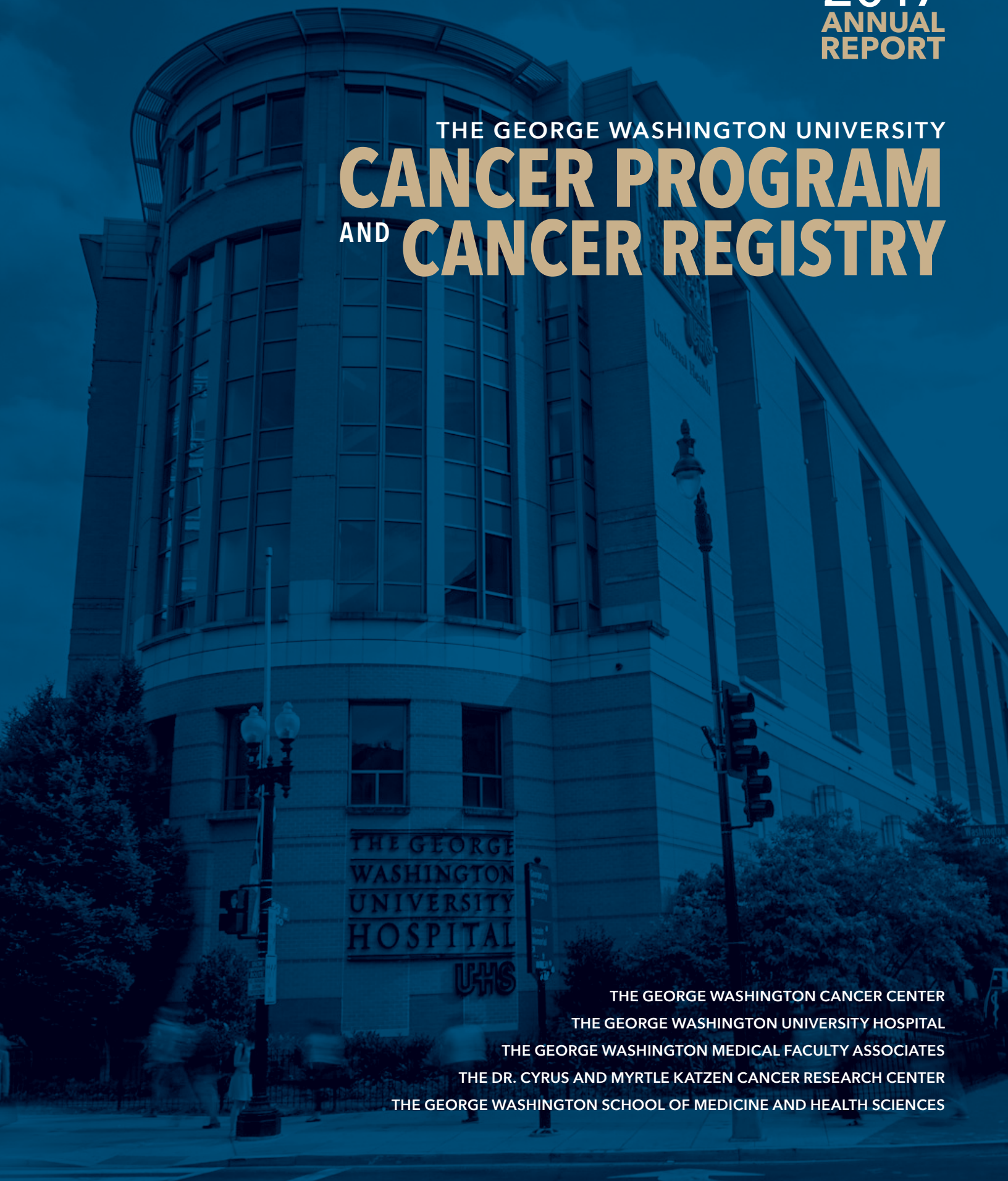
2017
ANNUAL
REPORT

THE GEORGE WASHINGTON UNIVERSITY

CANCER PROGRAM AND CANCER REGISTRY



THE GEORGE WASHINGTON CANCER CENTER
THE GEORGE WASHINGTON UNIVERSITY HOSPITAL
THE GEORGE WASHINGTON MEDICAL FACULTY ASSOCIATES
THE DR. CYRUS AND MYRTLE KATZEN CANCER RESEARCH CENTER
THE GEORGE WASHINGTON SCHOOL OF MEDICINE AND HEALTH SCIENCES

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A MESSAGE FROM THE DIRECTOR

Here at the George Washington University (GW) Cancer Center, 2017 was filled with exciting collaborative efforts and breakthroughs in research, patient-centered clinical care, outreach and education.

This year, we were pleased to appoint Dr. Mitchell Smith as the associate center director for clinical investigations. In this role, Dr. Smith is responsible for overseeing all clinical cancer research and expanding the clinical cancer research infrastructure of the GW Cancer Center. His depth of experience in clinical trials and translational research, as well as his passion for patient care, made him a perfect fit for our leadership team.

In October, we celebrated the opening of our brand new mobile mammography unit, the Mammovan. This state-of-the-art mobile mammography van will provide lifesaving mammograms to women in Washington, D.C. and the surrounding region. Washington, D.C. leads the nation in both breast cancer incidence rates and mortality, according to the U.S. Centers for Disease Control. Over the past 20 years, the GW Mammovan has screened more than 36,500 women, bringing life-saving cancer screenings to approximately 2,500 women each year. This new unit continues our mission of making early detection accessible to underserved women, regardless of their ability to pay.

