

The George Washington University

Academic Comprehensive Cancer Program

and

Comprehensive Breast Care Program

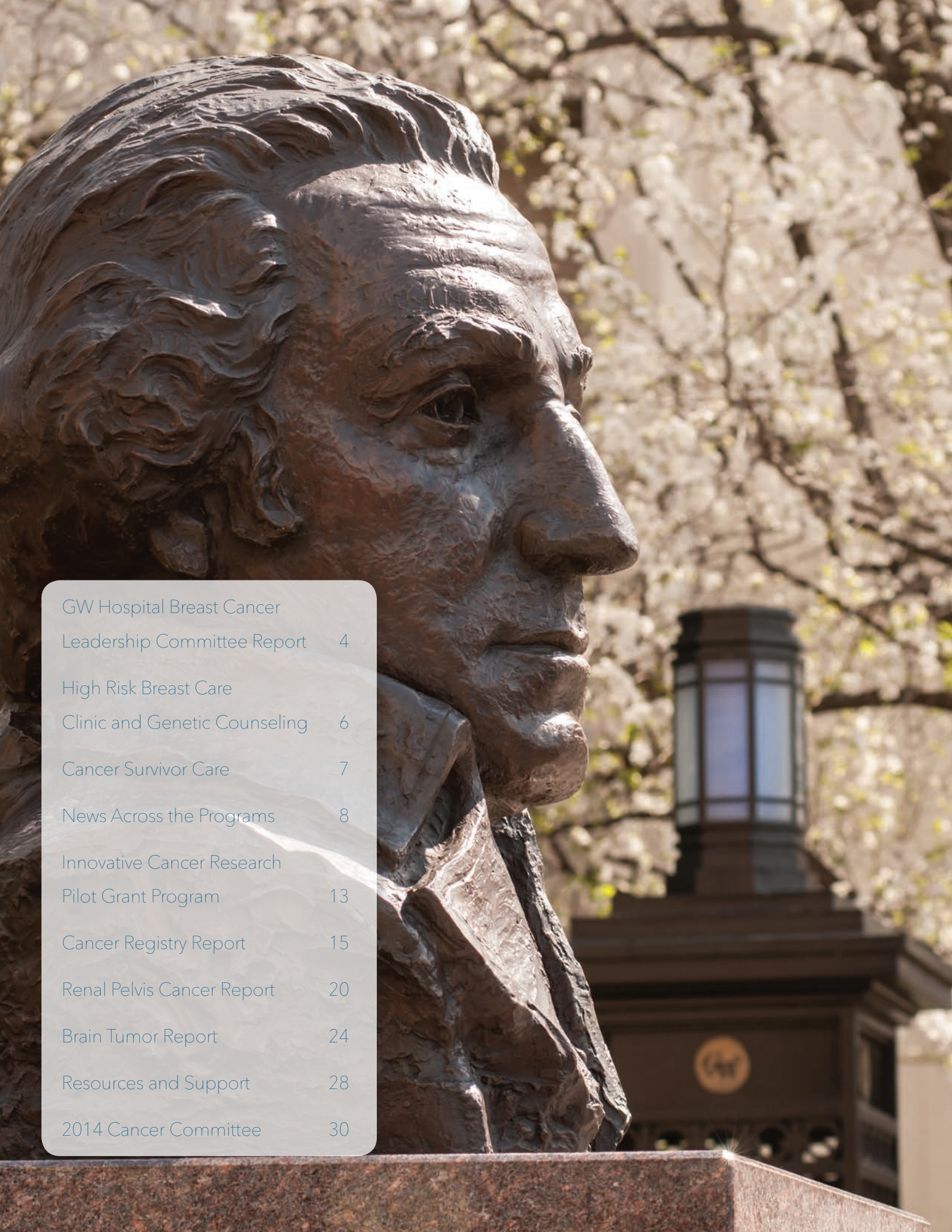
Annual Report 2014

The George Washington University Cancer Institute

The George Washington University Hospital

The GW Medical Faculty Associates

The Dr. Cyrus and Myrtle Katzen Cancer Research Center



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LETTER FROM THE CHAIR



Receiving a cancer diagnosis opens a world of concern and stress for patients, families, and their friends. Through the George Washington University's (GW) Academic Comprehensive Cancer Program, we try to provide peace of mind in the understanding that the most knowledgeable,

respected, and compassionate physicians and medical staff are leading their care plan. Recognized in October 2013 by the American College of Surgeons' Commission on Cancer with a commendation rating, we continue to strive for optimal cancer research and care.

I am pleased to present the 2014 Academic Comprehensive Cancer Program and the Comprehensive Breast Care Program Report for GW's School of Medicine and Health Sciences (SMHS), GW Hospital, and The GW Medical Faculty Associates (GW MFA). In it, you will find information about our efforts in clinical care, community, research, and survivorship. Much has happened in the past year.

In October 2014, our radiation oncology program moved into a new home in the Ambulatory Care Center. It now houses two linear accelerators including the new Varian Truebeam STx™ system, considered one of the most advanced radiotherapy technologies. The new center also has a cutting edge simulator and new CT scanner.

In April 2014, our breast imaging and breast surgery services moved to our new GW Comprehensive Breast Center on the 8th floor of 2300 M St., and Claire Edwards, M.D., RESD '12, assistant clinical professor of surgery, joined the faculty as a new breast surgeon. The center offers digital mammography and 3D ultrasound using the most advanced technology available.

Our breast imaging program remains the only facility in the region with Breast Specific Gamma Imaging (BSGI) and is the first to offer Automated Whole Breast Ultrasound for the early detection of breast cancer in women with dense breast tissue.

The Dr. Cyrus and Myrtle Katzen Cancer Research Center (Katzen Center) opened a High Risk Breast Clinic, led by Rebecca Kaltman, M.D., assistant clinical professor

of medicine at SMHS. The clinic offers breast screening and genetic counseling for patients at high risk for developing breast cancer.

Meanwhile, recent cancer registry data reveal the number of patients with cancer treated at GW has increased from 1,590 in 2008 to 1,603 in 2013. Of these patients, 1,382 or 86 percent were diagnosed and/or treated at GW.

The five major cancer types treated at GW continue to be breast (22 percent), prostate (13.5 percent), lung (6.6 percent), kidney (5.7 percent), and colon/rectal (4.9 percent) cancers. We saw an increased volume of tumors originating in the female reproductive system, and of bone marrow and skin cancers, especially melanoma. There was an even more significant increase in the incidence of head and neck cancers, colorectal cancers, and nervous system tumors. When we compare GW's survival by stage to national figures, our success rate compares favorably in each form of cancer.

The Katzen Center's Innovative Cancer Pilot Research Award program awarded seven cancer grants totaling \$450,000 in 2014. There were two classifications of grant applications that were accepted for funding this year: collaborative grants, pairing investigators from the GW MFA with faculty from the basic sciences or the School of Engineering and Applied Sciences; and synergy grants, featuring teams of three or more investigators with preference given to teams where proven researchers partnered with junior researchers.

The GW Cancer Institute remains an integral part of our cancer program and has sponsored critical programs such as survivorship, navigation, outreach, and research into disparities of care. The GW Cancer Institute currently supports the resource repository, which houses Comprehensive Cancer Control (CCC) resources produced not only by the GW Cancer Institute, but also by the CCC national partners, cancer control coalitions, and other stakeholders. They also produce webinars, newsletters, and an online academy, which provides free web-based trainings for CCC practitioners.

As we plan for an expanded cancer program under the new leadership of Eduardo M. Sotomayor, M.D., who will serve as the inaugural director of the GW Cancer Center, we can be proud of our accomplishments. We look forward to a successful 2015.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert S. Siegel".

Robert S. Siegel, M.D.

Chair, Cancer Committee

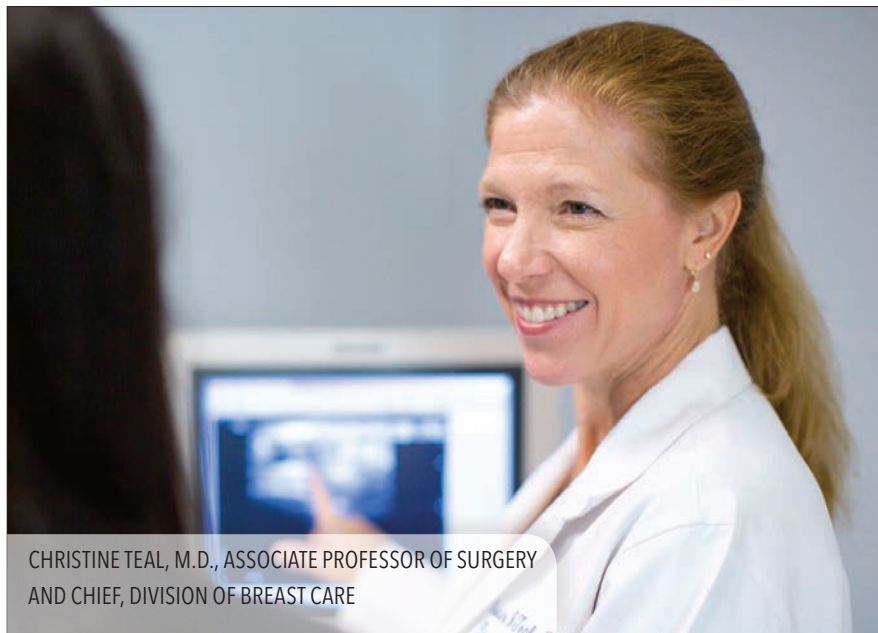
GW HOSPITAL BREAST CANCER LEADERSHIP COMMITTEE REPORT: CHRISTINE TEAL, M.D., ASSOCIATE PROFESSOR OF SURGERY AND CHIEF, DIVISION OF BREAST CARE

Breast cancer is one of five major cancer sites nationally as well as at the George Washington University Hospital (GW Hospital). The GW Comprehensive Breast Center (Breast Care Center) offers a fully integrated road map for breast cancer patients to navigate their way through diagnosis, treatment, and survivorship. The Breast Care Center provides multi-disciplinary breast care services for the early detection, diagnosis, and treatment of breast cancer using state-of-the-art technologies unavailable at any other breast center in the Washington, D.C. metro area.

In 2014, the Breast Care Center was awarded a three-year, full accreditation by the National Accreditation Program for Breast Centers (NAPBC) for providing quality evaluation and management of benign and malignant breast disease. The Breast Committee ensures the highest quality clinical management for breast disease patients and follows the requirements outlined in the most current NAPBC standards for accreditation. We participate in the American College of Surgeons' Commission on Cancer patient care study, the Cancer Program Practice Profile Reports (CP3R), and we consistently achieve the highest performance ratings for providing adjuvant therapy to breast cancer patients.

Early detection is key to optimal breast cancer outcomes. As an internationally recognized leader in implementing state of the art, patient focused, holistic care with the latest technology, Rachel Brem, M.D., professor of radiology at GW's School of Medicine and Health Sciences (SMHS) and director of the GW Breast Imaging and Intervention Center, has led the charge in dense-breast screening. Recently, one of the largest studies demonstrating the success of screening women with dense breast tissue using ultrasound was published, resulting in FDA clearance for a new Automated Whole Breast Ultrasound imaging system, first available at GW.

We are unique in having two full-time patient navigators who share the journey with each of our breast cancer patients and help facilitate an optimal experience for them. We continue to be among the leading institutions in the country diagnosing and detecting breast cancer far earlier



CHRISTINE TEAL, M.D., ASSOCIATE PROFESSOR OF SURGERY
AND CHIEF, DIVISION OF BREAST CARE

than the national average due to the availability of the latest in breast imaging technology. GW is the only facility in the region to offer Molecular Breast Imaging, which can detect cancer in women with dense breasts as well as undetected tumors in women with newly diagnosed cancer. This lifesaving technology, along with MRI, assures that all women can have every opportunity for early detection, when breast cancer is most successfully treated.

The GW MFA Mammovan continues to surmount barriers preventing women in the Washington, D.C. region from getting lifesaving mammograms. Accredited by the American College of Radiology and certified by the FDA to perform mammograms, the self-contained, mobile service partners with community leaders from across the metropolitan area to offer free screenings for underserved women. The Mammovan is both handicapped- and wheelchair-accessible, features bilingual patient navigators, and travels to corporate and community sites, offering one-stop screening, performed in a comfortable, convenient environment.

In addition to clinical care, we continue to have numerous ongoing clinical trials in the SMHS Department of Radiology. Jocelyn Rapelyea, M.D., associate professor of radiology, is the principle investigator of a novel ultrasound technology that has the potential to differentiate between benign and malignant lesions utilizing reflective and transmission sonography. The department's research efforts

make its fellowships in breast imaging and intervention highly competitive, with nearly 60 applications for just three positions. It is the only breast imaging fellowship that integrates all of the technologies available at GW with community education training so that fellows can extend similar education to the communities they join following completion of their training.

The Ruth Paul Cancer Prevention Clinic was established in 2012 with the help of a generous grant from Ruth Uppercu Paul. Under the direction of Rebecca Kaltman, M.D., assistant clinical professor of medicine, the program includes a team of board-certified genetic counselors — Elizabeth Stark, M.S., CGC, and Tara Biagi, M.S., CGC — and physicians trained in hereditary cancer risk assessment and management. Their role is to help patients both understand and manage their risk of cancer.

We established a registry for all new participants in The Ruth Paul Cancer Prevention Clinic, whereby clinical data is collected and stored for future research. In addition, we are collaborating with Anelia Horvath, Ph.D., M.Sc., associate professor of pharmacology and physiology, and of biochemistry and molecular medicine, who is looking into genomic variants among BRCA1/2 mutation carriers.

