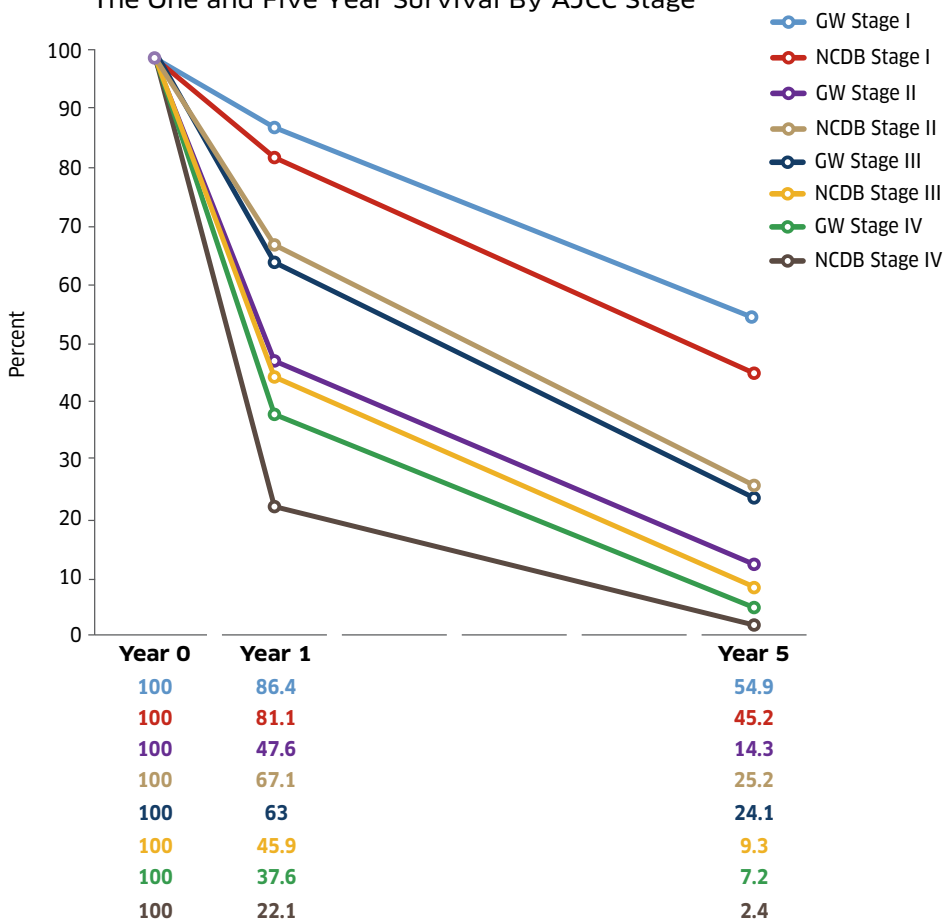
Both the one-year and five-year overall survival rates of GW Hospital patients were better than the NCDB rates for Stages I, III, and IV. However, GW Hospital patients with Stage II disease had a worse overall survival than that reported in the NCDB data. The only significant variable between the GW Hospital and the NCDB data for Stage II was the presence of a higher number of African American patients in the GW Hospital group (35 percent vs. 11 percent). It is not clear whether this race difference is the only cause of the lower survival rate noted in the GW Hospital population.

This review has identified four main differences between the NSLC population at GW Hospital and the NCDB population. The

prevalence of African American patients was higher in the GW Hospital group compared to the NCDB group. There also was a higher number of women than men in the GW Hospital population, specifically among patients with Stage III disease. Both the GW Hospital and the NCDB data showed a higher number of younger patients (age 20–29) presenting with Stage IV disease.

Regarding treatment, radiotherapy was used less frequently in GW Hospital patients with Stage III disease compared to NCDB patients with similar stage. One-year and five-year overall survival rates were worse among GW Hospital patients with Stage II disease compared with patients with Stage II disease in the NCDB data.

Figure 6: Non-Small Cell Lung Cancer - GW Hospital & NCDB 1998-2002
The One and Five Year Survival By AJCC Stage



URINARY BLADDER CANCER

GW HOSPITAL & NCDB: 2000-08 | COMPTON BENJAMIN, MD & HAROLD FRAZIER, MD

According to the American Cancer Society’s *Cancer Facts and Figures*, urinary bladder cancer has an estimated annual incidence of 69,250 cases in 2011. The disease has the fourth-highest incidence in the United States. Urinary bladder cancer remains one of the most common causes of cancer death in the United States, killing nearly 15,000 men and women annually. Among men it is the eighth-leading cause of death with an estimated 10,670 cases.