We also opened the doors to our new Supportive Oncodermatology Clinic this year. The clinic, led by Dr. Adam Friedman, is the only one of its kind in the Washington, D.C. region, and one of only a handful of such clinics across the country. The clinic will support patients during their cancer treatment to prevent and reduce common dermatological side effects of chemotherapy and targeted therapies. The new clinic will have a tremendous impact on the quality of life for cancer patients in the region.

Dr. Frank Glass, renowned dermatologist and dermatopathologist, joined the GW Cancer Center to lead the Cutaneous T-Cell Lymphoma Clinic. The clinic provides patients with access to dermatologists, oncologists and other medical providers to create a streamlined and personalized plan of care. The establishment of this unique and much needed clinic enables us to be highly effective in our clinical and research enterprises.

Researchers across the GW Cancer Center continue to inspire me daily with their innovative work. Whether studying the promising developments in personalized medicine, or examining genetic variations that may make some cancers more difficult to treat, our unique position as an academic medical center has allowed us to continue breaking down research siloes.

I invite you to read more about our ongoing efforts in the pages of this annual report. I am proud to lead such a dynamic enterprise and look forward to even more growth in the year ahead.

Sincerely,

Eduardo M. Sotomayor, MD
Dr. Cyrus Katzen Family Director of the George Washington University Cancer Center
Professor of Medicine
George Washington University
School of Medicine and Health Sciences

2017 CHAIRMAN'S REPORT

We have been showing our commitment in providing the best outcome and the best quality of life for each of our cancer patients. Its accomplishments from the previous year along with the goal for the coming year are a framework of our successful GW cancer program.

This year has been a continued year of change, growth, and progress at the George Washington (GW) Cancer Program including the GW Hospital, the GW Cancer Center, the GW Medical Center, and the Medical Faculty Associates (MFA). The GW Cancer Program is a model partnership that unites the best clinical and research experiences for the best Cancer Program. The GW Cancer Program continues its commitment to meeting standards of the American College of Surgeons (AcoS) Commission on Cancer to provide the best care for our cancer patients.

It is a pleasure to see each department continue to grow. We are welcome new physicians: Dr. Frank Glass who was recruited from Moffitt Medical Center to begin a cutaneous lymphoma section. Dr. Richard Lush in GWCC Research and Clinical trial. Dr. Sharad Goyal, new Director of radiation oncology department. Dr. Mehrdad Sarfaraz, Ph.D. radiation physicist. Dr. Joseph Goodman, Head and Neck surgeon. The head and neck department provided advanced endoscopic organ preservation laryngeal cancer surgery with great success. The Radiology department received approval for a new highly accurate PET CT scanner including nuclear medicine and CT images as an advance in diagnostic services for physicians.

The GW Outreach subcommittee organized many successful screening and awareness events for different cancers throughout the year. We had a successful colorectal cancer education and awareness event that was done in conjunction with prostate cancer screening in September at the Washington DC community. The most significant development is that prostate cancer screening is now offered year-round at the GW Hospital every Friday. We also recognized Breast Cancer Awareness Month in October and continue to support the work of our mobile mammography unit, the GW Mammovan. We were pleased to offer a free skin cancer awareness event in to the GW community in summer 2017. This event provided a fantastic opportunity to raise awareness about sun safety and skin cancer prevention. **It was a successful screening and prevention with 143 participants in the screening and 427 people completing the survey (143 screened people and 284 lay people).**

The GW Cancer Registry remains a vital part of the GW Cancer Program. The growth trend of the GW Cancer Registry has also been reflected in the increasing cancer caseload we have seen during last five years. The number of patients diagnosed and/or treated at the GW Hospital increased from 1665 cases in 2013 to 2035 in 2017. The GU Oncology registry was established for GU cancer surveillance and survival outcomes. The monthly GU Oncology cancer conferences were established and approved for category I continuing medical education credit.

Finally, I am proud to be a part of the GW multidisciplinary Cancer Program and grateful for all the hard work, accomplishments, and commitment that our talented staff have contributed over the past year. We look forward to ongoing success in the year ahead.

Sincerely,

Robert S. Siegel, M.D.
Professor of Medicine
Chairman, Cancer Committee

THE KATZEN CANCER RESEARCH CENTER 2017

Leo Schargorodski
Executive Director

The Katzen Cancer Research Center, working in conjunction with the GW Cancer Center and its director, Eduardo Sotomayor, MD, launched a number of new programs in 2017, expanded our most successful projects in Professional Education, under the guidance of Robert Siegel, MD, Associate Center Director for Professional Education, Training and Outreach, and continued our efforts to attract outstanding scientists to contribute to the GW cancer research efforts. Utilizing our state-of-the-art clinical facilities, funded by the donation from Dr. Cyrus and Mildred Katzen in 2008, the Center has expanded its research efforts by support staff dedicated to enhancing patient care by developing a comforting environment to facilitate the delivery of care to our patients and to include the ability to participate in new life-saving clinical trials.

The Katzen Center has enabled GW to offer new therapies to more patients, expand the physician and nursing teams to attend to the vast needs of their patients and offer patients a relaxing, healing atmosphere as they receive what can be exhausting treatment. For medical students, our facilities have provided them with more opportunities to learn about personalized cancer medicine and targeted therapies and get hands-on experience learning about cutting-edge modalities for treating the various types of cancers.