Recently we began treating patients at our new GW Comprehensive Breast Center at 2300 M St. The open design and spa-like interior offers a comforting setting for patients to receive comprehensive breast care from our internationally recognized specialists. Under the direction of Christine Teal, M.D., associate professor of surgery at SMHS and chief of the Division of Breast Care, our team of skilled breast surgeons includes Anita McSwain, M.D., M.P.H., assistant professor of surgery; Claire Edwards, M.D., RESD '12, assistant clinical professor of surgery; and Bruce Abell, M.D., assistant professor of surgery. Our surgeons perform advanced procedures ranging from treatments for benign and malignant diseases of the breast to prophylactic surgeries for patients at high risk for breast cancer. They could not provide the outstanding care for patients without the expertise of plastic surgeons Joanne Lenert, M.D., assistant professor of surgery, and

Elizabeth Marshall, M.D., M.P.H., assistant professor of surgery, who specialize in reconstructive surgery with an emphasis on immediate or delayed breast reconstruction following mastectomies. We provide a team-based approach to patient care with comprehensive consultations to discuss oncoplastic surgery and reconstructive options, such as autologous reconstruction including TRAM, DIEP, and latissimus flaps using patients' own tissues, as well as prosthetic reconstruction using saline-filled or silicone gel-filled implants. We strongly believe that the choice of reconstruction should be individualized and that no one operation is right for every patient. Our team closely follows patients through all phases of treatment and recovery. To further help patients through their postoperative recovery, the center employs a part-time physical therapist and massage therapist. In addition, GW Hospital has implemented an in-house lymphedema service and postoperative program that has fulfilled a great need for breast cancer patients.

An integral part of all cancer programs is survivorship. Our Thriving After Cancer (TAC) survivorship clinic provides comprehensive care to patients who have completed treatment for cancer. Each patient receives an individualized survivorship care plan, which includes a summary of the treatment completed and a written plan containing follow-up care and screening recommendations. The goal of TAC is to provide clear directions for screening and encourage healthy lifestyle choices. ■

RACHEL BREM, M.D.,
PROFESSOR OF RADIOLOGY
AND DIRECTOR OF THE
GW BREAST IMAGING AND
INTERVENTIONAL CENTER



HIGH RISK BREAST CARE CLINIC AND GENETIC COUNSELING

REBECCA KALTMAN, M.D. | ELIZABETH STARK, M.S., CGC

The Ruth Paul Cancer Prevention Clinic was established in 2012 with support from a generous gift by Ruth Uppercu Paul. The clinic's health care team boasts genetic counselors and physicians trained in hereditary cancer risk assessment and management. Our mission is to help patients both understand and manage their risk of cancer by providing hereditary cancer risk assessment, genetic testing and counseling, and preventative care for high-risk individuals.

Consultations in the prevention clinic typically consist of an initial genetic counseling session followed by a visit to our High Risk Breast Care Clinic, as needed. Our genetic counseling appointment involves a meeting with a genetic counselor to review personal and family medical history to facilitate genetic testing. The high risk clinic appointment involves a physical examination followed by a consultation with a medical oncologist who will discuss the patient's family history of cancer, their genetic testing results, and specific surveillance, medication, and potential surgical recommendations based on the patient's risk level.

Currently, our team is made up of two board-certified genetic counselors — Elizabeth Stark, M.S., CGC, and Tara Biagi, M.S., CGC — both specializing in working with individuals who have a personal or family history of cancer. Rebecca Kaltman, M.D., assistant clinical professor of medicine at the George Washington University School of Medicine and Health Sciences (SMHS), has focused her career on caring for patients with breast cancer. She is board-certified in internal medicine and medical oncology and has practiced at The GW Medical Faculty Associates (GW MFA) since 2010. Our team continues to expand and we now have medical students, research assistants, and basic science collaborators all helping to grow our research efforts for this high-risk population.

We created a cancer registry for clinical data collected from participants in the cancer prevention clinic, and the information is stored for use in future research. In addition, we are collaborating with Anelia Horvath, Ph.D., M.Sc., associate research professor of pharmacology and physiology, and of biochemistry and molecular biology at SMHS, who is looking into genomic variants among BRCA1/2 mutation carriers. We also recently established a collaboration with the University of Pennsylvania Basser Research Center for BRCA to contribute to their extensive research portfolio.

From a clinical perspective, over the past two years, we have provided genetic testing for more than 275 individuals

who are at high risk for hereditary cancer syndrome.

Of those tested, 16 percent have been found to carry a deleterious mutation. In addition to testing for hereditary breast and ovarian cancer syndrome (BRCA1 and BRCA2), we also offer high-risk panels, pan-cancer panels, and single gene tests to appropriate individuals. Our genetic testing has identified families carrying mutations in a number of cancer predisposing genes, including: BRCA1, BRCA2, CDH1, PTEN, TP53, PALB2, CHEK2, ATM, MUTYH, and MSH2. Testing results have provided valuable information for at-risk individuals and their family members, influencing their medical management and potentially preventing cancer. ■



REBECCA KALTMAN, M.D., ASSISTANT
CLINICAL PROFESSOR OF MEDICINE

THE GW MEDICAL FACULTY ASSOCIATES CANCER SURVIVOR CARE

APRIL BARBOUR, M.D., M.P.H. | CLAIRE EDWARDS, M.D., RESD '12

GW'S SURVIVORSHIP CLINIC, IN COLLABORATION WITH THE GW HOSPITAL OUTPATIENT REHABILITATION CENTER AND THE DR. CYRUS AND MYRTLE KATZEN CANCER RESEARCH CENTER, LED THE WAY FOR EARNING A STAR CERTIFICATION FOR THE PARTNERSHIP BETWEEN GW HOSPITAL AND THE GW MEDICAL FACULTY ASSOCIATES.



In an effort to meet the comprehensive care needs of the cancer survivors in the George Washington University Hospital (GW Hospital) and The GW Medical Faculty Associates (GW MFA) system, the GW MFA expanded its survivorship program, housed in the Division of General Internal Medicine, in 2014.

The adult cancer survivorship clinic is a multidisciplinary clinic. It includes a registered dietitian, a social worker, internists, a nurse navigator, and a neuro-oncology nurse practitioner. The multidisciplinary team also includes Pediatric Oncologist Jennifer Dean, M.D., and Patient Navigator Kate Shafer, M.S.W., LICSW.

Each comprehensive care visit includes an assessment and intervention for any psychological distress, physical impairments, financial strain, or social or practical needs as well as any medical problems such as sleep disorders and sexual dysfunction. Lifestyle behaviors including diet, exercise, and stress management are also discussed during visits.

This year, the survivorship clinic became the first in the country to pilot OnQHealth's novel web-based platform designed to create evidence-based and personalized care plans. The clinic team also created an education series for patients and their caregivers aimed at addressing the financial, emotional, physical, and intellectual needs of cancer survivors and their families. Topics covered in the series have included cancer rehab, eating well, genetic testing, anxiety and de-

pression, relationship challenges, fatigue, returning to work, and covering treatment costs.

The survivorship clinic, in collaboration with the GW Hospital outpatient rehabilitation center and the Dr. Cyrus and Myrtle Katzen Cancer Research Center, led the way for a STAR Program® (Survivorship Training and Rehabilitation) Certification for the partnership between GW Hospital and the GW MFA, making this the first center to achieve this certification in Washington, D.C. The STAR program launched in the summer of 2015.

Through expert care from a team of dedicated clinicians, the clinic delivers evidence-based survivorship care plans. The care plans are based on the standards for survivorship care set forth by the National Comprehensive Cancer Network, which include prevention of new and recurrent cancers and other late effects; surveillance for cancer spread, recurrence, or second cancer; assessment of late psychosocial and physical effects; intervention for consequences of cancer and treatment; and coordination of care between primary care providers and specialists to ensure that all of the survivor's health needs are met.

In the coming year, the survivorship clinic plans to continue expanding by partnering with various specialists within the GW MFA, using the latest in technology for quality care plan delivery, and providing a greater number of care plans to cancer survivors. ■

NEWS ACROSS THE PROGRAMS

A Warm Welcome

The George Washington University (GW) School of Medicine and Health Sciences, GW Hospital, and The GW Medical Faculty Associates are pleased to welcome **Eduardo M. Sotomayor, M.D.**, the inaugural director of the George Washington Cancer Center (GWCC). As director, Sotomayor is the **chief academic and clinical leader** of the GWCC, incorporating all cancer-related activities with the goal of positioning GW as the premier cancer center in the Washington, D.C. region.

Sotomayor, an internationally recognized visionary in the field of **lymphoma research and treatment**, previously served as the scientific director of the DeBartolo Family Personalized Medicine Institute, the Susan and John Sykes Endowed Chair of Hematologic Malignancies, and chair of the Department of Malignant Hematology at the Moffitt Cancer Center and Research Institute.

Originally from Peru, he graduated from medical school at the Universidad Nacional Federico Villarreal in 1988 before beginning postdoctoral training in **microbiology and immunology** at the University of Miami Miller School of Medicine. He completed an internal medicine residency at Jackson Memorial Hospital at the University of

Miami, followed by a medical oncology fellowship at Johns Hopkins University School of Medicine. ■



Expanding the Space for Research

The George Washington University (GW) recently opened the doors to its newest campus facility at the corner of 22nd and H streets: the **500,000-square-foot, multidisciplinary Science and Engineering Hall (SEH)**. The sparkling 14-floor building — eight floors above ground and six below — located across the street from the School of Medicine and Health Sciences' (SMHS) Ross Hall doubles the amount of space available to GW's science and engineering disciplines and serves as a technological hub for the university.

The building brings together faculty from GW's Columbian College of Arts and Sciences, the School of Engineering and Applied Science, SMHS, and the Milken Institute School of Public Health. When the top two floors are completed in 2016, the \$275 million facility targeting LEED Gold certification will house **state-of-the-art cancer research labs** that will be run by SMHS.

"The SEH opens the door to even greater opportunities for research and

discovery in health and medicine at GW," says Jeffrey S. Akman, M.D. '81, RESD '85, vice president for health affairs, Walter A. Bloedorn Professor of Administrative Medicine, and dean of SMHS. "In the new space, SMHS will expand its research capabilities in the area of cancer and translational science, **building bridges between the lab and the clinic to deliver novel therapies to patients.**"

Among the wet and dry laboratories, teaching labs, common areas, and administrative and faculty office space, researchers in the facility will share four specialized labs: a three-story "high bay" for large-scale experiments; a **nanofabrication lab**, which is a Class 100 clean-room environment used to develop and test devices including the next generation of transistors and **biosensors for cancer detection**; a climate-controlled rooftop greenhouse; and an **imaging suite** equipped with microscopes capable of viewing objects at resolutions better than one-billionth of a meter. ■

The Core of Competency

The George Washington University (GW) Cancer Institute finalized **45 core competency statements for oncology patient navigators**, who have become critical members of the health care team. These competency statements were created through literature review, focus group data analysis, expert review, and a national survey of oncology patient navigation stakeholders. The results were published in the April 2015 edition of the **Journal of Oncology Navigation and Survivorship**.

In addition to the competency statements, Mandi Pratt-Chapman, director of the GW Cancer Institute, and her team also crafted a framework defining the primary role and functions performed by oncology patient navigators, community health workers, and clinically licensed nurse and social worker navigators. This framework, by co-author Anne Willis,

M.A., director of the patient-centered programs at the GW Cancer Institute, served as the foundation of the core competency statements.

On the Run

A team of George Washington University students, faculty, staff, alumni, and their family and friends representing the GW Cancer Institute joined more than 21,000 runners for the **39th Annual Marine Corps Marathon and the Marine Corps 10-kilometer race**. Each October since 2010, when just eight runners piloted the first team, the GW Cancer Institute has participated in the Annual Marine Corps Marathon and 10K as a charity partner. In 2014, the GW Cancer Institute's Marine Corps



Marathon and 10K **teams raised more than \$36,000**.

Cancer Resources on TAP

In September 2014, the GW Cancer Institute launched a new **Cancer Control Technical Assistance Portal (TAP)**, to serve as an online resource for communities working to reduce the burden of cancer. These community programs, called Comprehensive Cancer Control (CCC) programs and supported by the United States Centers for Disease Control and Prevention (CDC), can now access existing and new technical assistance through the website.

In 2013, the GW Cancer Institute was **awarded a five-year \$2.1 million cooperative agreement** from the CDC to design and implement a compre-

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The Pathway to Defeating Pancreatic Cancer

A pair of grants totaling more than \$1 million may shed light on the molecular underpinnings of pancreatic cancer. In May 2014, Alexandros Tzatsos, M.D., Ph.D., assistant professor of anatomy and regenerative biology at the School of Medicine and Health Sciences (SMHS), received an R00 award for \$706,000. The grant was the second part of a National Cancer Institute (NCI) K99/R00 Howard Temin Pathway to Independence Award in Cancer Research – meant to aid young researchers in setting up independent research labs. This grant will fund Tzatsos' research project "The Role of Epigenetic Regulators in Pancreatic Cancer." The previous February, Tzatsos received a \$374,000 R21

award from the NCI to fund his project "Elucidating and Targeting Epigenetic Oncogenic Networks in Pancreatic Cancer."

Pancreatic cancer is a devastating disease, with few cases caught early enough for the patient to receive effective treatment. According to the American Cancer Society, it is the fourth leading cause of cancer-related death in the United States. Tzatsos

studies the role of a histone demethylase, the enzyme that drives the development of pancreatic cancer.

To support his study, Tzatsos developed genetically engineered mouse models to address the role of this epigenetic regulator in vivo.