A total of 344 patients with urinary bladder cancer underwent surgery between 2000 and 2008 at the George Washington University Hospital (GW Hospital) according to data retrieved from the American College of Surgeons (ACoS)/Commission on Cancer (CoC)/National Cancer Data Base (NCDB) website. We analyzed this data and compared it to that of CoC accredited hospitals in the United States that participate in annual NCDB data submission.

Figure 1a-1c shows a comparison of demographics including age, race, age, and gender

between patients GW Hospital and NCDB. At the time of diagnosis of urinary bladder cancer, 87.5 percent of GW Hospital patients had early stage 0, I, and II cancers compared to 72.6 percent of NCDB patients. Furthermore, patients aged 69 and younger at the time of diagnosis made up more than half of all urinary bladder cancer patients at GW Hospital, whereas more than 50 percent NCDB patients were at least 70 years of age or older. Majority of GW Hospital and NCDB patients were white and male. This comparable trend shows that being a Caucasian male is a risk factor for getting urinary bladder cancer. Also it ensures the validity of the data comparison between GW Hospital and NCDB shown in this report.

In **Figure 2**, the comparison between patients undergoing surgery at GW Hospital is commensurate with NCDB, but partial cystectomy outcomes are more favorable at GW Hospital compared to those at NCDB: 15.6 percent vs. 3.5 percent in stage II; 14.3 percent vs. 5.4

Figure 1a: GW Hospital & NCDB Urinary Bladder Cancer 2000-2008 Distribution by Stage, Race, Age at Diagnosis, Gender, and Histology

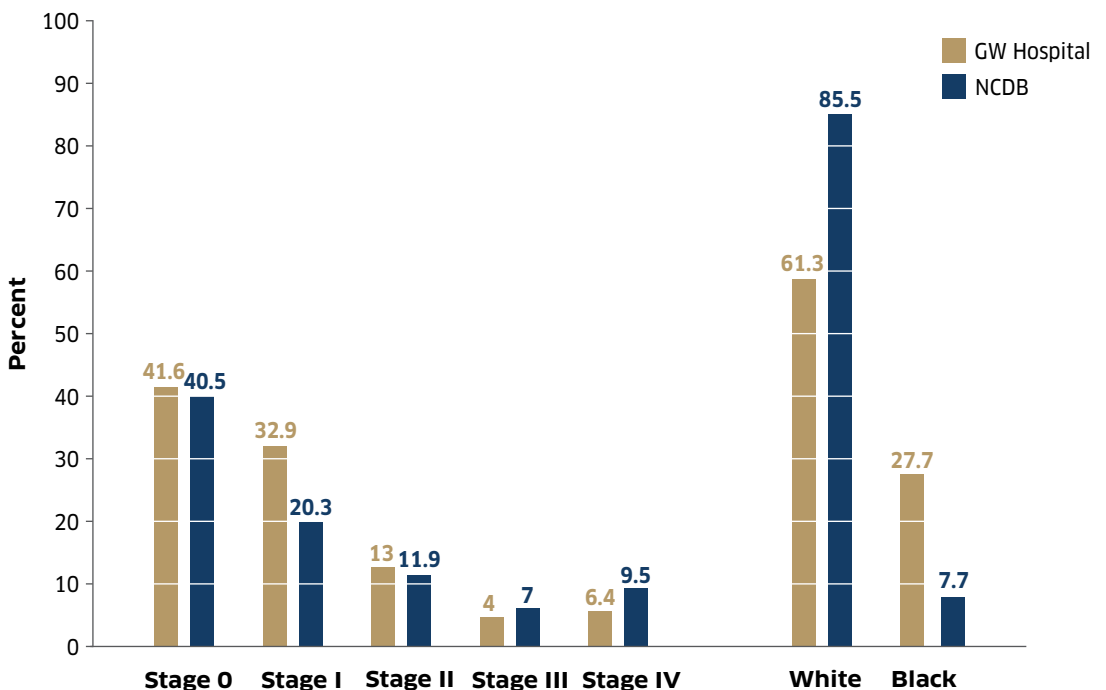


Figure 1b: GW Hospital & NCDB Urinary Bladder Cancer 2000-2008
Distribution by Stage, Race, Age at Diagnosis, Gender, and Histology

