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TECHNICAL REPORT

Monitoring Cancer Outcomes Across the Continuum

Data Synthesis and Analysis for the District of Columbia

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Sponsored by the DC Cancer Consortium

RAND HEALTH

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Preface

This report synthesizes and analyzes available data regarding cancer-related outcomes among District of Columbia residents, highlighting key findings and data gaps across the continuum of cancer prevention, treatment, and outcomes and noting variability across subgroups of District residents. The report should be of interest to policymakers, individuals, and organizations concerned with the burden of cancer in the District.

The work was funded by the District of Columbia Cancer Consortium and conducted in RAND Health, a division of the RAND Corporation. A profile of RAND Health, abstracts of its publications, and ordering information can be found at www.rand.org/health. Comments on this report are welcome and may be directed to the co-principal investigator, Rebecca Anhang Price, at ranhangp@rand.org.

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Summary

To help inform future priority-setting by the DC Cancer Consortium (DCCC) and other entities concerned with the burden of cancer in the District of Columbia, as well as local government policymaking around cancer more broadly, this report synthesizes available data (including information in published reports, as well as the results of new data analyses) regarding cancer-related outcomes among District residents. A comprehensive understanding of cancer in the District requires information across the continuum of cancer prevention, treatment, and outcomes, and, moreover, an understanding of the variability in these outcomes for different subgroups of District residents, such as those defined by age, race, gender, location of residence within the District, or type of cancer. Monitoring and tracking of outcomes across the continuum of cancer prevention and treatment and by population subgroup over time is likewise essential to establishing an adequate evidence base for informed decisionmaking.

This report provides information on as wide a range of outcomes as permitted by available data across the continuum of cancer prevention and treatment, by population subgroup and over time. Data sources used in this report include the Behavioral Risk Factor Surveillance System (BRFSS), the National Cancer Database, the Centers for Disease Control and Prevention (CDC) and National Cancer Institute Wide-Ranging Online Data for Epidemiologic Research database, and the American Community Survey. The report provides background information on basic sociodemographic characteristics of District residents; describes behaviors related to cancer prevention, including tobacco use and physical activity, and use of services, such as human papillomavirus vaccination and screening tests for breast, cervical, colorectal, and prostate cancers; describes cancer incidence and mortality; profiles use of first courses of cancer treatment services received among those diagnosed with cancer; and summarizes information about the capacity of the local health care delivery system in the District to provide cancer prevention and treatment services to those who are publicly insured.

Key findings include the following:

General Access to Care

- In 2010, 6.5 percent of adult District residents reported that they lacked health insurance coverage, compared with 15.1 percent of adults across the United States.
- Although District adults reported significantly fewer barriers to health care access than adults nationwide, access to health care providers or services remains a challenge for many District residents.
    - 13.6 percent of District adults reported not having a personal health care provider in 2010, 19.9 percent reported not having a routine checkup in the past year, and 8.9 percent reported missing care in the last 12 months because of cost.
- Black and Hispanic adults in the District were more likely to report being uninsured compared with white District residents in 2010, and both groups were more likely to report missing care because of cost. Blacks were more likely to have had a routine checkup in the last year compared with whites, however.

Primary Prevention

- Overall, compared with adults nationally, District adults are less likely to report smoking, binge drinking, or heavy drinking and slightly more likely to report exercising.
- The rate of smoking is significantly higher, and the rate of exercise is significantly lower, among black District residents than among white residents.

- Self-reported smoking, alcohol use, and exercise rates among District residents appear stable from 2003 to 2010.

Secondary Prevention

- Overall, self-reported rates of cancer screening among District residents are higher than those among adults nationwide. For example, 90 percent of women ages 21 to 64 report receiving a Pap test within the last three years, compared with 84 percent of women nationwide, and 86.5 percent of District women ages 50–74 report having had a mammogram within the last two years, compared with 80 percent nationally.
- Although rates of breast and cervical cancer screening are similar across racial and ethnic groups in the District, black residents are less likely to report being screened for colorectal cancer than white residents.
- Women are less likely to report screening for colorectal cancer, and younger men in the recommended age range are less likely to report prostate and colorectal screening compared with older men.
- Cervical, colorectal, and prostate screening rates are significantly lower among uninsured residents.
- Self-reported cancer screening rates among District residents appear stable from 2003 through 2010.
- Additional data, not based on individual self-report, would provide a useful counterpoint to available BRFSS estimates.

Cancer Incidence and Mortality

- Overall, age-adjusted cancer incidence in the District is similar to that for the United States as a whole, while mortality is higher. In keeping with the rest of the nation, cancers with highest incidence and mortality in the District are colorectal, lung and bronchus, prostate, and breast.
- Cancer incidence and mortality among black residents of the District are dramatically higher than for white residents of the District. Higher overall cancer incidence and mortality among black District residents is attributable to a higher incidence of colorectal, lung and bronchus, and prostate cancers, and higher rates of mortality for all common cancers, than among white residents.
- Cancer incidence and mortality among white District residents are lower than they are among whites nationally. In contrast, cancer incidence among black District residents is comparable with that for blacks nationally, while cancer mortality among black District residents is higher than it is for blacks nationally.
- Overall cancer incidence rates remained stable in the District from 2005 to 2009, as they did nationally.
- Although cancer mortality appears to have declined slightly faster in the District than it has nationally between 2005 and 2009, mortality rates in 2008 among District residents still exceeded those in the United States.