While some cancer patients have a support system (family/friends) and adequate insurance and finances to pay for what can be a costly treatment and recovery, many people in the metropolitan Washington, D.C. area face numerous barriers to cancer treatment due to the expense, lack of support, and issues related to health care access. For some, the costs of eight weeks of cancer treatment can be as little as $100; for others, it could cost up to $50,000. Some cancer patients are unable to keep their doctor's appointments due to a lack of transportation or they cannot afford to pay for cab fare. Many also cannot pay household bills and medications at the same time. Sadly, these are not one-time problems—cancer treatment often takes months or years.

The 2001 Institute of Medicine (IOM) report, *Cancer Care for the Whole Patient: Meeting Psychosocial Health Needs*, addressed the psychological/behavioral and social problems that accompany a diagnosis of cancer. The report states, "...health problems, limited financial and other material resources, and inadequate social support are associated with increased morbidity and mortality and decreased functional status" (p.52).

The Katzen Center expanded the **Patient Support Program** to address these deficits and alleviate some aspects of added stress, thereby contributing to improved patient health outcomes. The fund is a tremendously successful resource to help cancer patients during their time of financial need. The fund helps to support the comprehensive needs of patients such as patient navigation, along with holistic and wellness classes.

In spring 2017 following a change in reimbursement for chemotherapy for DC Medicaid patients, GW's Department of Hematology and Oncology reestablished clinical care for DC Medicaid patients. In the first few months of this change, we saw about 300 new Medicaid patients within the Katzen Center.

The Patient Assistance Fund addresses the following needs:

- Out-of-pocket expenses and medical supplies:
  1) Chemotherapy, biotherapy, or other cancer-related infusion co-payments;
  2) Assistance with prescription costs and office visit co-payments; 3) Medical equipment and mastectomy apparel;
  4) Deductibles, co-insurance; and
  5) Travel and parking expenses.

- Patient Navigation: Cancer treatment centers often include social workers and patient navigation to assist patients with care coordination to successfully navigate the health care system. Patient navigators have been shown to provide for better and more consistent outcomes for patients and positively impact cancer survivorship.

- Infusion Programs: Many patients have to spend 3-6 hours at a time receiving infusion. Some do this every three weeks, some once a week, and some three or four times a week. To help make the environment as welcoming and comfortable as possible, we now offer massage therapy for patients. We also started a pet therapy program whereby therapy dogs visit our infusion center twice a week. Finally, we provide laptop computers to our patients so they can watch movies or catch up with friends over email.

- Holistic, Wellness and Support Services: The Center hosted support groups and patient services. These groups are open to all cancer patients in the DC metropolitan area. These classes include the following:

- 1) Chemo Class for new infusion patients;
- 2) Active Treatment Support Group;
- 3) Caregiver Support Group;
- 4) Kids Club – support groups for children of cancer patients;
- 5) Prostate Cancer Support Group – for men, their families and significant others;
- 6) Washington D.C. Metropolitan Area Brain Tumor Support Group;
- 7) Young Adult Group – young patients age 18-39;
- 8) Multiple Myeloma Support Group for Patients and Family Members;
- 9) Yoga for Cancer Patients;
- 10) Survivorship Series: nutrition for the cancer patient, anxiety and depression;
- 11) Changes in Relationships, Covering the Cost of Treatment and Returning to work;
- 12) Gynecological Support Group; and
- 13) Head and Neck Support Group.

The Katzen Center also introduced the following new programs:

- Art In Infusion Program which provides for a licensed art therapist to visit the infusion center and work directly with patients and families. This service not only helped patients pass their time in infusion – it provided them with emotional support and a creative distraction, while they are battling cancer. In addition, the art created was available for display, thereby changing the energy and look of the cancer center, and creating an encouraging community feeling for patients.
- Sleep Program helps patients meet an important need and one that affects their quality of life. Through distress screening, we determined that 40% of our patients struggle with fatigue and sleep. To address this, we put together an eight week group module using the latest evidence and integrative modalities to assist patients in relieving fatigue and sleeping more soundly.
- The Katzen Center also established a partnership with the Cancer Support Community, a national organization that develops evidence-based interventions to assist with the psychosocial well-being of cancer patients and their families. As part of this partnership, the center introduce two educational programs: 'Frankly Speaking' and 'Treatment Decision Support'.
- 'Frankly Speaking' is a landmark educational program that provides information to cancer patients and their loved ones through in-person and online workshops, a print series, multimedia resources and an internet radio show. This program gives patients additional access to physicians in an educational capacity. They also meet with other patients who have similar questions
and concerns.
- 'Treatment Decision Support' trains navigators and social workers to work with patients so they can better communicate with their doctors. This treatment decision-making tool enables patients to be better prepared for their appointments, so they can make more informed decisions directly related to their quality of life.

Establishment of the Albert L. and Elizabeth T. Tucker Foundation Research Fellowship Award

In 2017, through a generous contribution of $1 million from the Albert L. and Elizabeth T. Tucker Foundation, an Oncology Postdoctoral Research Fellowship was established at the Katzen Center. As a part of the GW Cancer Center, The Katzen Cancer Research Center will continue and expand this educational program for postdoctoral scientists who propose to work on highly innovative research projects that challenge the traditional paradigms of understanding the causes, mechanisms, progression, disease markers or risk factors of the most difficult-to-treat cancers, including multiple-myeloma, pancreatic, lung, liver, sarcomas, esophageal, brain, gastric, bone and ovarian cancers, along with rare leukemias, lymphomas and MDS.