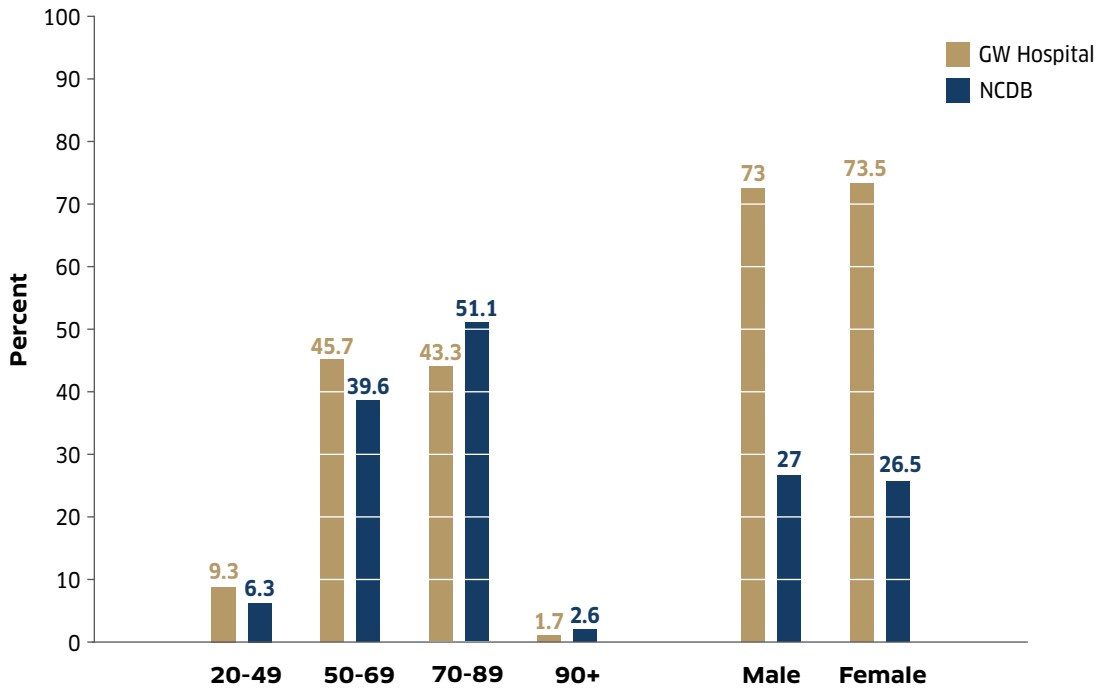


Figure 1c: GW Hospital & NCDB Urinary Bladder Cancer 2000-2008
Distribution by Stage, Race, Age at Diagnosis, Gender, and Histology