"This could be key to understanding the molecular pathology of pancreatic cancer and developing better therapies," says Tzatsos. ■

PANCREATIC CANCER HAS THE HIGHEST MORTALITY RATE OF ALL MAJOR CANCERS, AND IS ONE OF THE FEW FOR WHICH SURVIVAL HAS NOT IMPROVED SUBSTANTIALLY OVER THE PAST 40 YEARS.

NEWS ACROSS THE PROGRAMS

Following the Hedgehog

Xiaoyan Zheng, Ph.D., assistant professor of anatomy and regenerative medicine at GW's School of Medicine and Health Sciences (SMHS), focuses her National Institutes of Health-funded research on an oddly named cellular signaling pathway, the Hedgehog pathway. Far from a route for spiny mammals, this cellular pathway transmits critical information to embryonic cells in order to direct their proper development and regeneration.

From her second-floor lab in Ross Hall, Zheng is studying the regulation of cell-to-cell interaction along this pathway; her research may one day lead to a cure for cancer. The Hedgehog pathway is one of the key regulators of animal development and is present in all animals with bilateral symmetry, that is, those that have a front and back, as well as an "up" side and a "down" side. Different parts of the embryo have different concentrations

of Hedgehog signaling proteins. Malfunctions of this pathway have been associated with several diseases, including cancer.

"So, I study the mechanism of how the Hedgehog proteins can have this effect," explains Zheng. "The cells sense the Hedgehog with a receptor, and that receptor interacts with other 'downstream' proteins, telling the cells what to do. We already know that abnormal Hedgehog pathway activity causes cancer. What we don't know is how to effectively interrupt this pathway to stop the development of cancer."



The Hedgehog pathway is a cellular signaling pathway named for their similar appearance to the short, stubby mammal.

Zheng's primary research involves identifying target genes regulated by the

Hedgehog signal in order to better understand the molecular mechanisms employed in regulating cell-to-cell interactions. If she can identify more of the proteins regulated by the Hedgehog signal, she may discover more targets for affecting the signal. ■

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hensive technical assistance program for CCC programs, addressing a need voiced by cancer control professionals for a centralized website with existing and new technical assistance.

"Cancer Control TAP meets a documented need in the cancer control community," says Mandi Pratt-Chapman, director of the GW Cancer Institute. "It will allow coalitions working on the ground to be more efficient and evidence-based in their efforts to reduce cancer burden."

The website includes a resource repository, where **users can access CCC resources** produced not only by the

GW Cancer Institute, but also by the National Comprehensive Cancer Control Program at the CDC and their partners, cancer control coalitions, and other stakeholders.

Advancing Patient Navigation

The GW Cancer Institute submitted a request, along with more than 40 co-signers, to the Office of Management and Budget to include Patient Navigation in the 2018 Standard Occupation Classification (SOC) system.

"A patient navigator is a health care expert who reduces and eliminates barriers to accessing care, empowers patients and their families, and facilitates

timely access to high-quality medical care across the healthcare continuum," the group wrote in a letter to the SOC Policy Committee at the United States Bureau of Labor Statistics. **"Patient navigators work with medically underserved individuals, populations and communities** to reduce disparities in health care.

Walking the Walk

The GW Cancer Institute received a **\$100,000 grant from the Avon Foundation** during the 12th annual Avon Walk for Breast Cancer in Washington, D.C.

Eloise Caggiano, a breast cancer survivor and Avon Walk for Breast Cancer program director, presented

eight new grants to local breast cancer organizations, ensuring the funds raised immediately benefit the local community. “Every grant moves us closer toward our goal of a world without breast cancer,” said Caggiano.

The grant supports an Avon patient navigator, who works to remove barriers and coordinate access to care for prompt diagnosis, and assist with insurance access and resources for more than 1,000 patients.

A Memorial to Cancer Patient Engagement

After more than 20 years of leadership in patient engagement and cancer policy, the nonpartisan, Washington-based

research institute **Center for Advancing Health (CFAH)** closed its operations.

Among its final acts, however, the CFAH board selected a proposal from the GW Cancer Institute to establish the Center for Patient Engagement. In addition to a **\$150,000 memorial gift**, the GW Cancer Institute will receive numerous intellectual assets from CFAH.

“On behalf of the staff and board of directors for the Center for Advancing Health, we are deeply honored that the GW Cancer Institute will be launching a new Center for Patient Engagement with a contribution from **the Jessie Gruman Memorial Fund** of CFAH,” said M. Chris Gibbons, M.D., M.P.H., chair of

the Board of Trustees for the CFAH. “This new center will build on assets of CFAH to advance the field of patient engagement and to help people actively participate in their health and health care in order to live for as long and as well as they can.”

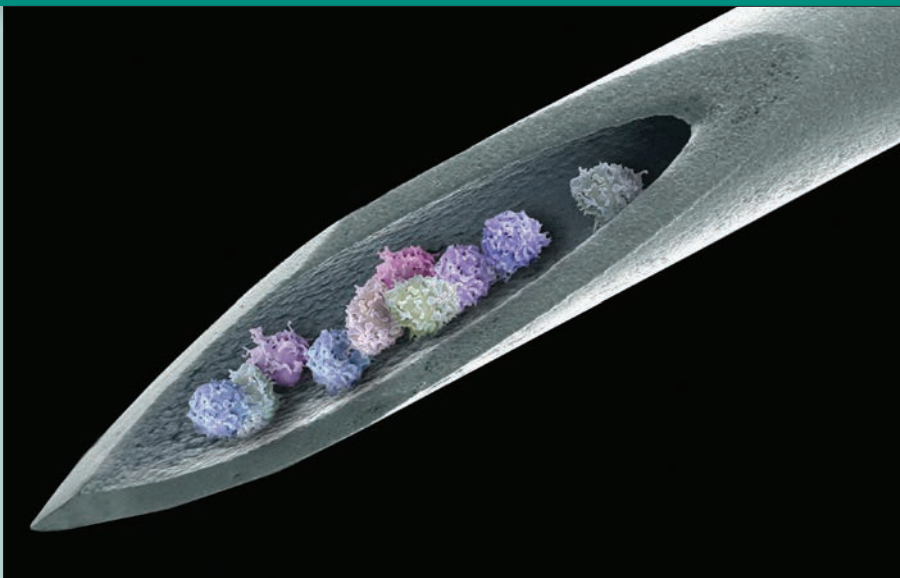
The new Center for Patient Engagement at the GW Cancer Institute will expand on the shared mission of CFAH and the GW Cancer Institute to empower patients and advocate for quality care. The bequest will provide resources to expand the institute’s focus on **patient-centered care, providing resources to patients, public health prac-**

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At the Center of Bone Marrow Transplants

A little more than two decades ago, The George Washington University was seeking to re-establish a bone marrow transplant (BMT) program. Many at the University, including Robert Siegel, M.D., professor of medicine at GW’s School of Medicine and Health Sciences (SMHS), and chief of the Division of Hematology/Oncology at The GW Medical Faculty Associates, believed that having a viable BMT program “was central to maintaining our credibility as a tertiary care center for the treatment of cancer,” in Siegel’s words.

GW had high aspirations for the program and selected Imad Tabbara, M.D., to get the program off the ground. That was 1992. Today, Tabbara serves as professor of medicine at SMHS and director of the Blood and Bone Marrow Transplant Program. In the intervening years, GW’s program has performed close to 1,000 transplants, growing from two or three per year to between 30 and 50 annually, and boasting a low 3 percent mortality rate.



Tabbara speaks of his successful transplants like a proud parent. His first BMT at GW, in May 1992, was a 28-year-old pastry chef in the District suffering from acute leukemia. Twenty years later “she’s alive and healthy and completely fine.” Another woman with acute leukemia didn’t have a donor “but I harvested

her stem cells when she was in remission, and she’s now 15 years out and has had two children,” says Tabbara. “Her sister-in-law is a nurse on my team.”

For more information about bone marrow transplant services, contact Imad Tabbara, M.D., at 202-741-2478. ■

NEWS ACROSS THE PROGRAMS

Lending Aid and Comfort



JENNIFER BIRES, A LICENSED INDEPENDENT CLINICAL SOCIAL WORKER AT THE DR. CYRUS AND MYRTLE KATZEN CANCER RESEARCH CENTER.

The philosophy of the patient services support team at The Dr. Cyrus and Myrtle Katzen Cancer Research Center is simple: comprehensive, patient-centered care. The top-notch group – a social worker, patient navigator, financial counselor, and oncology dietitian – not only helps to ease the distress of the cancer diagnosis, but also provides a wealth of resources to ensure patients' treatment processes and outlooks stay positive and on track.

"It's a huge emotional toll to be diagnosed with cancer, and it's a huge emotional toll to go through treatment because it interferes with family life, with work, with day-to-day activities. Everything changes and stops for a while," explains Jennifer Bires, a licensed independent clinical social worker at the Dr. Cyrus and Myrtle Katzen Cancer Research Center. "We want to make sure we're getting to a place where patients can say 'I can bear this, I can live with this,' and 'this is good, I still enjoy life, I still get a lot of hope and enjoyment out of my activities.'"

To that end, patients can take advantage of various avenues of support, including a chemotherapy class, which smooths the transition from diagnosis to treatment; survivorship care plans; and a palliative care program, a team of physicians, a chaplain, psychiatrists, a social worker, and an art therapist. Additionally, the Dr. Cyrus and Myrtle Katzen Cancer Research Center

provides activities, such as gentle yoga, and a range of support groups and educational programs, which are open to patients, families, and members of the Washington, D.C. community.

"We've designed it so there's literally a support group for everyone," Bires says. "We have a support group for caregivers, we have some very diagnosis-specific support groups, and then we have our support groups that have an educational component as well. I think people come out of groups more educated and able to advocate for themselves in a way that they weren't able to before they went."

Bires encourages all patients to attend the support groups and the chemotherapy class, the latter of which "demystifies the process and helps decrease anxiety," she says. It's important, she adds, for patients not to suffer in silence, but ask for assistance because the team, which is planning to add another social worker, is there to help.

"We've seen more and more people talk about initial support in treating the whole person; not just the medical piece, but the entire person," Bires says. "You cannot treat the person without these additional services. There is assistance to reach out for if patients need it." ■

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tioners, and health care professionals through webinars and the GW Cancer Institute's new resource repository, as well as develop new resources that translate patient-centered outcomes research to create informed, engaged patients.

Contributing to Clinical Care Guidelines

In response to the increasing need to support primary care clinicians who care for prostate cancer survivors, the American Cancer Society (ACS), with support from the GW Cancer Institute and a panel of experts, has published the **ACS Prostate Cancer Survivorship Care Guidelines**.

The guidelines, developed in response to the National Cancer Survivorship Resource Center's strategic recommendations aimed at enhancing the quality of clinical follow-up care, provide a combination of evidence and expert clinical practice-based management recommendations to guide prostate cancer survivorship care in primary care settings.

The Survivorship Center, **founded by the ACS and the GW Cancer Institute**, with support from the Centers for Disease Control and Prevention, aims to impact individual, systems, and policy gaps in post-treatment survivorship care. The Center's work focuses on survivorship clinical care and resources to help survivors achieve optimal health and quality of life, increasing the importance of post-treatment survivorship as a public health issue. ■

PILOTING INNOVATION: KATZEN CENTER RESEARCH PILOT GRANTS

The George Washington University's (GW) Dr. Cyrus and Myrtle Katzen Cancer Research Center (Katzen Center) selected seven research teams for the 2014 Innovative Cancer Research Pilot Grant Program. In its fifth year, the program awarded \$450,000 for research projects spanning a range of topics in clinical and translational science, including screening guideline adherence, drug/gene delivery platforms, and device development for diagnosis and treatment of multiple myeloma. Winners were chosen based on factors including projects that paired experienced researchers with junior counterparts or interdisciplinary investigations linking cancer research with other focus areas such as infectious disease.

Norris Nolan, M.D., assistant professor of pathology, and **Arnold Schwartz, M.D., Ph.D.**, professor of pathology, are developing a computer algorithm to aid making reliable prognostics in early stage lung cancer and establish new prognostic markers.

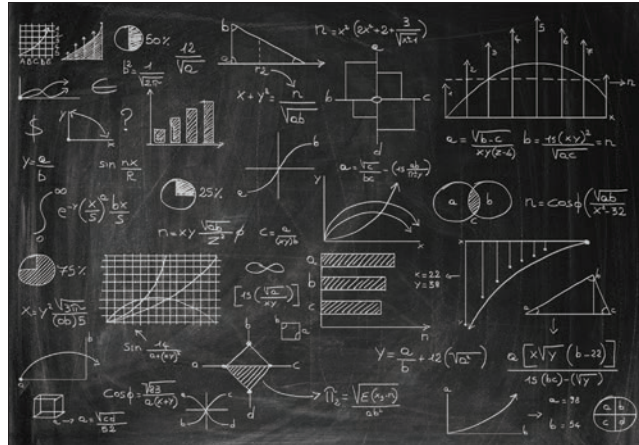
Neal Sikka, M.D., associate professor of emergency medicine, and co-chief of the Section of Innovative Medicine; **Francis O'Connell, M.D.**, assistant professor of emergency medicine; and **Cherise Harrington, Ph.D., M.P.H.**, assistant professor of prevention and community health in Milken Institute School of Public Health at GW, are assessing rates and patterns of cancer screening to inform the development and feasibility of communication technologies to assist cancer care teams.

Robert Siegel, M.D., professor of medicine and medical director of the

Katzen Center; **Lijie Grace Zhang, Ph.D.**, associate professor of engineering and applied science at GW's School of Engineering and Applied Science (SEAS); and **Joseph O'Brien, M.D. '01, M.P.H.**, associate professor of orthopaedic surgery, are working on a drug delivery system using rosette nanotubes (self-assembling guanine-cytosine dimers) linked to microRNA to administer cytotoxic drugs such as paclitaxel or tamoxifen.