The program will integrate the highest quality of basic science laboratory studies with a fundamental understanding of the unique requirements of clinical translation of the discoveries. It is designed to train postdoctoral fellows in the development and testing of clinically important diagnostic and therapeutic strategies. As the first priority, fellows are trained in highly critical and successful laboratories of cancer researchers at the GW campus to assure the highest level of scientific rigor. In addition, seminar discussion series will be designed to focus on the unique requirements for clinical translation of the basic science findings. Postdoctoral fellows will be expected to take part in both clinically relevant courses and participate in the seminar discussion series.

Research leading to breakthroughs in these types of cancers and increased life expectancy are at the core of the Cancer Center's mission.

Convening of nine Mid-Atlantic Consortium dinner meetings for physicians and surgeons on the topics of breast cancer, lung cancer and hematology

The Mid-Atlantic Hematology Consortium, the Mid-Atlantic Breast Cancer Consortium and the Mid-Atlantic Lung Consortium are presented by the Katzen Cancer Research Center to inform oncology physicians, surgeons and radiologists in the metropolitan Washington, D.C. area (Maryland, Virginia and Washington, DC) of the most recent advances in cancer research and its application to surgery and treatment. At these meetings local physicians and surgeons are asked to focus on the latest cutting-edge information through case studies and discussion of treatments. Clinicians also present recommendations at round-table discussion groups.

The Consortiums provides a common forum for oncology physicians and surgeons to take collective action. Members assess changing cancer needs and share resources and knowledge with one another. Ultimately, Consortium members do more together than they ever could by working on their own

Occurring nearly every month throughout the year, the Breast, Lung and Hematology Consortiums take advantage of the latest information being presented at national meetings and symposiums. In this way, the local physicians can be introduced to the most current concepts, treatments and medications. And by sharing with their counterparts in other hospitals, potentially change the standard of care for the benefit of cancer patients throughout the Metropolitan Washington area.

Innovative Pilot Cancer Research Grants

In 2017 the Katzen Cancer Research Center established three new cancer pilot grant programs.

First, the **Virginia Gray Awards for Gastrointestinal Malignancies** with an emphasis on oesophageal and pancreatic cancers, through a generous donation from the Virginia and Martin Gray family.

Grants awarded included:

Signaling Underlies T-type Ca2+ Channel Blocker Reveals Novel Target for Pancreatic Cancer Therapy by Ka Bian, MD, PhD., sought to characterize the effect of the T-type calcium channel blocker, NNC 55-0396 on p21 activation independently of p53 in pancreatic cancer cells and to explore the mechanisms that NNC 55-0396 exerts on the transcriptional regulation of p21 directly or via either PKGI or HDAC pathways in pancreatic cancer cells.

Extending Engineered T Cell Therapies to Esophageal Carcinoma, by Catherine Bollard, M.D., Aimed to incorporate T cell therapies, used for the treatment of hematologic cancers and high risk solid tumors, as a treatment option for patients with esophageal carcinoma. Every cancer responds to immune therapies differently and this study seeks to establish the safety of infusing T cells in patients with esophageal cancer, understand immune reconstitution in these patients after infusion of tumor-specific T cells, and subsequently engineer better T cells for the treatment of these patients.

Next, the **Katzen Cancer Research Center Collaborative/Translational** grants included:

Targeting Chromatin Remodeling Protein ARID4B in Prostate Cancer awarded to Ray-Chang Wu, PH.D. The objectives were:

1. Using Oncomine data, ARID4B mRNA expression is up-regulated in PIN (prostatic intraepithelial neoplasia) as well as prostate cancer

2. Using a unique Pten/Arid KO mouse model, the PI demonstrates decreased development of prostate cancer

3. Using an in vitro approach, the PI demonstrates a GSK3-ARID4B signaling axis in a cancer cell line.

Comparative Effectiveness Feasibility Trial for Insomnia among Breast Cancer Survivors awarded to Hannah Arem, Ph.D. This proposal aimed to investigate a novel treatment for insomnia in survivors of breast cancer. Existing treatment methods showed to be either ineffective or unavailable to a number of the patients in need of help. This pilot proposal compared the proposed new method with an existing treatment to get some preliminary estimates of the effect of the treatment.

The third area of research support by the **Katzen Cancer Research Center Collaborative/Translational** grants was **Link to Cancer** which was intended for investigators with a currently active non-cancer-related NIH R01 or equivalent grant, but with interest to explore or extend their work into the cancer field.

The approved grant was **The Novel Role of NDNF (Neuron Deprived Neurotrophic Factor) in Lung Cancer** awarded to Xiaoyan Zheng. Ph.D. The objectives were: (1) identify gene/protein expression changes associated with loss of NDNF in the Kras-induced lung cancer model. (2) examine the role of NDNF in the tumor-initiating cells. (3) define the role of NDNF in the tumor microenvironment.

Total amount awarded in 2017 was $179,870.

CANCER DATA REPORT

The GW cancer registry has been growing consistently for the past five years between 2013 and 2017: 1665 cases in 2013 compared to 2435 cases in 2017 ***(Figure 1)***. The number of patients admitted GWUH were 2,435 cases in 2017. Out of these cases, 1,407 cases (58%) were diagnosed and/or treated (analytic cases) at GW ***(Table 1)***.