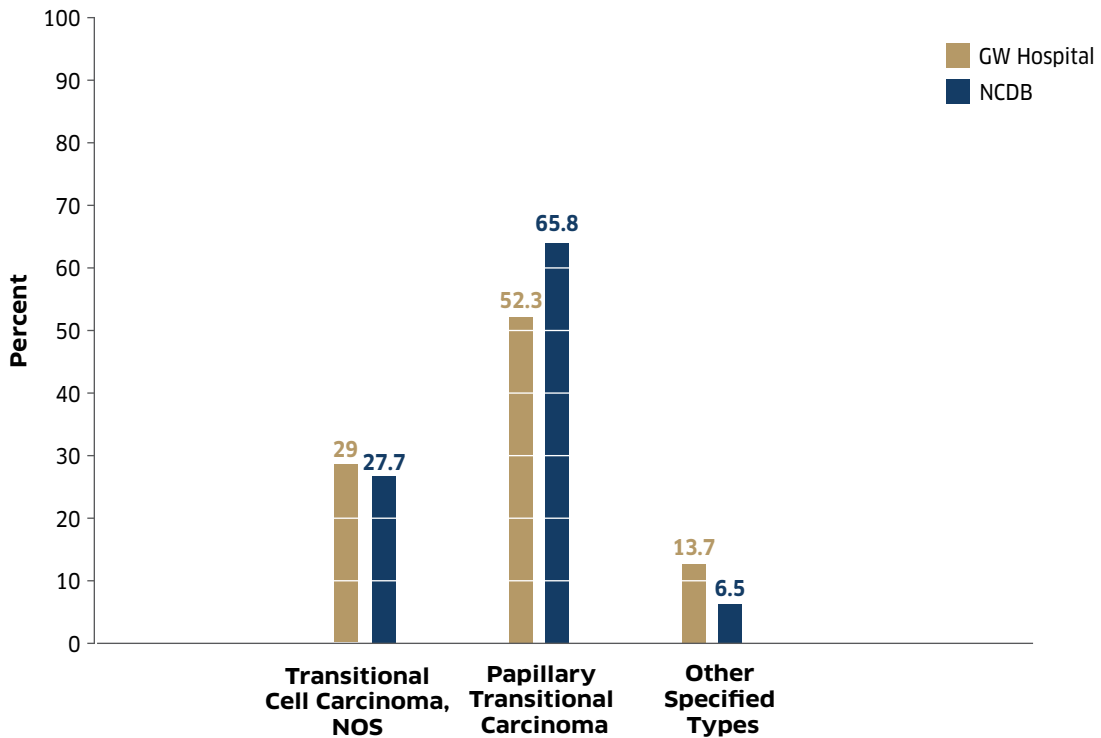
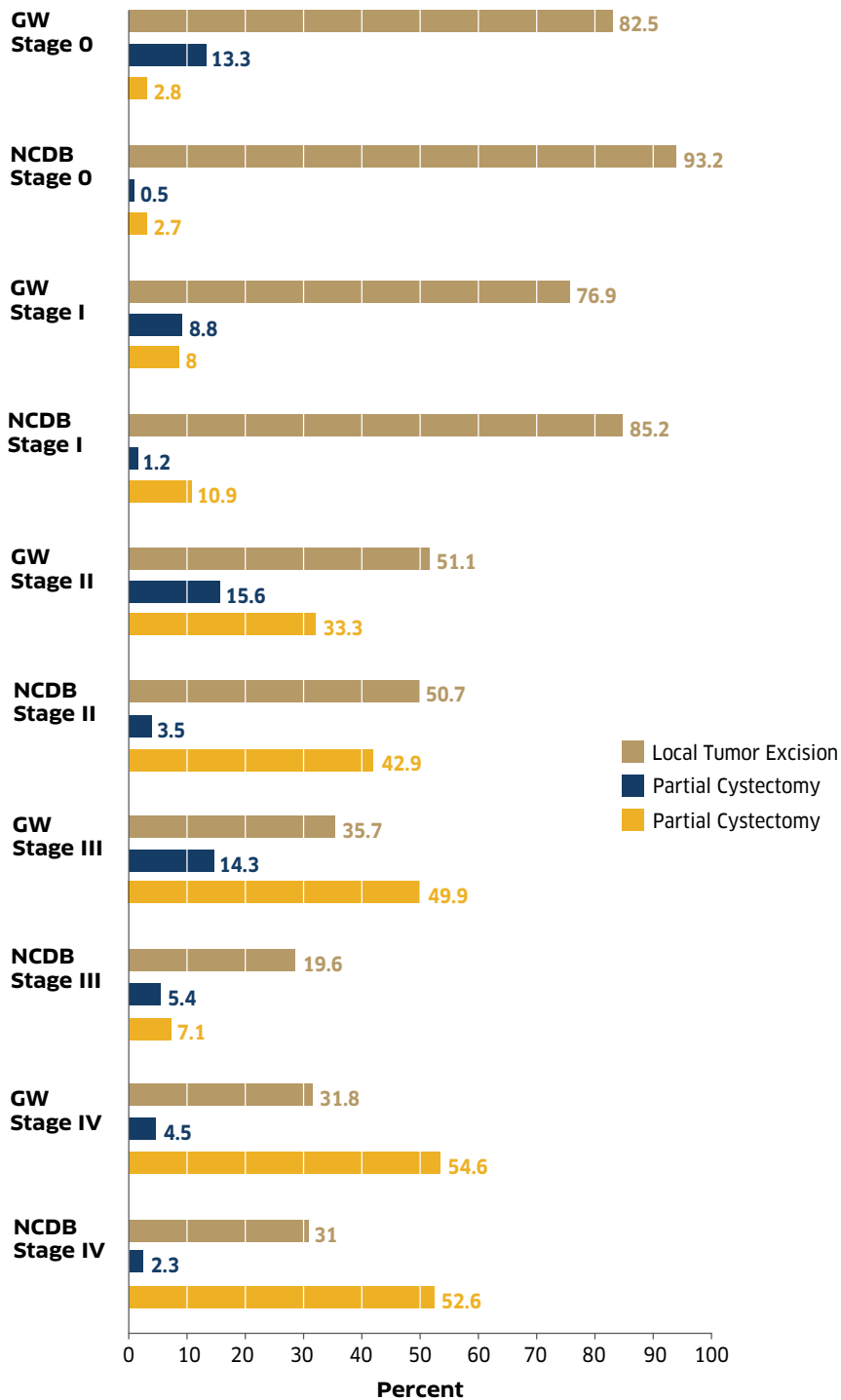