Anelia Horvath, Ph.D., associate research professor of pharmacology and physiology; **Rebecca Kaltman, M.D.**, assistant clinical professor of medicine; and **Christine Teal, M.D.**, associate professor of surgery and chief, Division of Breast Care, are exploring the genetics and expression of BRCA1 and BRCA2 pathogenic mutations in individuals who have not developed an early onset cancer, and comparing that data with that of mutation carriers who did develop early onset of the disease.

Robert Hawley, Ph.D., King Fahd Professor of Anatomy and Regenerative Biology, and professor and chair of anatomy and regenerative biology; **Imad Tabbara, M.D.**, professor of medicine; **Zhenyu Li, Ph.D.**, assistant professor of electrical and computer engineering in SEAS; **Irene Riz Ph.D.**, assistant research

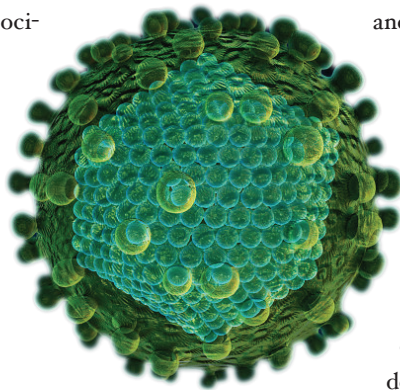


This year's award winners include a team working on an algorithm to improve cancer prognostication, and a group identifying genetic markers for Hepatitis C, a leading cause of liver cancer.

professor of anatomy and regenerative biology; and **Teresa Hawley**, director of the Flow Cytometry Core Facility at GW, are looking to improve identification and characterization of drug-resistant cancer stem cells by developing a microfluidics screening device.

Nader Sadeghi, M.D., professor of surgery, and **Jason Zara, Ph.D.**, associate professor of engineering and applied science in SEAS, received a continuation award for their project to develop a cancer imaging and treatment probe that integrates optical coherence tomography for imaging and cold plasmas for selective plasma treatment.

Ajit Kumar, Ph.D., professor of biochemistry and molecular medicine, and **Patricia Latham, M.D.**, professor of pathology, will continue their work identifying mRNA markers for Hepatitis C virus infection, the leading cause of chronic hepatitis morbidity and a cause of liver cancer. ■





GW Cancer Registry and Tumor Report

GW HOSPITAL 2014 CANCER REGISTRY REPORT (BASED ON 2013 CANCER DATA)

For nearly three decades, the George Washington University Hospital (GW Hospital), along with its clinical partners the GW School of Medicine and Health Sciences (SMHS) and The GW Medical Faculty Associates (GW MFA), has tracked the number of cancer patients diagnosed and treated at the hospital. The data are then reviewed in five-year increments and compared with national American Cancer Society (ACS) information. The GW cancer registry has grown consistently over the past five years. The number of patients admitted to GW Hospital increased from 1,590 in 2009 to 1,603 in 2013 (Figure 1). Of these admitted patients in 2013, 1,382 or 86 percent (86%) were diagnosed and/or treated at GW Hospital. The remaining 221 cases, or 14 percent (14%), were history, recurrence, or subsequent therapy-only cases (Table 1).

According to Table 1, the five major cancer sites at GW Hospital continued to be breast, lung, prostate, colon/rectum, and kidney cancers. The majority patient population at GW Hospital is white: 46 percent white versus 40 percent black, with 14 percent of patients representing other ethnicities. Figure 2 shows an increased incidence of melanoma, cancers of hematopoietic, and cancers of female reproductive systems between 2012 and 2013. There was

a more significant increase in the incidence of head and neck cancers, including thyroid cancer, 9 percent versus 11 percent; colorectal and other gastrointestinal cancers, 9.8 percent versus 11 percent; cancers of the nervous system, 3.5 percent versus 4.3 percent; and nodal and extra-nodal lymphoma, 2.8 percent versus 3.5 percent, respectively.

Tables 2A and 2B show a comparison between GW Hospital cancer cases and national ACS data for male and female patients. Besides prostate and breast cancers, lung and colon/rectum cancers are major cancers among GW male compared to GW female. Thyroid cancer is a major female cancer in both GW and ACS data between 2011 and 2013, especially in 2013: 8 percent and 6 percent

in both GW and ACS female population versus 1.8 percent in GW male and 2.0 percent in ACS male data respectively. On the contrary, urinary/bladder cancer represent major cancer for both GW and ACS male populations: 7.5 percent in GW and 6 percent in ACS patients, as opposed to 1.8 percent in GW and 2 percent in ACS female populations.

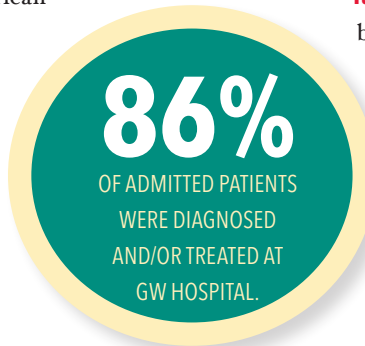


FIGURE 1: TREND OF CANCER CASES ADMITTED TO GW HOSPITAL BETWEEN 2009 AND 2013

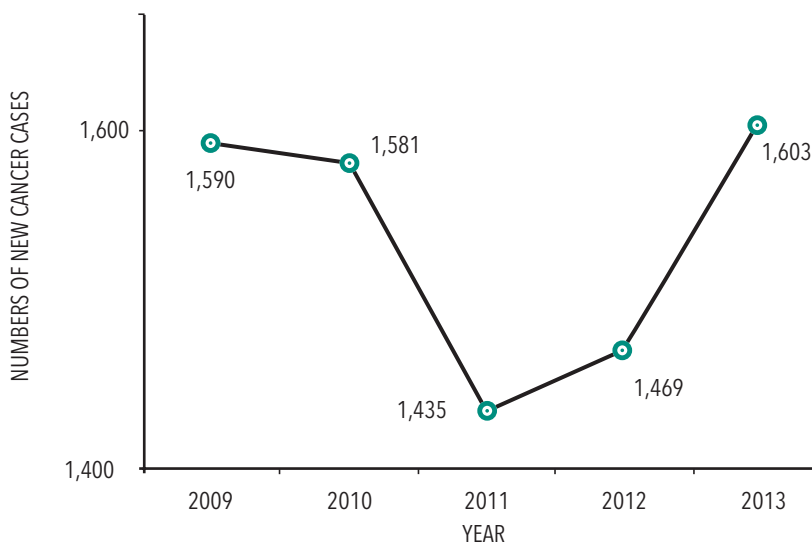


TABLE 1: GW HOSPITAL CANCER REGISTRY, 2013 CANCER CASES BY ANATOMIC SITE

PRIMARY SITE	# CASES	% CASES	CLASS OF CASES		RACE***			AJCC STAGE AT DIAGNOSIS (ANALYTIC CASES ONLY)						
			ANALYTIC	NON-ANALYTIC **	W	B	O	O	I	II	III	IV	88	UNK
HEAD AND NECK	87	5.4	66	21	40	17	9	1	13	2	11	28	3	8
TONGUE	23	1.5	18	5	12	3	3	0	4	0	2	9	0	3
SALIVARY GLAND	14	0.9	9	5	6	1	2	0	3	1	2	3	0	0
FLOOR OF MOUTH	12	0.7	11	1	6	3	2	0	3	0	2	4	0	2
TONSILS	3	0.2	3	0	1	1	1	0	0	0	2	1	0	0
OROPHARYNX	5	0.3	3	2	2	1	0	0	0	0	0	3	0	0
HYPOPHARYNX	2	0.1	2	0	1	1	0	0	0	0	0	1	0	1
OTHER ORAL CAVITIES	5	0.3	4	1	2	2	0	0	1	0	0	2	0	1
NASAL CAVITY/SINUSES	7	0.4	5	2	3	1	1	0	0	1	0	1	3	0
LARYNX	16	1.0	11	5	7	4	0	1	2	0	3	4	0	1
DIGESTIVE SYSTEM	180	11.2	159	21	49	84	26	2	52	29	30	31	2	13
ESOPHAGUS	5	0.3	5	0	1	2	2	0	1	1	1	2	0	0
STOMACH	31	1.9	31	0	7	12	12	0	10	7	6	6	0	2
SMALL INTESTINE	14	0.9	13	1	3	7	3	0	4	2	3	1	0	3
COLON	53	3.3	45	8	19	22	4	0	17	10	7	9	0	2
RECTUM	25	1.6	22	3	7	15	0	2	10	3	6	0	0	1
ANUS/ANAL CANAL	10	0.6	6	4	4	2	0	0	1	0	4	0	0	1
LIVER	12	0.7	10	2	1	8	1	0	2	3	1	2	0	2
GALL BLADDER & OTHER	4	0.3	4	0	2	2	0	0	0	1	0	0	1	2
PANCREAS	26	1.6	23	3	5	14	4	0	7	2	2	11	1	0
RESPIRATORY SYSTEM	106	6.6	90	16	26	51	13	0	21	9	17	39	0	4
BRONCHUS & LUNG	106	6.6	90	16	26	51	13	0	21	9	17	39	0	4
SOFT TISSUES	20	1.3	16	4	8	4	4	0	2	2	5	1	2	4
BONE	2	0.2	2	0	1	1	0	0	0	2	0	0	0	0
EYE - ORBIT	3	0.2	3	0	2	1	0	0	0	0	0	0	3	0
LYMPHOMA	59	3.6	48	11	28	15	5	0	6	4	5	27	2	4
HODGKIN'S - NODAL	7	0.4	5	2	2	2	1	0	2	1	0	2	0	0
NHL- NODAL	36	2.2	30	6	18	11	1	0	4	3	5	13	2	3
NHL - EXTRANODAL	16	1.0	13	3	8	2	3	0	0	0	0	12	0	1
BREAST	352	22.0	316	36	122	154	40	98	117	62	22	12	1	4
FEMALE GENITAL	46	2.9	24	22	6	13	5	0	10	1	6	5	0	2
CERVIX UTERI	25	1.6	7	18	3	3	1	0	3	1	2	0	0	1
CORPUS UTERI	8	0.5	8	0	2	5	1	0	4	0	2	2	0	0
VAGINA	2	0.1	2	0	0	1	1	0	1	0	1	0	0	0
OVARY	10	0.6	6	4	1	3	2	0	1	0	1	3	0	1
VULVA	1	0.1	1	0	0	1	0	0	1	0	0	0	0	0

TABLE 1: GW HOSPITAL CANCER REGISTRY, 2013 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
MALE GENITAL	232	14.5	211	21	105	88	18	0	25	125	45	8	1	7
PROSTATE GLAND	216	13.5	197	19	98	86	13	0	19	125	44	8	0	1
TESTIS	13	0.8	11	2	6	0	5	0	6	0	1	0	0	4
PENIS	1	0.1	1	0	0	1	0	0	0	0	0	0	0	1
SCROTUM	2	0.1	2	0	1	1	0	0	0	0	0	0	1	1
URINARY SYSTEM	174	10.8	162	12	98	53	11	34	76	17	20	14	1	0
URINARY BLADDER	70	4.4	62	8	38	15	9	29	12	9	2	10	0	0
KIDNEY	91	5.7	88	3	50	36	2	0	60	7	16	4	1	0
RENAL PELVIS - URETER	11	0.6	10	1	8	2	0	4	3	1	2	0	0	0
URETHRA	2	0.1	2	0	2	0	0	1	1	0	0	0	0	0
NERVOUS SYSTEM	64	4.0	60	4	33	11	16	0	0	0	0	0	60	0
BRAIN/SPINAL CORD	43	2.7	39	4	19	7	13	0	0	0	0	0	39	0
MENINGES	17	1.1	17	0	10	4	3	0	0	0	0	0	17	0
OTHER PARTS OF CNS	4	0.2	4	0	4	0	0	0	0	0	0	0	4	0
ENDOCRINE SYSTEM	87	5.4	82	5	45	20	17	0	49	4	11	5	10	3
THYROID GLAND	71	4.4	70	1	41	15	14	0	49	4	11	4	0	2
OTHER GLANDS & THYMUS	16	1.0	12	4	4	5	3	0	0	0	0	1	10	1
HEMATOPOIETIC	90	5.5	71	19	35	21	15	0	0	0	0	0	71	0
MULTIPLE MYELOMA	29	1.8	24	5	8	10	6	0	0	0	0	0	24	0
ACUTE LEUKEMIA	12	0.7	10	2	8	0	2	0	0	0	0	0	10	0
CHRONIC LEUKEMIA	16	1.0	13	3	7	2	4	0	0	0	0	0	13	0
OTHER BLOOD DISORDER	33	2.0	24	9	12	9	3	0	0	0	0	0	24	0
SKIN	56	3.5	30	26	24	3	3	2	15	0	6	7	0	0
MELANOMA	30	1.9	26	4	21	2	3	2	14	0	5	5	0	0
OTHER SKIN CANCER	26	1.6	4	22	3	1	0	0	1	0	1	2	0	0
UNKNOWN	45	2.8	42	3	17	23	2	0	0	0	0	0	42	0
ALL SITES	1603	100.0	1382	221	639	559	184	137	386	257	178	177	198	49