As shown in ***Figure 2***, breast, lung, prostate, colon, and urinary system organ such as kidney cancers remain as major cancer sites at GWUH . Compare the cancer cases between 2016 and 2017, there was a slight increase in cancer cases of breast, lymphoma; female reproductive system, and colorectal cancers.

FIGURE 1.

TREND OF CANCER CASES ADMITTED TO GWUH BETWEEN 2013 AND 2017

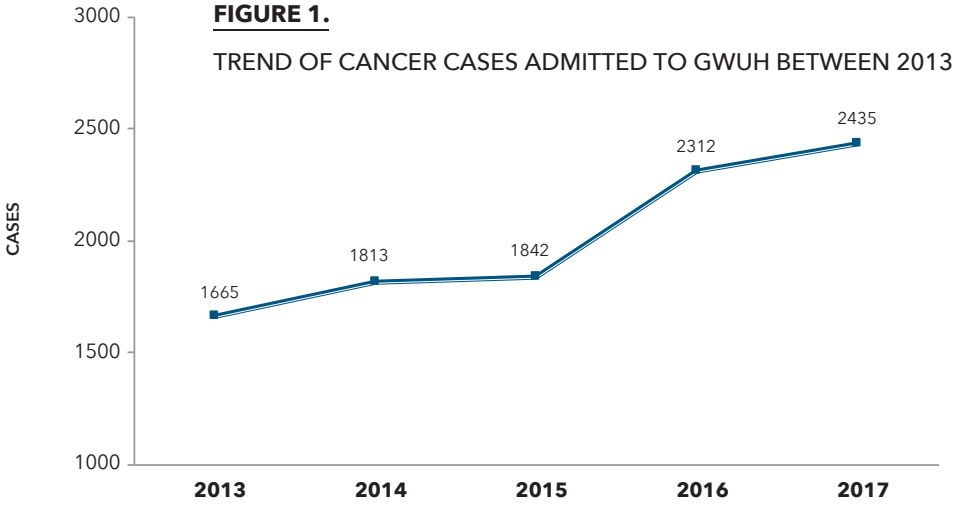

FIGURE 2.

DISTRIBUTION OF NEW CANCER CASES BY ANATOMIC SITES AND YEAR OF ADMISSION

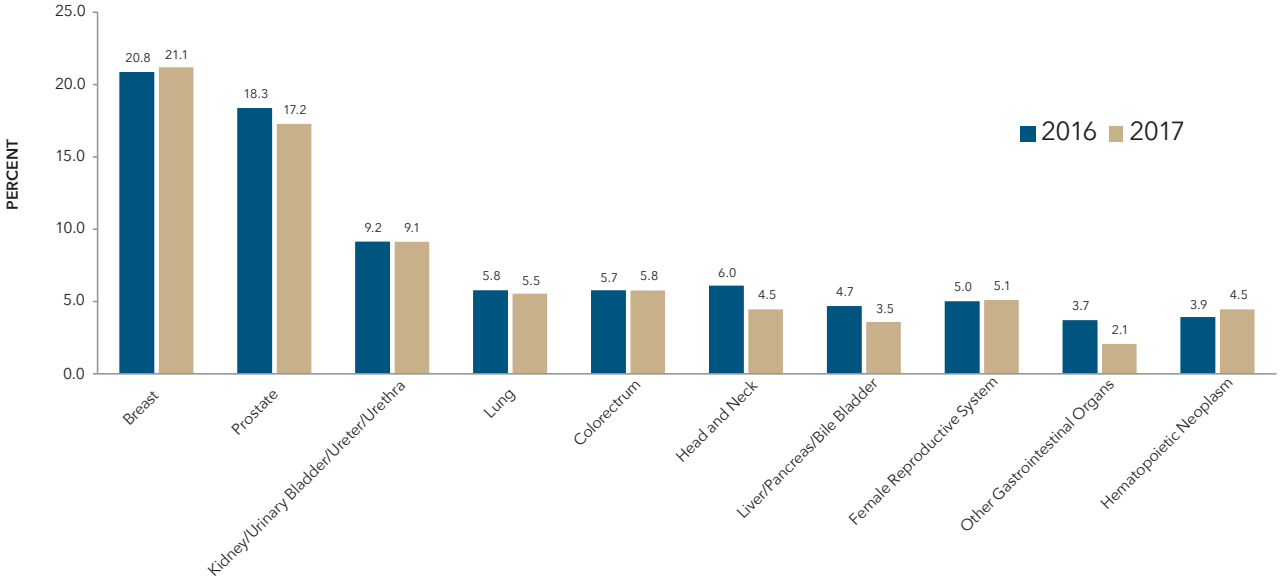

TABLE 1: THE GEORGE WASHINGTON UNIVERSITY HOSPITAL (GWUH)