Figure 2: GW Hospital & NCDB Urinary Bladder Cancer: 2000-2008
 First Course Surgery by AJCC Stage



percent in stage III; and 4.5 percent vs. 2.3 percent in stage IV respectively. **Figure 3** shows a comparable data in the utilization of combined cystectomy and systemic chemotherapy on both GW Hospital and NCDB patients with stage III (66.6 percent vs. 69.5 percent) and stage IV (50 percent vs. 53.7 percent). Further analysis shows that 80 percent GW Hospital stage II patients received combined cystectomy and chemotherapy compared to 33 percent of NCDB stage II patients. However, this analysis does not accurately reflect our care for stage II urinary bladder cancer because there were only four stage II patients in GW Hospital data compared to 2,189 in NCDB.

The five year Overall Survival (OS) for urinary bladder cancer patients diagnosed between 1998 and 2002 was reported in **Figure 4 and 5**. At year five, the OS rates at GW Hospital exceed the national standards: 85.1 percent vs. 78 percent in stage 0, 73.8 percent vs. 66.7 percent in stage I, and 55.6 percent vs. 29.9 percent in stage

III. The favorable survival rates at GW Hospital compared with national data reflects the trend of aggressive treatment at GW Hospital. In stage II cancer the data showed the same OS rate of 40 percent with a slight variance in stage IV: 0 percent vs. 11.7 percent. Again, this difference among stage IV cancers is due to the insufficient stage IV patient numbers among the GW Hospital data, which might limit the accuracy of the survival analysis.

In conclusion, our data show a comparable trend with NCDB data. Younger patients were diagnosed with urinary bladder cancer at GW Hospital, which may explain the high number of partial cystectomy at GW Hospital compared to national standards. The slight difference is due to the insufficient patient number; therefore, it does not reflect the genitourinary cancer care that we offered at GW Hospital by the multidisciplinary cancer care team including our oncology, urology, radiation oncology, pathology, radiology, nursing, and allied health care professionals.

Figure 3: GW Hospital & NCDB Urinary Bladder Cancer 2000-2008 Surgery and Systemic Chemotherapy by AJCC Stage II, III, and IV