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 2A: 2011-13 ANALYTIC CASES – THE MOST FREQUENT CANCERS IN MALE

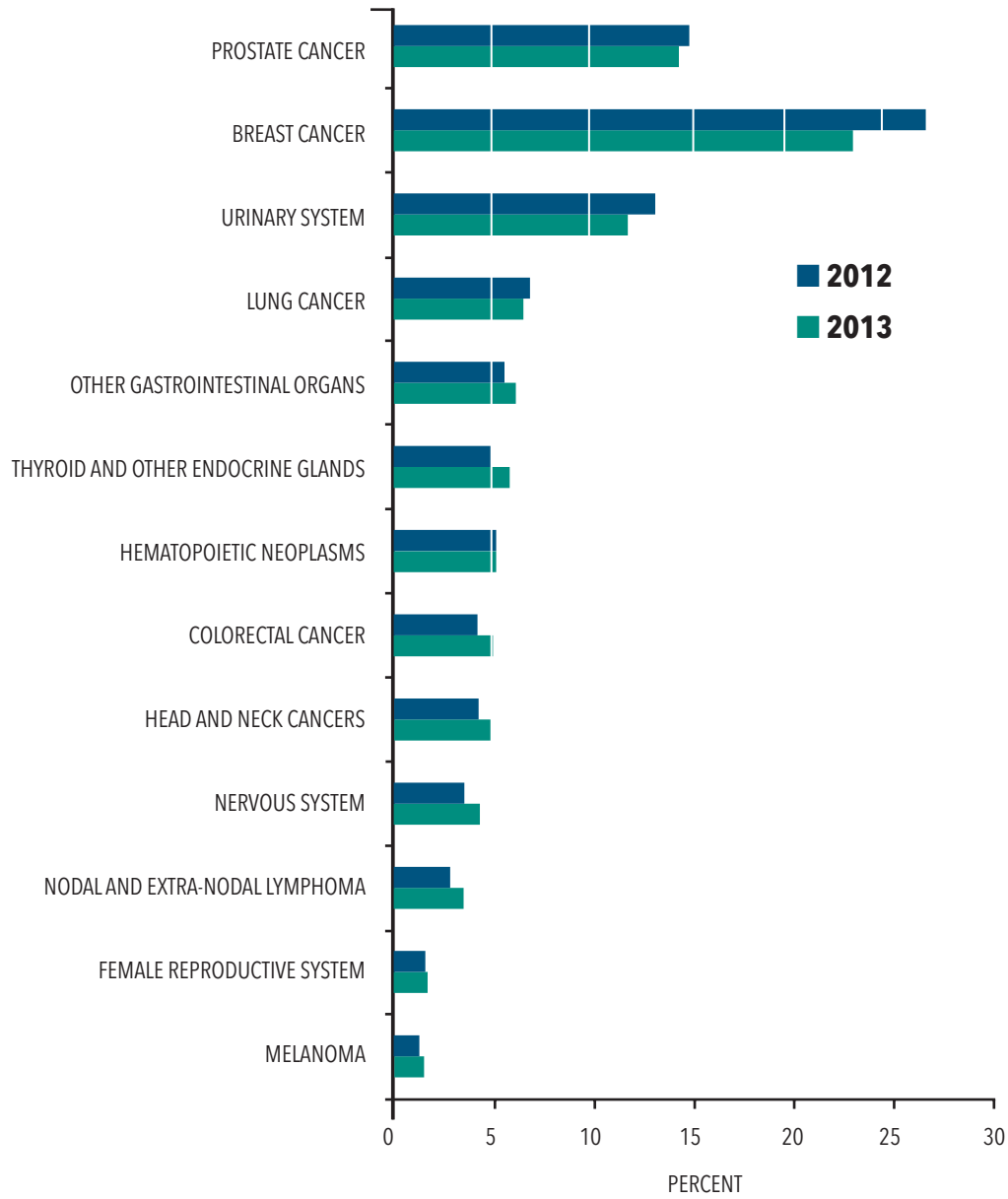
PRIMARY SITE	2013 CASES (%)				2012 CASES (%)				2011 CASES (%)			
	GWUH		ACS		GWUH		ACS		GWUH		ACS	
PROSTATE	197	(30.0)	238,590	(28.0)	196	(30.5)	241,740	(28.0)	243	(34.6)	240,890	(29.0)
KIDNEY/RENAL/PELVIS	62	(9.5)	40,430	(5.0)	71	(11.0)	40,250	(5.0)	76	(10.8)	37,120	(5.0)
LUNG	45	(7.0)	118,080	(14.0)	46	(7.2)	116,470	(14.0)	44	(6.3)	115,060	(14.0)
URINARY/BLADDER	49	(7.5)	54,610	(6.0)	41	(6.4)	55,600	(7.0)	37	(5.3)	52,020	(6.0)
COLON-RECTUM	27	(4.0)	73,690	(9.0)	34	(5.3)	73,420	(9.0)	39	(5.5)	71,850	(9.0)
LEUKEMIA/OTHER	32	(5.0)	11,240	(1.0)	38	(5.9)	26,830	(3.0)	50	(7.1)	25,320	(3.0)
MELANOMA OF THE SKIN	17	(2.6)	45,060	(5.0)	9	(1.4)	44,250	(5.0)	12	(1.7)	40,010	(5.0)
BRAIN/OTHER CNS	25	(4.0)	12,770	(1.0)	22	(3.4)	12,630	(1.0)	28	(4.0)	12,260	(2.0)
NODAL/EXTRANODAL-NHL	20	(3.0)	37,600	(4.0)	23	(3.6)	38,160	(4.0)	19	(2.7)	36,060	(4.0)
THYROID	12	(1.8)	14,910	(2.0)	20	(3.1)	14,600	(2.0)	16	(2.3)	11,470	(1.0)
STOMACH	18	(2.7)	13,230	(2.0)	10	(1.6)	13,020	(2.0)	14	(2.0)	13,120	(2.0)
PANCREAS	14	(2.1)	22,740	(3.0)	10	(1.6)	22,090	(3.0)	12	(1.7)	22,050	(3.0)
MYELOMA	14	(2.1)	12,440	(2.0)	10	(1.6)	12,190	(1.0)	14	(2.0)	11,400	(1.0)
OTHERS	122	(18.7)	159,400	(18.0)	112	(17.4)	136,920	(16.0)	99	(14.0)	133,640	(16.0)
TOTAL	654	(100.0)	854,790	(100.0)	642	(100.0)	848,170	(100.0)	703	(100.0)	822,300	(100.0)

TABLE 2B: 2011-13 ANALYTIC CASES – THE MOST FREQUENT CANCERS IN FEMALE

PRIMARY SITE	2013 CASES (%)				2012 CASES (%)				2011 CASES (%)			
	GWUH		ACS		GWUH		ACS		GWUH		ACS	
BREAST	312	(43.0)	232,340	(29.0)	353	(51.5)	226,870	(29.0)	239	(37.9)	230,480	(30.0)
LUNG	45	(6.1)	110,110	(14.0)	45	(6.6)	109,690	(14.0)	42	(6.7)	106,070	(14.0)
KIDNEY/RENAL/PELVIS	32	(4.4)	24,720	(3.0)	31	(4.5)	24,520	(3.0)	42	(6.7)	23,800	(3.0)
THYROID	58	(8.0)	45,310	(6.0)	34	(5.0)	43,210	(5.0)	42	(6.7)	36,550	(5.0)
LEUKEMIA/OTHER	25	(3.4)	20,730	(3.0)	28	(4.1)	20,320	(3.0)	39	(6.2)	19,280	(2.0)
BRAIN/OTHER CNS	18	(2.4)	10,360	(1.0)	16	(2.3)	10,280	(1.0)	32	(5.1)	10,080	(1.0)
COLON-RECTUM	40	(5.5)	69,140	(9.0)	22	(3.2)	70,040	(9.0)	32	(5.1)	69,360	(9.0)
URINARY BLADDER	13	(1.8)	17,960	(2.0)	23	(3.4)	17,910	(2.0)	24	(3.8)	17,230	(2.0)
CORPUS/UTERINE	8	(1.1)	49,560	(6.0)	12	(1.7)	47,130	(6.0)	15	(2.4)	46,470	
NODAL/EXTRANODAL-NHL	22	(3.0)	32,140	(4.0)	15	(2.2)	31,970	(4.0)	11	(1.7)	30,300	(4.0)
STOMACH	13	(1.8)	8,370	(1.0)	10	(1.4)	8,300	(1.0)	10	(1.6)	8,400	(1.0)
PANCREAS	11	(1.5)	22,480	(3.0)	9	(1.3)	21,830	(3.0)	10	(1.6)	21,980	(3.0)
OTHERS	131	(18.0)	162,280	(20.0)	88	(12.8)	158,670	(20.0)	92	(14.5)	154,370	(20.0)
TOTAL	728	(100%)	805,500	(100.0)	686	(100.0)	790,740	(100.0)	630	(100.0)	774,370	(100.0)



FIGURE 2: DISTRIBUTION OF NEW CANCER CASES BY ANATOMIC SITES AND YEAR OF ADMISSION



RENAL PELVIS CANCER

2014 CANCER TUMOR REPORT | KATAYOON REZAEI, M.D.

According to the National Cancer Institute’s Surveillance, Epidemiology, and End Results (SEER) program, the incidence of renal pelvis cancer has been on the rise, with the annual number of reported cases increasing from 786 in 2001 to 999 cases by 2011, the period used in this study. The total number of reported cases in that 10-year span reached 10,511 patients. At the George Washington University Hospital (GW Hospital), there were 102 renal pelvis cancer cases diagnosed and/or treated between 2001 and 2013.

This disease occurred predominantly in white populations compared to black and other races in both GW Hospital (73 percent, 23 percent, and 4 percent) and SEER data (89 percent, 5 percent, and 6 percent) respectively (not shown in graph).

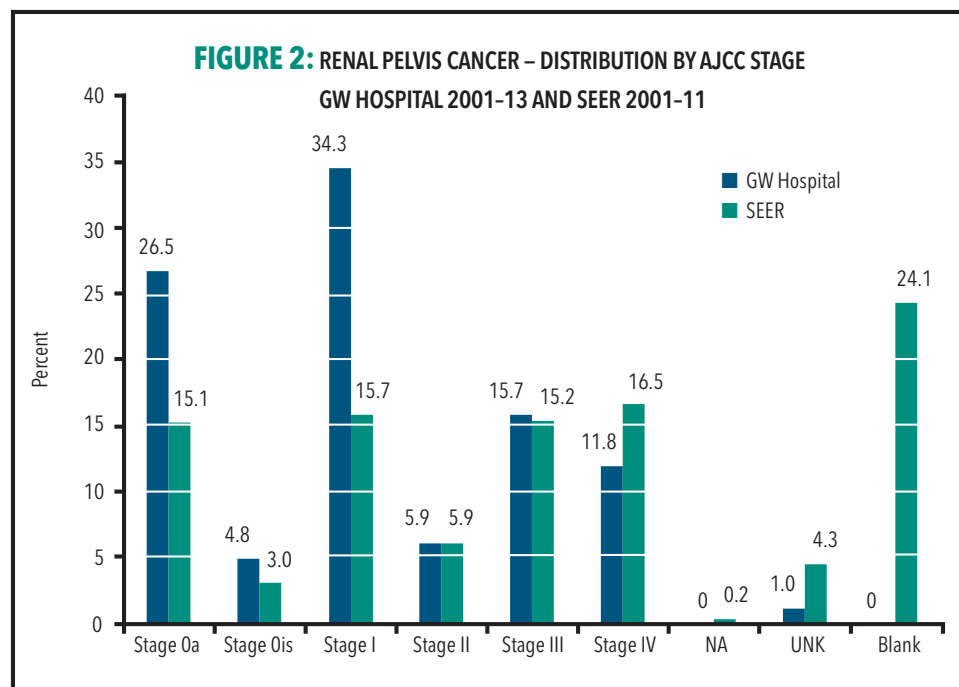
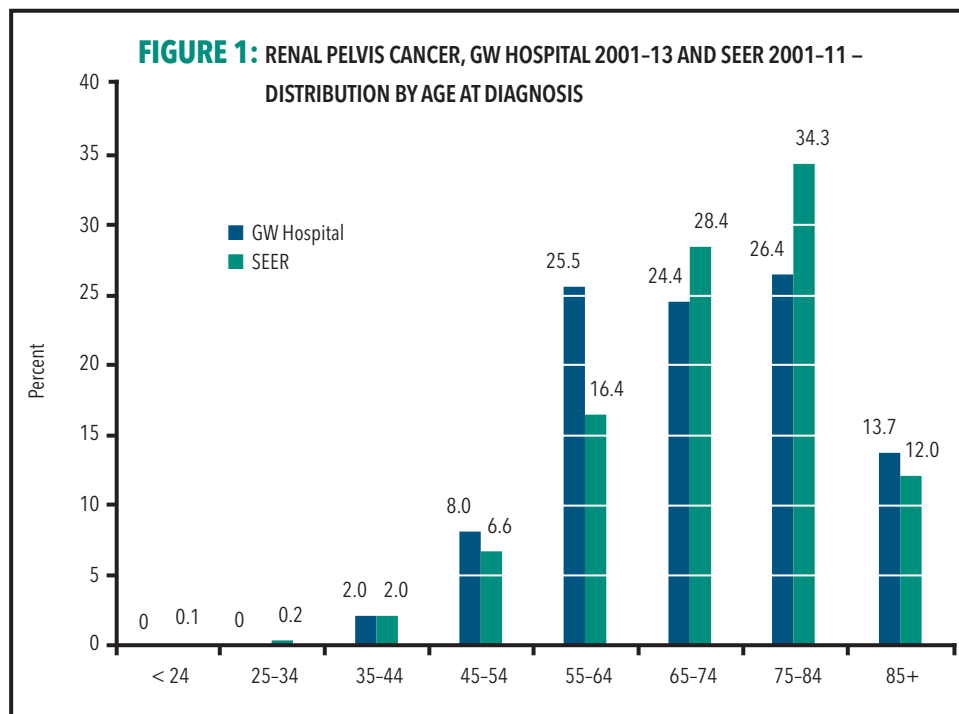
The majority of renal pelvis carcinoma patients at GW Hospital are diagnosed between the ages of 65-84, a similar finding in both data sets; 50.8 percent (GW Hospital) and 62.7 percent (SEER). However, there are a higher percentage of patients younger than 65 years of age in the SEER data (25.3 percent) versus GW Hospital (35.5 percent). In patients older than 85 years, the ratio is similar between SEER and GW Hospital; 12.0 percent and 13.7 percent respectively.