2017 CANCER CASES BY ANATOMIC SITES

Primary site			Analytic Cases Only		Race*** (Analytic Cases Only)			AJCC Stage at Diagnosis (Analytic Cases Only)						
	# Cases	% Cases	# Cases	% Cases	W	B	O	0	I	II	III	IV	88	UNK
Head and Neck	**86**	**3.6**	**66**	**4.7**	**39**	**16**	**11**	**0**	**10**	**4**	**10**	**36**	**1**	**5**
Tongue	21	.8	18	1.3	12	1	5	0	5	0	2	10	0	1
Salivary Gland	8	.3	7	.5	4	1	2	0	2	1	1	2	0	1
Floor of Mouth	7	.3	5	.4	4	1	0	0	1	1	0	3	0	0
Gum and Palate	9	.4	7	.5	6	1	0	0	1	0	2	3	0	1
Tonsil	11	.5	7	.5	4	2	1	0	0	0	1	5	0	1
Nasopharynx	4	.2	3	.2	0	3	0	0	0	0	1	1	0	1
Oropharynx	7	.3	6	.4	3	3	0	0	0	0	0	6	0	0
Hypopharynx	4	.2	3	.2	1	1	1	0	0	0	2	1	0	0
Nose/Nasal cavity	3	.1	3	.2	2	0	1	0	0	0	0	2	1	0
Sinus	4	.2	2	.1	1	1	0	0	0	0	1	1	0	0
Larynx	8	.3	5	.4	2	2	1	0	1	2	0	2	0	0
Digestive System	**237**	**9.7**	**168**	**11.9**	**64**	**85**	**19**	**5**	**38**	**30**	**31**	**32**	**6**	**26**
Esophagus	8	.3	2	.1	0	2	0	0	0	0	0	1	0	1
Stomach	28	1.1	23	1.6	7	9	7	0	9	5	2	4	0	3
Small intestine	9	.4	4	.3	1	3	0	0	1	0	0	1	0	2
Colon	76	3.1	56	4.0	23	28	5	2	15	10	13	8	0	8
Rectosigmoid Junction	5	.2	5	.4	5	0	0	0	2	2	1	0	0	0
Rectum	33	1.4	22	1.6	8	12	2	3	5	2	5	2	0	5
Anus/Anal canal	2	.1	2	.1	1	1	0	0	0	1	1	0	0	0
Liver/Intrahepatic duct	21	.9	12	.9	3	7	2	0	2	1	3	2	2	2
Gallbladder	5	.2	4	.3	3	1	0	0	0	1	3	0	0	0
Extrahepatic duct	8	.3	6	.4	2	4	0	0	1	0	1	1	2	1
Pancreas	40	1.6	30	2.1	11	16	3	0	3	8	2	13	0	4
Other digestive organs	2	.1	2	.1	0	2	0	0	0	0	0	0	2	0
Respiratory System	**136**	**5.6**	**88**	**6.3**	**31**	**52**	**5**	**1**	**27**	**5**	**20**	**24**	**7**	**4**
Main bronchus	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Lung	124	5.1	81	5.8	30	46	5	1	27	5	20	24	0	4
Thymus/Mediastinum	11	.5	7	.5	1	6	0	0	0	0	0	0	4	0
Bones	**1**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**
Soft Tissue	**10**	**.4**	**9**	**.6**	**4**	**5**	**0**	**0**	**2**	**1**	**1**	**2**	**2**	**1**
Peritoneum	3	.1	3	.2	1	2	0	0	0	1	1	0	0	1
Connective tissues	7	.3	6	.4	3	3	0	0	2	0	0	2	2	0
Breast	**388**	**15.9**	**297**	**21.1**	**110**	**139**	**48**	**74**	**108**	**79**	**21**	**14**	**0**	**1**
Female Genital	**140**	**5.8**	**75**	**5.3**	**27**	**39**	**9**	**2**	**38**	**3**	**16**	**7**	**2**	**7**
Vulva /Vagina	3	.1	3	.2	1	2	0	2	0	0	0	1	0	0
Cervix Uteri	60	2.6	15	1.1	5	6	4	0	7	0	5	0	1	2
Corpus Uteri	46	1.9	38	2.7	14	21	3	0	26	0	5	3	0	4
Ovary	23	.9	16	1.1	5	9	2	0	4	3	5	3	0	1
Other Female Genitalia	8	.3	3	.2	2	1	0	0	1	0	1	0	1	0

TABLE 1: THE GEORGE WASHINGTON UNIVERSITY HOSPITAL (GWUH)