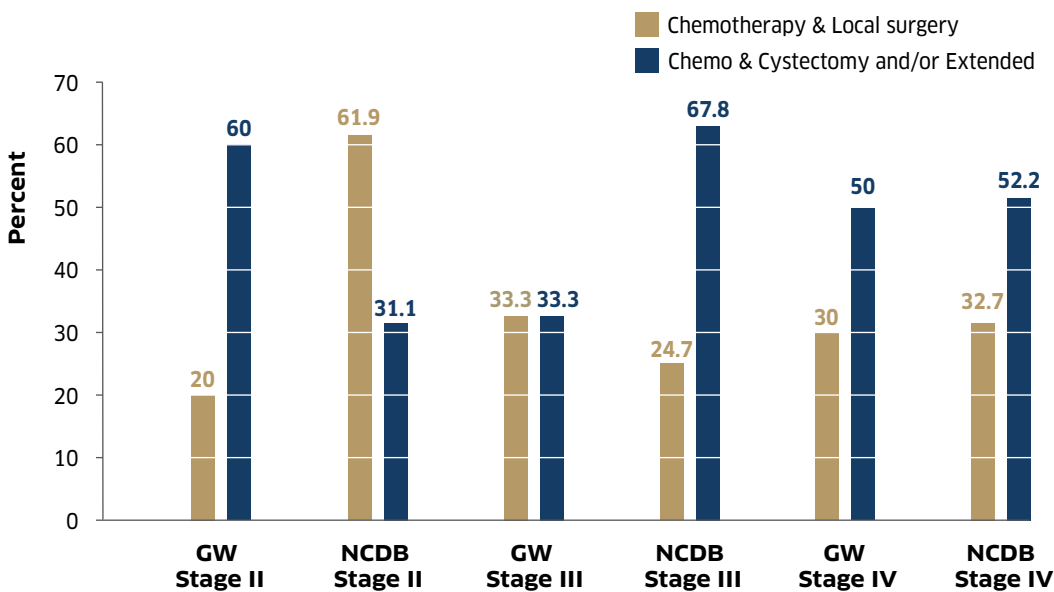


Figure 4: GW Hospital & NCDB Urinary Bladder Cancer - 1998-2002
 Year 1 and Year 5 Survival by AJCC Stage 0 and I

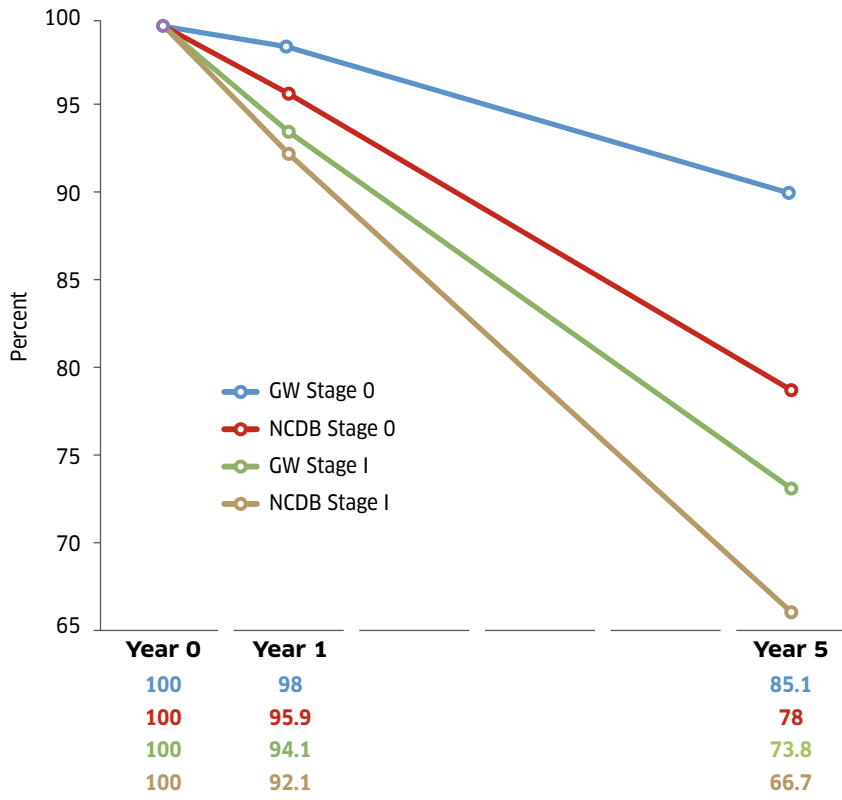
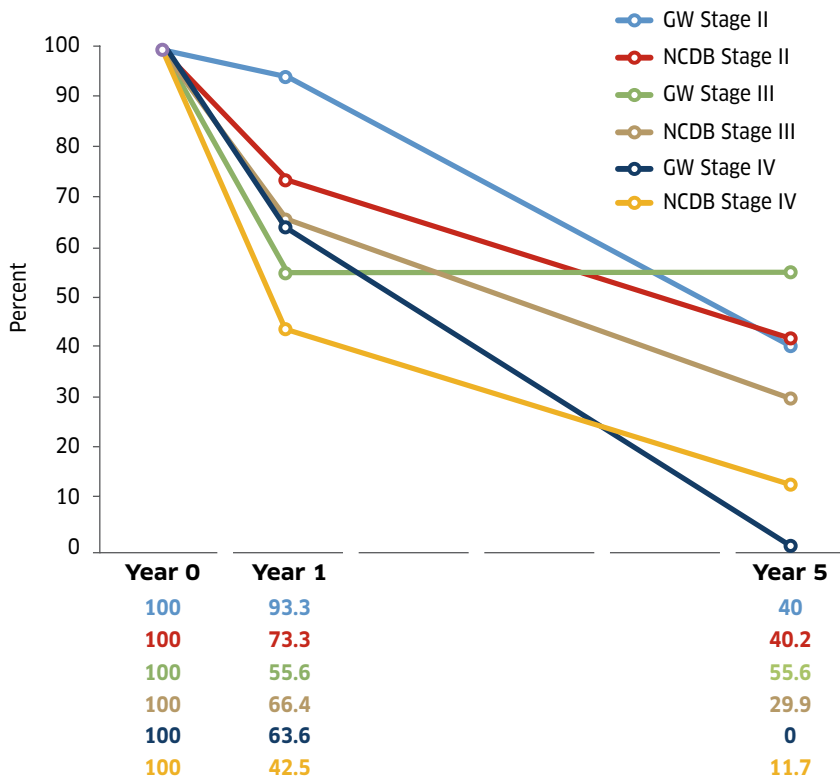