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Figure 4 showed a direct correlation between tumor grades and AJCC stage:

The higher the tumor grade, the more advanced the AJCC stage. This relationship followed the trend of histologic grade and stage in both data sets. Low-grade tumors (grades

Continued on page 21



Continued from page 20

I and II) comprised 38.2 percent and 29.4 percent of all renal pelvis cancers in GW Hospital and SEER data, respectively. This high number of low-grade tumors at GW Hospital (**Figure 2**) explains the proportionately higher percentage of early stage cancers (stages 0, I and II) in GW Hospital (77.3 percent) compared to the SEER data (56.6 percent). On the other hand, high-grade tumors (grade III and IV) were detected at a similar rate of 55 percent in GW Hospital and 54 percent in SEER data with the resultant advanced stages (Stage III and IV) of 40 percent in GW Hospital and 43.4 percent in SEER data respectively.

Based on the findings reported at the American Society of Clinical Oncologists' 2014 Annual Meeting, radiation therapy has not contributed to an increase in the survival rate among patients with transitional cell carcinoma of renal pelvis. In addition, the SEER*Stat report is limited by not recording chemotherapeutic interventions. Conservative therapeutic strategies, such as local tumor excision with laser ablation and kidney preservative surgery are

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FIGURE 3: RENAL PELVIS CANCER, GW HOSPITAL 2011-13 AND SEER 2001-11 –

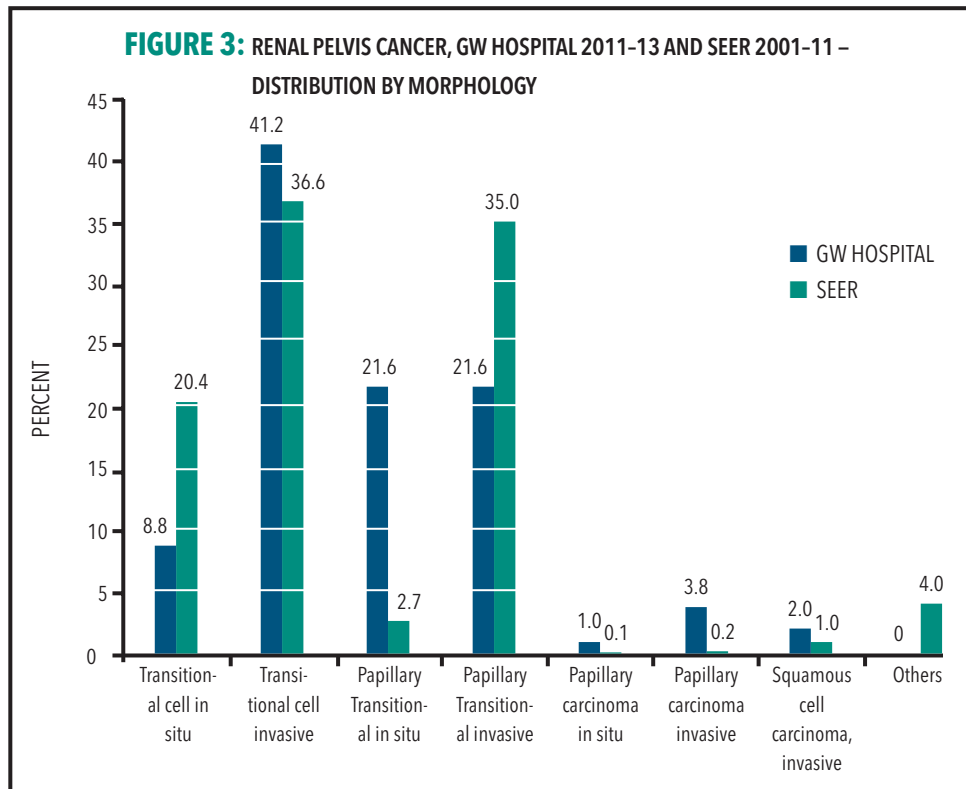


FIGURE 4: RENAL PELVIS CANCER, GW HOSPITAL 2001-13 AND SEER DATA 2001-11 –

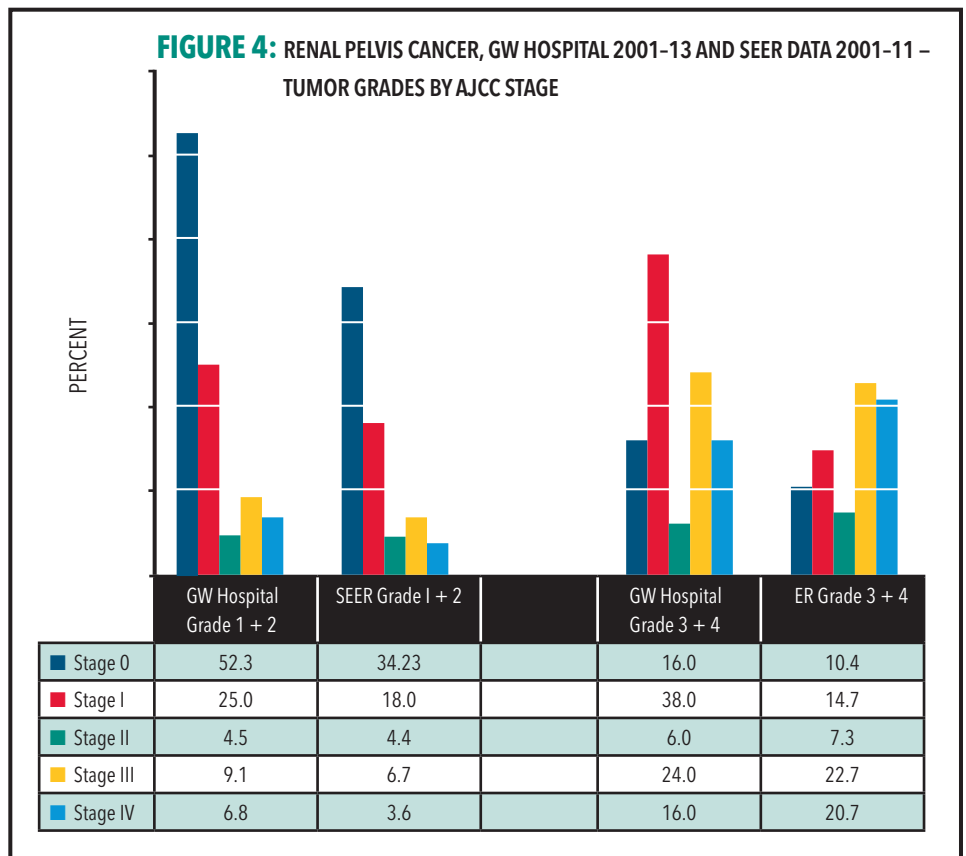
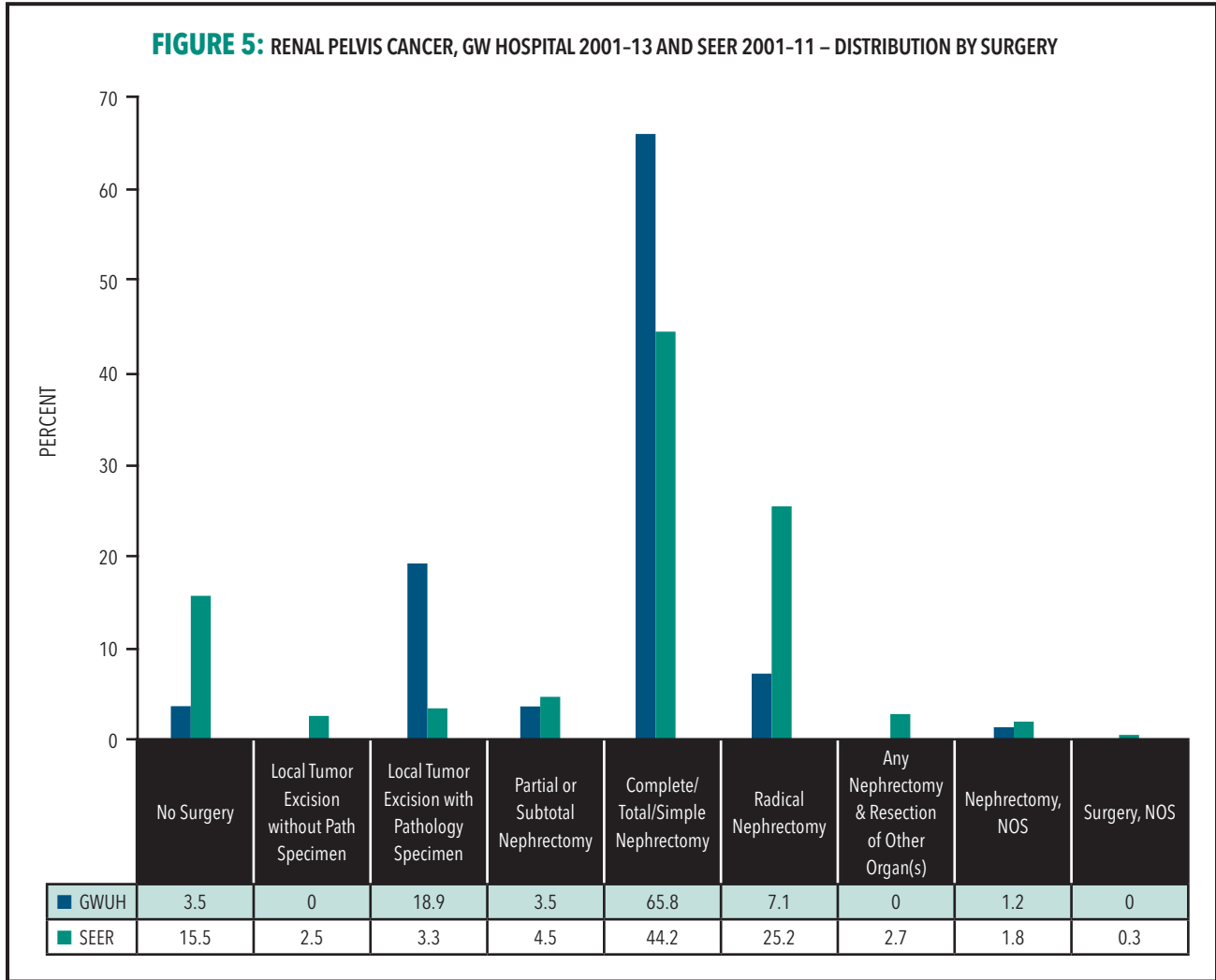


FIGURE 5: RENAL PELVIS CANCER, GW HOSPITAL 2001-13 AND SEER 2001-11 – DISTRIBUTION BY SURGERY



Continued from page 21

much more commonly used at the GW Hospital in a carefully selected subset of patients. As seen in **Figure 5**, local excision with ablation, simple nephrectomy and radical nephrectomy were performed in 18.9 percent, 65.8 percent with and 7.1 percent of GW Hospital patients, respectively, versus 3.3 percent, 44.2 percent and 25.2 percent in SEER data population. This, in part, reflects the higher percentage of low grade/low stage tumors in the GW Hospital population, compared to the SEER data.

The role of tumor grades and AJCC stage as prognostic variables on survival rate of renal pelvis cancers has been

previously established in the literature published by Huben et.al. in 1988 and Krogh et.al in 1991. The 5-year survival rate, by grade, in patients with renal pelvis cancer, is higher among patients in GW Hospital, as compared to the SEER data: 81.0 percent vs. 75 percent among low grade tumors and 58.2 percent vs. 44.3 percent among high grade tumors. **(Figure 6).**

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RENAL PELVIS CANCER
CASES DIAGNOSED AND/OR
TREATED AT GW HOSPITAL
BETWEEN 2001
AND 2013.

REFERENCE:

1. Huben RP, Mounzer AM, Murphy GP. Tumor grade and stage as prognostic variables in upper tract urothelial tumors. *Cancer*, Nov. 1, 1988, 62(9) 2016-20. Retrieved from www.ncbi.nlm.nih.gov/pubmed/3167813

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NATIONWIDE,
NUMBER OF
REPORTED
CASES OF
RENAL PELVIS
CANCER RISE
FROM **786**
IN 2001 TO
999 CASES
BY 2011.