2017 CANCER CASES BY ANATOMIC SITES

Primary site			Analytic Cases Only		Race*** (Analytic Cases Only)			AJCC Stage at Diagnosis (Analytic Cases Only)						
	# Cases	% Cases	# Cases	% Cases	W	B	O	0	I	II	III	IV	88	UNK
Male Genital	**25**	**1.0**	**20**	**1.4**	**15**	**3**	**2**	**1**	**13**	**1**	**1**	**1**	**0**	**3**
Penis/Other	2	.1	2	.1	0	1	1	1	0	0	0	1	0	0
Testis	23	.9	18	1.3	15	2	1	0	13	1	1	0	0	3
Urinary System	**171**	**7.0**	**134**	**9.5**	**69**	**55**	**10**	**27**	**62**	**13**	**12**	**12**	**4**	**4**
Kidney	93	3.8	75	5.3	37	35	3	0	54	6	5	6	2	2
Renal Pelvis/Ureter	4	.2	3	.2	3	0	0	1	0	0	1	1	0	0
Urinary bladder	70	2.9	52	3.7	28	19	5	24	8	7	6	4	2	1
Urethra	4	.2	4	.3	1	1	2	2	0	0	0	1	0	1
Brain / CNS	**103**	**4.2**	**81**	**5.7**	**44**	**29**	**8**	**0**	**0**	**0**	**0**	**0**	**81**	**0**
Meninges	33	1.4	26	1.8	12	11	3	0	0	0	0	0	26	0
Brain/Spinal cord	61	2.4	48	304	26	18	4	0	0	0	0	0	48	0
PNS	9	.4	7	.5	6	0	1	0	0	0	0	0	7	0
Endocrine System	**53**	**2.2**	**37**	**2.6**	**18**	**18**	**1**	**0**	**19**	**2**	**3**	**5**	**0**	**8**
Thyroid	50	2.1	37	2.6	18	18	1	0	19	2	3	5	0	8
Other endocrine glands	3	.1	0	0	0	0	0	0	0	0	0	0	0	0
Lymphoma	**69**	**2.8**	**42**	**3.0**	**23**	**14**	**5**	**0**	**4**	**9**	**6**	**6**	**0**	**17**
Hodgkin's	7	.3	4	.3	2	2	0	0	0	2	1	0	0	1
Non Hodgkin's	62	2.5	38	2.7	21	12	5	0	4	7	5	6	0	16
Blood	**90**	**3.7**	**59**	**4.2**	**15**	**31**	**13**	**0**	**0**	**0**	**0**	**0**	**59**	**0**
Multiple myeloma	40	1.6	28	2.0	1	21	6	0	0	0	0	0	28	0
Chronic leukemia	17	.7	10	.7	3	5	2	0	0	0	0	0	10	0
Acute leukemia	11	.5	9	.6	2	3	4	0	0	0	0	0	9	0
Other blood disorders	22	.9	12	.9	9	2	1	0	0	0	0	0	12	0
Skin	**554**	**22.8**	**64**	**4.5**	**54**	**1**	**9**	**33**	**19**	**2**	**0**	**1**	**5**	**4**
Melanoma	50	2.1	50	3.6	44	0	6	33	14	2	0	0	0	1
Non-melanoma cancer	504	20.7	14	.9	10	1	3	0	5	0	0	1	5	3
Unknown	**28**	**1.1**	**12**	**1.0**	**3**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**
GRAND TOTAL	**2435**	**100.0**	**1407**	**100.0**	**648**	**599**	**160**	**143**	**368**	**301**	**179**	**155**	**179**	**82**

NOTE:

- * Analytic – diagnosed only (class 0) or initially diagnosed at GWUH and all or part of first course of therapy at GWUH (class 1) or case diagnosed elsewhere and all or part of first course of therapy at GWUH (class 3)
- ** Non-analytic case – initially diagnosed and treated elsewhere, referred to GWUH 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. For urinary bladder cancer, stage 0 includes 0a and 0is.

COMPARING ABBREVIATED VERSUS FULL BREAST MRI PROTOCOL FOR BREAST CANCER SCREEN

By Rachel Brem, MD FACR FSBI
Professor and Vice-Chair
Director, Breast Imaging and Interventional Center
Department of Radiology
Breast Cancer Program Leader

This retrospective study will test an abbreviated versus full Magnetic Resonance Imaging (MRI) protocol for breast cancer screening. MRI is the most sensitive imaging technique currently available for breast cancer detection, providing greater diagnostic sensitivity than other imaging modalities. However breast MRIs are costly, can be uncomfortable for patients, and requires almost an hour to complete. When conducting a full breast MRI protocol, thousands of images are considered necessary for optimal interpretation, although preliminary data suggest fewer sequences may be adequate.

The study aimed to detect whether an abbreviated breast MRI was as effective as a full protocol MRI by measuring the callback rate. An abbreviated protocol would detect potential breast malignancies in high-risk screening patients as effectively as a full protocol, while reducing the average reading time for radiologist and sustaining consistent callback rates.

The population of the current project includes all screening breast MRI's performed from January 1, 2013 to December 31, 2016 in the GW MFA Breast Center. Electronic medical records from the GW Medical Faculty Associates Comprehensive Breast Center were reviewed. Data was collected on age, gender, and reason for high-risk screening for eligible patients. Patients who received annual 'high-risk' or 'screening' MRIs were considered eligible. Records were resolved to include both initial and follow-up screens, noting both cases separately but as a single individual in the patient population yielding 320 patients.

A callback rate were calculated for each protocol and the comparison will be considering whether an abbreviated protocol yielded similar results as the full protocol interpretations in detecting breast cancers. The Breast Imaging Reporting and Data System, BI-RADS, is a diagnostic scoring system used for mammograms, ultrasounds, and MRIs of the breast with scores ranging from 0 to 6. Scoring is as follows:

0: Additional imaging evaluation

1: Negative

2: Benign (non-cancerous)

3: Probably benign; short term follow-up

4: Suspicious abnormality; biopsy should be considered

5: Highly suggestive of malignancy; biopsy highly recommended

6: Known malignancy

If the callback rate, considered a BI-RADS '0', '4', or '5', were lower for the full protocol, then it would lead to a few considerations. Such as, whether enough information is given with the abbreviated to provide an adequate diagnostic score. As well as, consideration as to whether an abbreviated to protocol would still be considered a viable option when it would require an increase in patients returning to the clinic for further workups.