Figure 5: GW Hospital & NCDB Urinary Bladder Cancer - 1998-2002
 Year 1 and Year 5 Survival by Stage II, III, and IV



THE GEORGE WASHINGTON UNIVERSITY AND GW CANCER INSTITUTE RESOURCES

The George Washington University Hospital
900 23rd St., N.W.
Washington, D.C. 20037
(202) 715-4000
1-888-4GW-DOCS
www.gwhospital.com

The George Washington University
Medical Faculty Associates
2150 Pennsylvania Ave., N.W.
Washington, D.C. 20037
(202) 741-3000
www.gwdocs.com

The George Washington Cancer Institute
2300 Eye St., N.W., Suite 514
Washington, D.C. 20037
(202) 994-2449
www.gwcancerinstitute.org

The Dr. Cyrus and Myrtle Katzen
Cancer Research Center
2150 Pennsylvania Ave., N.W.,
Suite 1-200
Washington, D.C. 20037
(202) 741-2250
www.katzencancer.org

Breast Care Center
2150 Pennsylvania Ave., N.W.,
D.C. Level
Washington, D.C. 20037
(202) 741-3270

Cancer Education and Outreach
2300 Eye St., N.W., Suite 514
Washington, D.C. 20037
(202) 994-2062

Cancer Prevention and Control
2300 Eye St., N.W.,
Suite 403
Washington, D.C. 20037
(202) 994-1966

Cancer Registry
900 23rd St., N.W.
Washington, D.C. 20037
(202) 715-4383

Clinical Oncology
2150 Pennsylvania Ave., N.W.,
3rd Floor
Washington, D.C. 20037
(202) 741-2210

Hematology/Oncology
2150 Pennsylvania Ave., N.W., 3rd Floor
Washington, D.C. 20037
(202) 741-2210

Pain Management Center
2131 K St., N.W.
Washington, D.C. 20037
(202) 715-4599

Pathology
900 23rd St., N.W.
Washington, D.C. 20037
(202) 715-4665

Patient Navigation Program
2300 Eye St., N.W., Suite 514
Washington, D.C. 20037
(202) 994-2214

Mobile Mammography Program
2150 Pennsylvania Ave., N.W., D.C. Level
Washington, D.C. 20037
(202) 741-3020

Radiation Oncology
900 23rd St., N.W.
Washington, D.C. 20037
(202) 715-5120

Radiology
900 23rd St., N.W.
Washington, D.C. 20037
(202) 715-5183

Rehabilitation Services
2131 K St., N.W.
Washington, D.C. 20037
(202) 715-5655

Social Work Services
2150 Pennsylvania Ave., N.W., 3rd Floor
Washington, D.C. 20037
(202) 741-2218
(202) 994-2449

Surgery
2150 Pennsylvania Ave., N.W., 6th Floor
Washington, D.C. 20037
(202) 741-3200

Survivorship Program
2300 Eye St., N.W., Suite 514
Washington, D.C. 20037
(202) 994-2449

THE GEORGE WASHINGTON UNIVERSITY AND GW CANCER INSTITUTE RESOURCES

Support Groups

Active Treatment (all cancers)