FIGURE 6: RENAL PELVIS CANCER, GW HOSPITAL AND SEER DATA 2001-09
FIVE-YEAR RELATIVE SURVIVAL BY TUMOR GRADES

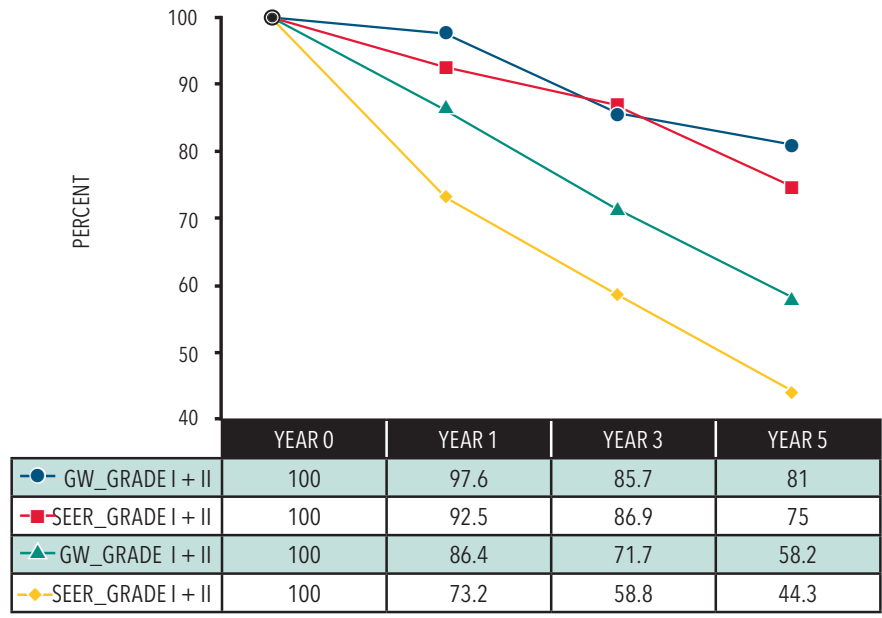
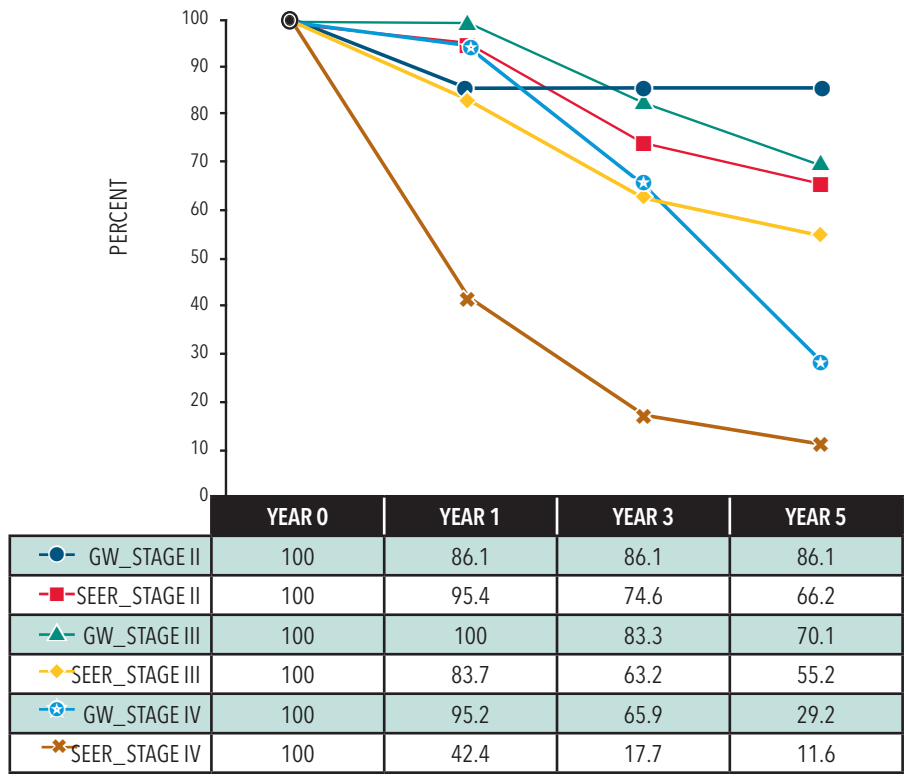


FIGURE 7: RENAL PELVIS CANCER, GW HOSPITAL AND SEER DATA 2001-09
FIVE-YEAR RELATIVE SURVIVAL BY AJCC STAGE



Continued from page 22

2. Krogh J, Kvist E, and Rye B. Transitional cell carcinoma of the upper urinary tract: prognostic variable sand post operative recurrences. Br J Urol, January 1991, 67(1): 32-6. Retrieved from www.ncbi.nlm.nih.gov/pubmed/1993274?dopt=Abstract
3. Transitional cell cancer of the renal pelvis: Impact of surgery and radiation on survival — A population-based study. 2014 ASCO Annual Meeting. Retrieved from meetinglibrary.asco.org/content/132753-144

BRAIN TUMOR REPORT

2014 CANCER TUMOR REPORT | ISABEL ALMIRA-SUAREZ, M.D.

National Cancer Database (NCDB) reported an estimated of 111,441 new cases of primary brain tumors (brain gliomas) between 2001 and 2007, and 114,381 new cases diagnosed between 2008 and 2013. A total of 176 brain tumor cases, diagnosed and/or treated at GW Hospital between 2001 and 2007 and 210 cases, diagnosed between 2008 and 2013 were used for analysis in this paper.

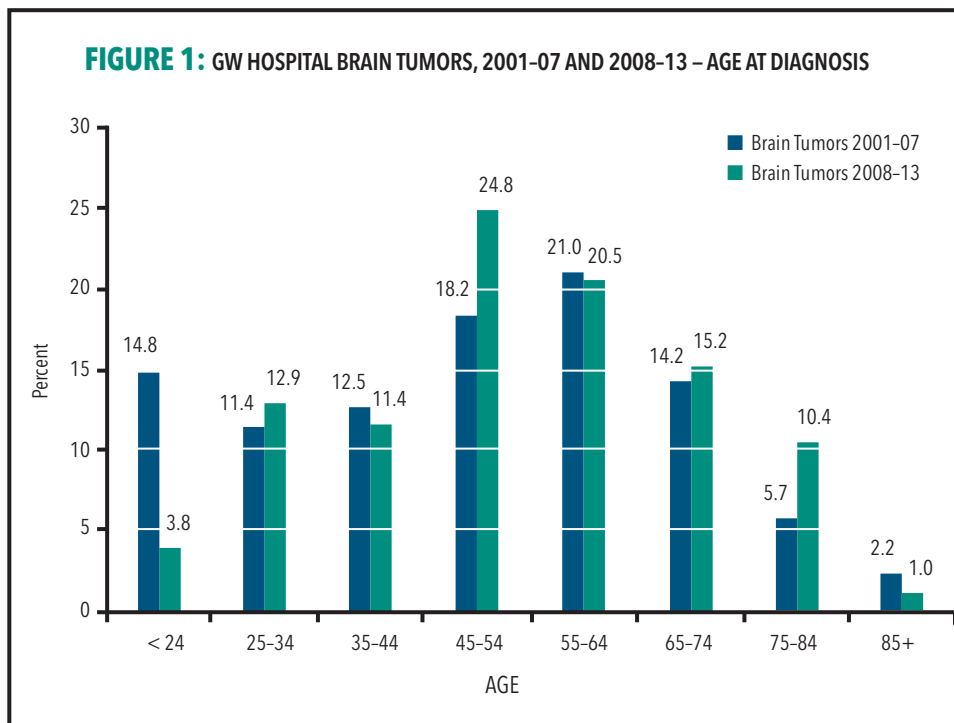
Figure 1 showed a big increase in incidence rate between 2008 and 2013 for brain tumors in adults during the 4th, 5th, 6th, and 7th decades of life: 25

percent, 21 percent, 15 percent, and 10 percent compared to the trends reported between 2001 and 2007 respectively: 18 percent, 21 percent, 14 percent, and 6 percent. Age is a risk factor of brain tumor but there are more brain tumors diagnosed between 2008 and 2013 than between 2001 and 2007 maybe because of better data collecting on brain tumors.

At GW, patients benefit from a multidisciplinary approach that is based on close collaboration among specialists in the field of radiology, oncology, pathology, radiotherapy, neurology and neurosurgery.

Tumor location is one of factors for treatment decision. There is no significant change in location of brain tumors between 2001 and 2007 and between 2008 and 2013. Brain tumors were most commonly found to involve the frontal (26.4 percent and 27.1 percent) and temporal lobes (25.7 percent and 22.9 percent), and parietal lobes (12.5 percent and 9.0 percent), with 6.1 percent and 5.3 percent of patients

FIGURE 1: GW HOSPITAL BRAIN TUMORS, 2001-07 AND 2008-13 – AGE AT DIAGNOSIS



having brain tumors involving more than one cerebral lobe at initial neuroradiological evaluation (**Figure 2**).

The type of surgical resection was dependent on the location and the World Health Organization (WHO) grade of the tumor as shown in **Figure 3**. Among low-grade tumors, local resection was achieved more frequent than lobectomy between 2008–13 compared to 2001–007 (25 percent and 50

percent vs. 45.8 percent and 37.6 percent) respectively. This might be explained by more treatment options for brain tumors such as more available chemo drugs, Gamma knife radiosurgery, proton therapy, or Laser Interstitial Thermal Therapy (LITT).

While surgical resection alone was commonly indicated in high-

grade brain tumor patients in period time between 2001 and 2007, multidisciplinary treatments with a combination of surgical resection, adjuvant radiation, and chemotherapy were utilized more at GW in period time of 2008 and 2013. Between 2008 and 2013, 58 percent of patients who were

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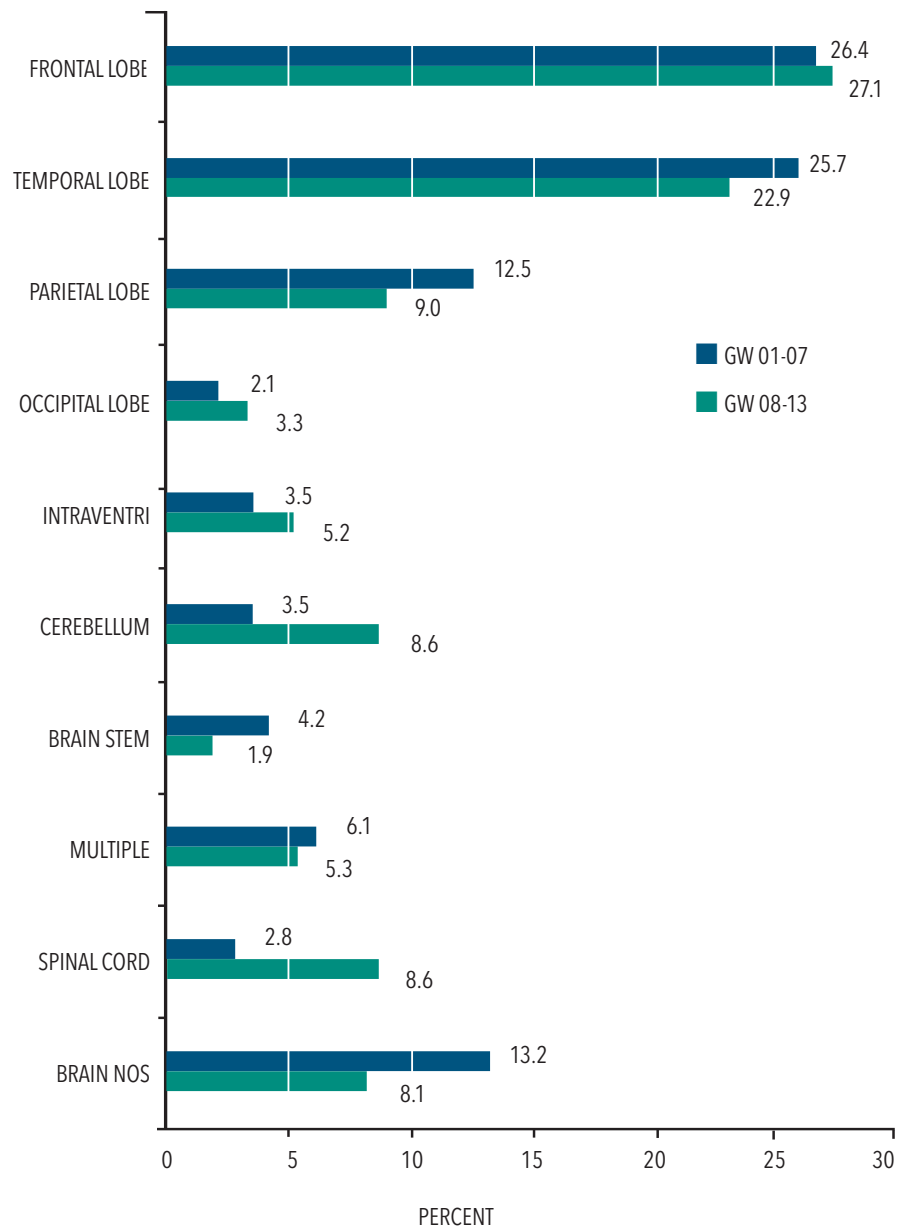
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diagnosed with high-grade malignant gliomas received surgical resection at GW and adjuvant treatments compared to almost 38 percent between 2001 and 2007 (Figure 4).

Brain tumors with WHO grade III and IV from GW Hospital and national SEER data between 2001 and 2008 were used for 5-year survival rate and are reported on Figure 5. GW Hospital data are consistent with and positively compare with the national statistics presented by SEER. The use of new chemotherapy agents and refined surgical techniques may explain the improved prognosis and overall survival in this cohort of patients.

A multidisciplinary approach to the treatment of brain tumors at GW Hospital has benefited patients that is based on collaboration among specialists in the field of radiology, oncology, pathology, radiotherapy, neurology and neurosurgery. Improved diagnostic modalities with MGMT methylation analysis, IDH-1 (R132) status, functional MRI, MR spectroscopy, and intraoperative tractography with navigation and advanced surgical techniques are currently utilized at GW Hospital to improve patients' outcomes while minimizing treatment related complications.