TABLE 1: Frequency by BI-RADS

BI-RADS	Abbreviated Protocol		Full Protocol	
	Frequency	%	Frequency	%
0	19	13.29	9	6.29
1	14	9.79	17	11.89
2	96	67.13	95	66.43
3	2	1.40	1	0.70
4	12	8.39	21	14.69
Total	**143**	**100.0**	**143**	**100.0**

TABLE2: Full protocol BI-RADS by Abbreviated Protocol BI-RADS

Full protocol	Abbreviated Protocol					
	0	1	2	3	4	Total
0	2 1.40 22.22 10.53	1 0.70 11.11 7.14	5 3.50 55.56 5.21	0 0.00 0.00 0.00	1 0.70 11.11 8.33	9 6.29
1	0 0.00 0.00 0.00	11 7.69 64.71 78.57	3 2.10 17.65 3.13	1 0.70 5.88 50.00	2 1.40 11.76 16.67	17 11.89
2	9 6.29 9.47 47.37	0 0.00 0.00 0.00	80 55.94 84.21 83.33	1 0.70 1.05 50.00	5 3.50 5.26 41.67	95 66.43
3	1 0.70 100.00 5.26	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.70
4	7 4.90 33.33 36.84	2 1.40 9.52 14.29	8 5.59 38.10 8.33	0 0.00 0.00 0.00	4 2.80 19.05 33.33	21 14.69
Total	**19 13.29**	**14 9.79**	**96 67.13**	**2 1.40**	**12 8.39**	**143 100.0%**

COMPARING ABBREVIATED VERSUS FULL BREAST MRI PROTOCOL FOR BREAST CANCER SCREEN

TABLE 3: Full protocol Call back by Abbreviated Protocol Call Back

Full protocol	Abbreviated Protocol		
	0	1	Total
0	94 65.73 83.93 85.45	18 12.59 16.07 54.55	112 78.32
1	16 11.19 51.61 14.55	15 10.49 48.39 45.45	31 21.68
Total	**110** **76.92**	**33** **23.08**	**143** **100.00**

Conclusion:

Under the full protocol, 21.7% were called back in

Under the abbreviated protocol, 23.1% were called back in

12.6% were misclassified with a BIRAD Score indicating need to come back in under the abbreviated protocol but not the full

11.2% were misclassified with a BIRAD Score indicating need to come back in under the full protocol but not the abbreviated

10.5% were called back in under both protocols (BIRAD Score 0, 3-5)

65.7% were given a BIRAD Score of 1 or 2 under both protocols

There is no significant disagreement in call rates between full and abbreviated protocols

AN OUTCOME COMPARISON BETWEEN ROBOTIC AND LAPAROSCOPIC STAPLER USE IN COLORECTAL SURGERY

By Vincent Obias, MD
Chief, Division of Colon and Rectal Surgery
Chair of the Robotics Committee of the GW Hospital

The use of robotic surgery has a long history at GW Hospital. It was the first in DC to have the da Vinci robot and to use it for prostate cancer surgery. In 2009, GW Hospital became the first in the region to use the da Vinci system for robotic colon and rectal surgery. However there are disadvantages of robotic procedures such as increased cost and increased operating room time. The pelvic area is a challenge for colorectal surgeon. In such a confined area, the robotic stapler device might provide an advantage compared to laparoscopic stapler, in terms of maneuverability. This advantage could lead to decreased stapler firing and improved cost.

Retrospective review of cases who underwent robotic colorectal surgery at GWUH between 2012 and 2016. Only patients who had a LEFT colectomy, sigmoid colectomy, subtotal colectomy, total colectomy or low anterior resection for malignancy, diverticular disease, or inflammatory bowel disease were included in the analysis. Most cases are colorectal cancer cases. Patients with RIGHT colectomy and transverse colectomy were excluded from the study. A total of 58 cases with laparoscopic stapler and 35 cases with robotic stapler were eligible for study analysis.

Patients' demographics: gender, age, BMI, comorbidities, and neo-adjuvant therapy were examined to make sure two groups were comparable. Stapler fires and stapler cost, operating room time, and length of hospital stay were criteria for evaluation

Patients' demographics:

	Gender (cases)		Age	BMI	Neoadjuvant chemoradiation	Comorbidities		
	Male	Female	Years	Kg/m2	cases	HTN	DM	COPD
Laparoscopic Stapler	30	28	55.6	30	8	23	11	1
Robotic Stapler	17	18	56.9	27.9	4	12	2	1

Outcome data:

	Stapler Fires	Stapler Cost	Operative time (minutes)	Length of Hospital Stay (days)
Laparoscopic Stapler	2.69	$631.45	264	4.29
Robotic Stapler	1.86	$473.28	270	4.37

This retrospective review is the first analysis of this data. There is no national comparison in medical literature. There is no significant difference in demographics between laparoscopic and stapler and robotic stapler groups. There is no significant difference in operative time and days of hospital stay

There is a significant difference in the cost outcome and the efficacy between laparoscopic stapler and robotic stapler. Robotic stapler was significant cheaper than the laparoscopic stapler.

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.katzencancer.org

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

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
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(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

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

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

Radiation Oncology
725-A 23rd St., N.W.
(at the corner of H and 23rd streets)
Washington, D.C. 20037
(202) 715-5097

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 Cancer Center
Science and Engineering Hall
8th Floor
800 22nd St., N.W.
Washington, DC 20052
202-994-0329
https://cancercenter.gwu.edu/

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

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

The Dr. Cyrus and Myrtle Katzen Cancer Research Center
2150 Pennsylvania Ave., N.W.
Suite 1–204
Washington, D.C. 20037
www.katzencancer.org

The George Washington School of Medicine and Health Sciences
Ross Hall 2300 Eye St., N.W.
Washington, D.C. 20037
https://smhs.gwu.edu/

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