Wednesdays, 12:30 pm–1:30 pm
Katzen Cancer Center Board Room
Medical Faculty Associates
2150 Pennsylvania Ave., N.W.
Washington, D.C. 20037
FACILITATOR: Jennifer Bires, L.G.S.W.
(202) 741-2218

Breast Cancer Support Group (current treatment)

Katzen Cancer Center Board Room
Medical Faculty Associates
2150 Pennsylvania Ave., N.W.
Please call for confirmation
of location and time
FACILITATOR: Jennifer Bires, L.G.S.W.
(202) 741-2218, and Casey Miller
(202) 994-0650

Breast Cancer Support Group (after treat- ment)

Medical Faculty Associates
2150 Pennsylvania Ave., N.W.
Katzen Cancer Center Board Room
Washington, D.C. 20037
FACILITATORS: Elizabeth Hatcher,
(202) 994-2215 and
Lauren Woodard, L.G.S.W.
(202) 994-7336

Caregivers' Support Group

Third Tuesday of every month
12:30 pm–1:45 pm
Katzen Cancer Center Board Room
Medical Faculty Associates
2150 Pennsylvania Ave., N.W.
Washington, D.C. 20037
FACILITATOR: Jennifer Bires, L.G.S.W.
(202) 741-2218

Kids Club: Support Group for Children Whose Parent/Grandparent Has Cancer (ages 6–11)

Fourth Tuesday of every month
6 pm–7:30 pm
Katzen Cancer Center Board Room
Medical Faculty Associates
2150 Pennsylvania Ave., N.W.
Washington, D.C. 20037
FACILITATOR: Jennifer Bires, L.G.S.W.,
Katy Dolan, R.N., and Theo Wyche,
R.N., (202) 741-2218

Look Good, Feel Better Program 10 am–Noon

Katzen Cancer Center Board Room
Medical Faculty Associates
2150 Pennsylvania Ave., N.W.
Washington, D.C. 20037
Please call to confirm dates
FACILITATOR: Jennifer Bires, L.G.S.W.
(202) 741-2218

Multiple Myeloma Group (patients and family members)

Third Friday of every month
Noon–1 pm
Katzen Cancer Center Board Room
Medical Faculty Associates
2150 Pennsylvania Ave., N.W.
Washington, D.C. 20037
FACILITATOR: Jennifer Bires, L.G.S.W.
(202) 741-2218

Prostate Cancer Support Group

Second Tuesday of every month
6 pm–7:30 pm
Katzen Cancer Center Board Room
Medical Faculty Associates
2150 Pennsylvania Ave., N.W.
Washington, D.C. 20037
FACILITATOR: Jennifer Bires, L.G.S.W.
(202) 741-2218

Spirituality Group

GW Center for Integrative Medicine
FACILITATOR: Rabbi Tamara Miller
(202) 731-2273
Please call for confirmation
of location and time

Reconnection and Revitalization

The George Washington University
Marvin Center
800 21 St. N.W.
Washington, D.C. 20037
Please call for confirmation
of location and time
FACILITATOR: Casey Miller
(202) 741-2218

Young Adult Support Group (19 to 39 years of age)

Third Thursday of every month
6 pm–7:30 pm
Katzen Cancer Center Board Room
Medical Faculty Associates
2150 Pennsylvania Ave., N.W.
Washington, D.C. 20037
FACILITATOR: Jennifer Bires, L.G.S.W.
(202) 741-2218

Washington, D.C., Metropolitan Area

Brain Tumor Support Group
First Thursday of every month,
6:30 pm–8:30 pm
Katzen Cancer Center Board Room
Medical Faculty Associates
2150 Pennsylvania Ave., N.W.
Washington, D.C. 20037
FACILITATOR: Jennifer Bires, L.G.S.W.
(202) 741-2218

For more information about these support groups and other patient services:

JENNIFER BIRES, L.G.S.W. (202) 741-2218
jbires@mfa.gwu.edu

LAUREN WOODARD, L.G.S.W. (202) 994-7336
LWOODARD@MFA.GW.EDU

This report is produced by The George Washington University School of Medicine and Health Sciences' Department of Communications and Marketing. Cancer registry data compiled and prepared by Hong Nguyen, M.P.H., C.T.R., Nhiha Than, and Patricia Morgan at GW Hospital.

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Myrtle Katzen
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