FIGURE 2: GW HOSPITAL BRAIN TUMORS, 2001-07 AND 2008-13 – DISTRIBUTION BY LOCATION



REFERENCE:

1. CBTRUS: Statistics Report Interactive Search www.cbtrus.org/interactive/interactive1.html

Continued on page 25

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2. Surveillance Epidemiology and End Results (SEER). Incidence of brain tumor in the United States, seer.cancer.gov/statfacts/html/brain.html
3. National Cancer Institute (NCI) www.cancer.gov/cancertopics/types/brain/
4. Treatment for Glioblastoma, www.cancer.gov/cancertopics/pdq/treatment/adultbrain/HealthProfessional/page10

FIGURE 3: GW HOSPITAL BRAIN TUMORS, 2001-07 AND 2008-13
DISTRIBUTION BY WHO GRADE AND SURGERY TYPE

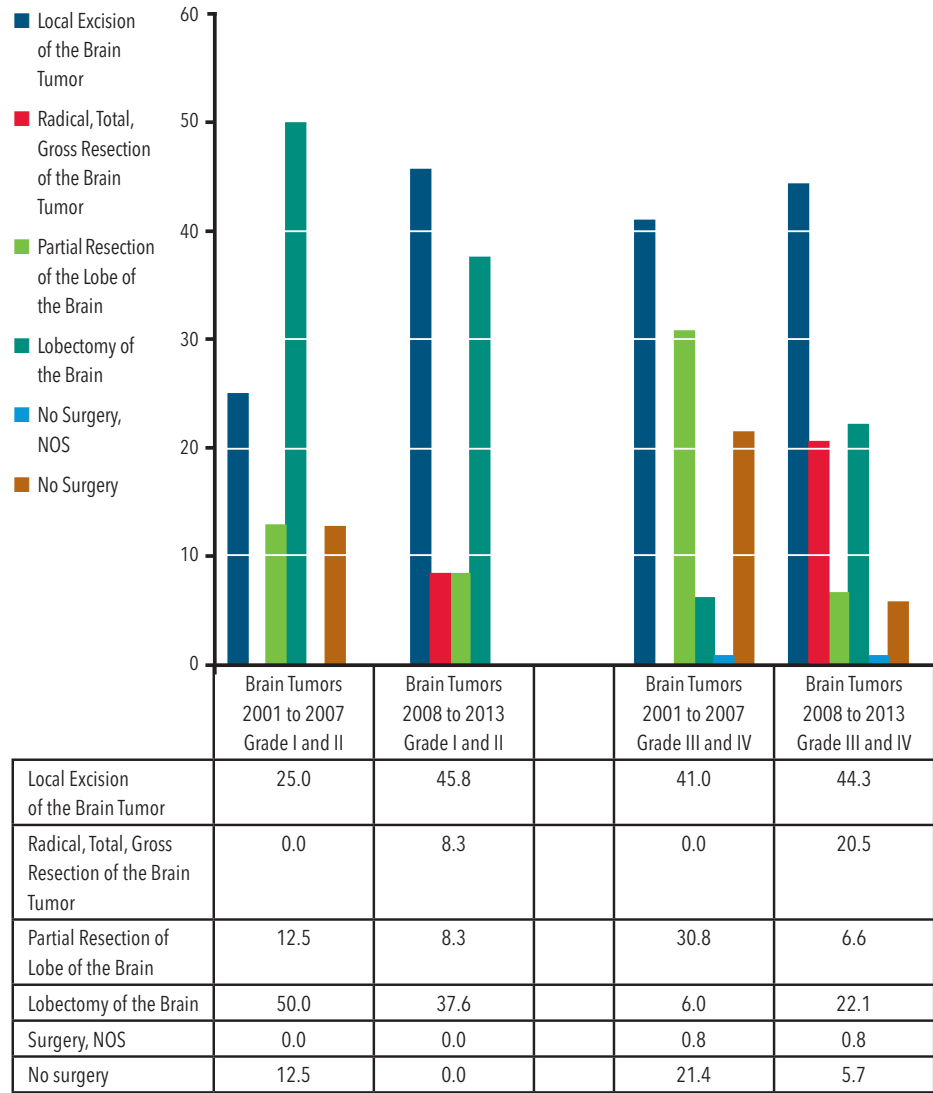


FIGURE 4: GW HOSPITAL BRAIN TUMORS – 2001-07 AND 2008-13

DISTRIBUTION BY TREATMENT SUMMARY AND WHO GRADES III AND IV

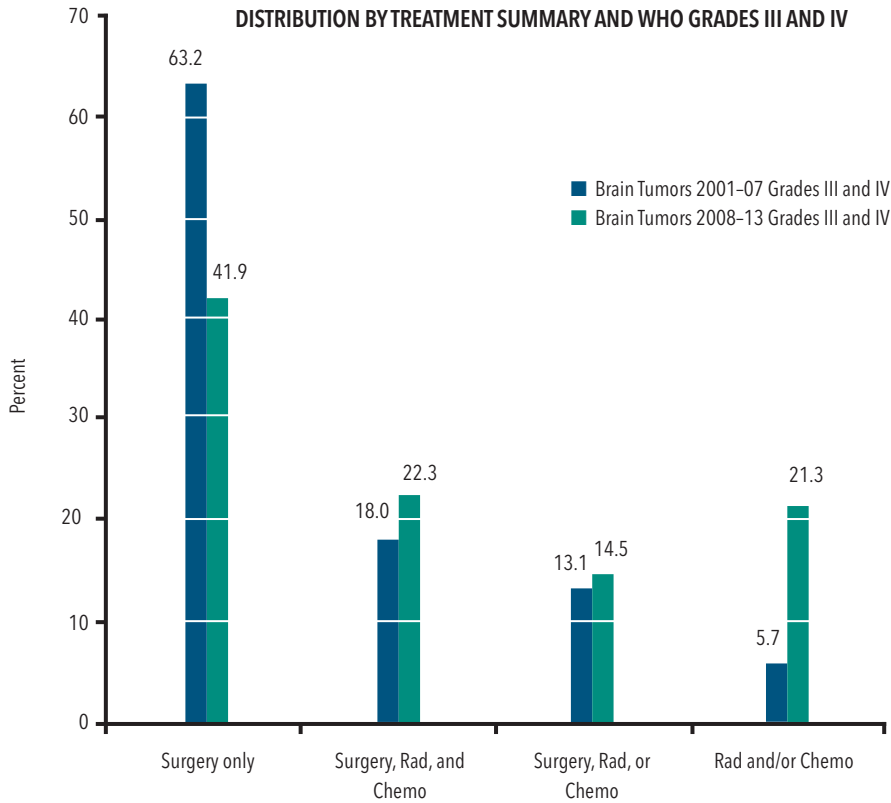
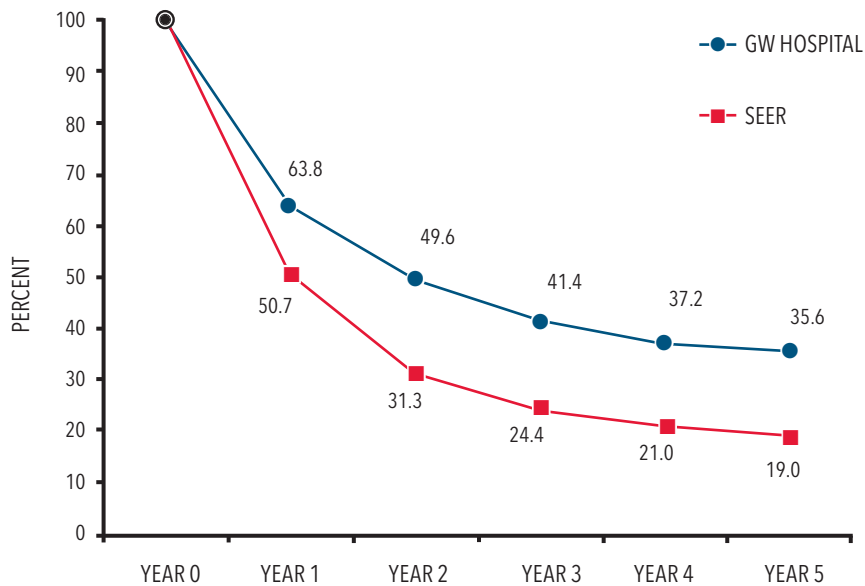


FIGURE 5: BRAIN TUMORS: GW HOSPITAL AND SEER DATA, 2001-08

FIVE-YEAR RELATIVE SURVIVAL RATES BY WHO GRADES III AND IV



RESOURCES AND SUPPORT

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

The George Washington Cancer Institute
2030 M St., N.W., 4th Floor
Washington, D.C. 20036
(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.katzcancer.org

The GW Comprehensive Breast Center
2300 M St., N.W., 8th Floor
Washington, D.C. 20037
(202) 741-3270

Bone Marrow Transplant Service
2150 Pennsylvania Ave., N.W., 1st Floor
Washington, D.C. 20037
202-741-2478

Cancer Education and Outreach
2030 M St., N.W., Suite 4003
Washington, D.C. 20036
(202) 994-2449

Cancer Prevention and Control
2030 M St., N.W., Suite 4003
Washington, D.C. 20036
(202) 994-2449

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

Cancer Survivorship Clinic
22nd & I streets, N.W., 4th Floor
Washington, D.C. 20037
(202) 741-2222

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

Hematology/Oncology
2150 Pennsylvania Ave., N.W., 1st Floor
Washington, D.C. 20037
(202) 741-2210

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

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

Radiation Oncology
725-A 23rd St., N.W.
(at the corner of H and 23rd streets)
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

THE GEORGE WASHINGTON UNIVERSITY CANCER SUPPORT GROUPS

The Dr. Cyrus and Myrtle Katzen Cancer Research Center (Katzen Center) supports a wide variety of holistic and wellness services for cancer patients and their families. These groups are free of charge and open to the community.

The GW Medical Faculty Associates
(GW MFA)
2150 Pennsylvania Ave., N.W.
Washington, D.C. 20037

Active Treatment (all cancers)

Open to patients currently undergoing treatment.
Wednesdays, 12:30–1:30 pm
MFA, Katzen Cancer Center Board Room
Facilitator: Jennifer Bires, LICSW,
(202) 741-2218

Breast Cancer Support Group.

First Tuesday of every month, 6–7:30 pm
MFA, Katzen Cancer Center Board Room
Facilitators: Elizabeth Hatcher, (202) 994-2215;
Monica Dreyer, LPC, (202) 741-3153

Caregivers' Support Group

Share common concerns, give and receive advice, and learn coping skills.
Third Tuesday of every month, 12:30–1:45 pm
MFA, Katzen Cancer Center Board Room
Facilitator: Jennifer Bires, LICSW,
(202) 741-2218

Kids Club: Support Group for Children

Whose Parent/Grandparent Has Cancer
This group is open to children ages 6-13 with sessions focused around art activities. A separate group will be held at the same time for parents.
Second Thursday of every month, 6–7:30 pm
MFA, First floor, Room 1-402
Facilitator: Jennifer Bires, LICSW, (202) 741-2218,
or Monica Dreyer, LPC, (202) 741-3153

Multiple Myeloma Group

This group is open to Multiple Myeloma patients, survivors, and caregivers. Meetings feature speakers as well as education and support. Please call to register.
Fourth Thursday of every month, 5:30–6:30 pm
MFA, Katzen Cancer Center Board Room
Facilitator: Jennifer Bires, LICSW,
(202) 741-2218

Prostate Cancer Educational Group
Second Tuesday of every month, 6–7:30 pm
MFA, Katzen Cancer Center Board Room
Facilitator: Eva Ruiz, (202) 677-6099

Restorative Yoga

This group introduces patients and caregivers to the physical and emotional benefits of yoga.
Tuesdays, 4–5 p.m.
Marvin Center
The George Washington University
800 21st St., N.W., Washington, D.C. 20052
Facilitator: Jennifer Bires, LICSW,
(202) 741-2218

Survivorship Series

Educational series featuring a different monthly speaker.
Second Thursday of every month,
Third Tuesday of every month, 12:30–1:45 pm
MFA, Katzen Center Board Room
Facilitator: Jennifer Bires, LICSW,
(202) 741-2218

Washington, D.C., Metropolitan Area

Brain Tumor Support Group

This group offers support for brain tumor patients, survivors, and caregivers.
First Thursday of every month, 6:30–8:30 pm
MFA, Katzen Cancer Center Board Room
Facilitators: Jennifer Bires, LICSW,
(202) 741-2218, and Ashley Varner, LICSW

Young Adult Group

Young adults (19 to 39 years of age) currently in treatment and cancer survivors may attend this structured discussion group facilitated by two social workers.
Third Sunday of every month, 5–6:30 pm
Smith Center
600 22nd St., N.W.,
Washington, D.C. 20052
Facilitator: Jennifer Bires, LICSW, (202) 741-2218
and Cheryl Hughes, LICSW

Parking is provided for all groups. For information about upcoming support groups and events, visit smb.sgwu.edu/katzcancer/events.

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 with the George Washington University Hospital.

2014 CANCER COMMITTEE MEMBERS

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*Director, Hematology Oncology
Chair / GW Cancer Program*

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Physician Liaison / GW Cancer Program*

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American Cancer Society

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Urology

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*Navigation and Cancer Survivorship Office /
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Sana Tabbara, M.D.
Chief, Surgical Pathology

Andrienne Thomas, LGSW
*Community Outreach & Patient Navigation /
GW Cancer Institute*

Carrie Tilley, NP
Cancer Survivorship Clinic / GW MFA

Anne Willis, M.A.
*Director, Division of Cancer Survivorship /
GW Cancer Institute*

GW's Academic Comprehensive Cancer Program is composed of the GW Cancer Institute, GW Hospital, The GW Medical Faculty Associates, GW's School of Medicine and Health Sciences, and the Dr. Cyrus and Myrtle Katzen Cancer Research Center.



GEORGE WASHINGTON UNIVERSITY

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