Cancer Treatment

- As many as 40 percent of the newly diagnosed cancers treated in the District may be among non-District residents.
- 9 percent of the District population is Hispanic, whereas 2 percent of patients seeking their first course of cancer treatment in 2009 were Hispanic. Data on the number of new cancer cases

among Hispanic residents of the District, as well as data on patterns of seeking cancer treatment outside the District, would be useful for better understanding potential issues around access to cancer treatment among Hispanics.

- From 2006 to 2009, the proportion of black newly diagnosed patients with colorectal, lung and bronchus, and prostate cancers seeking their first course of treatment increased, mirroring increases in the number of cases for these cancer sites among black District residents during that time period.
- Approximately 2 in 5 District residents who are diagnosed with cancer are age 65 and older. Correspondingly, approximately 40 percent of patients seeking their first course of cancer treatment are covered by Medicare.
- Although approximately 1 in 5 District residents is uninsured, is covered by Medicaid, or receives care from the DC Alliance, only 6 percent of cancer patients seeking their first course of treatment are uninsured or on Medicaid. Data on the number of new cases of cancer by insurance status (any coverage, type of coverage) are important for better understanding potential issues around access to cancer treatment among uninsured District residents and those enrolled in Medicaid.
- Black patients, and those who are uninsured or covered by Medicaid, appear to be more likely to present for first course of treatment with Stage IV cancers than white patients and those who are privately insured. Delayed diagnosis and first treatment are associated with poorer cancer survival rates.
- Available data are insufficient for assessing the quality of cancer treatment delivered to patients in the District overall or disparities in quality of care across patients of different races or other characteristics.

Survivorship and End-of-Life Care

- Additional study is needed to examine the capacity for comprehensive case management services for cancer survivors in the District, especially for residents covered by Medicaid and Alliance.
- Little data are available on quality of survivorship and end-of-life care for cancer patients in the District overall or by racial or ethnic subgroups.

Health System Capacity

- While available data suggest that capacity for screening is largely adequate for individuals with insurance coverage, capacity for diagnostic and treatment care is limited for the uninsured, those enrolled in DC Alliance, and those with Medicaid coverage.
- Actual availability of diagnostic and treatment services is likely to be considerably more limited than provider lists suggest. Once an individual has a positive screening result, patient navigators often must work extensively to find a clinical site that will take a patient with Medicaid managed care or Alliance coverage.
- Navigation services, such as those provided by the Citywide Patient Navigation Network, play a vital role in helping patients receive needed care across a fragmented system in which availability of care varies by insurance type and clinical sites.
- In most cases, providers try to enroll eligible individuals (who are uninsured or covered by Medicaid managed care organizations or Alliance) diagnosed with cancer in fee-for-service (FFS) Medicaid. However, enrollment may be challenging for patients whose initial screening tests are conducted outside of Project WISH (Women Into Staying Healthy—a program funded by the CDC to provide free cancer education, screening, and diagnostic services to women who are uninsured or underinsured or who have family incomes less than 250 percent of the federal poverty level).

- Medicaid FFS enrollees have many more options for care than Medicaid managed care enrollees. However, transitioning from managed care to FFS Medicaid may result in disruptions in care, including changes in providers and drug formularies.
- Few providers and facilities offering cancer treatment, palliative care, and end-of-life care are located in Wards 7 and 8.

The findings above reveal disparities in cancer-related outcomes between black and white District residents across the continuum. First, black District residents are more likely than white residents to be uninsured. Lack of insurance is associated with lower rates of routine cancer screening among asymptomatic patients and may delay care for patients experiencing early symptoms of cancer. In addition, the rate of smoking is significantly higher, and the rate of exercise is significantly lower, among black District residents than among white residents, placing black residents at higher risk of the most common cancers. Further, black residents are less likely to report being screened for colorectal cancer than white residents. While rates of breast and cervical cancer screening are similar across racial and ethnic groups in the District, national studies of self-reported screening data suggest that black and Hispanic survey respondents may overreport screening behaviors more than whites do (Rauscher, Johnson, et al., 2008). Other evidence suggests that black District residents face barriers to cancer treatment other than insurance coverage: Insured black District residents with suspicious mammogram results experience substantially longer times to diagnostic resolution than insured whites (Hoffman, LaVerda, et al., 2011). Finally, black cancer patients in the District are more likely to present for their first course of cancer treatment at later stages than white patients, reducing their likelihood of survival. Limitations in general access to health care, in primary and secondary prevention, and in access to cancer-related treatment all likely contribute to observed differences in mortality from cancer between black and white District residents.

Perhaps as notable and important as the key findings summarized above are the gaps in available information regarding key elements of the cancer continuum. In what follows, we highlight important opportunities for data collection and analysis, noting the scarcity of information for describing outcomes for certain population subgroups, as well as current limitations of data for tracking historical and future trends in outcomes.

(1) More needs to be known about cancer treatment patterns and quality in the District.

More comprehensive data on treatment is needed to assess (a) the full range of treatment received by patients, (b) the degree to which treatment is in accordance with standards for quality of cancer care, and (c) variation in treatment patterns over time and across subgroups of interest.

(2) Regular, continued monitoring and timely reporting of cancer-related outcomes among District residents are essential, as is assuring validity and comprehensiveness of cancer registry data in the District.

Routine, consistent, and timely reporting of cancer-related outcomes in the District is essential to guide the efforts of government and nongovernmental entities working to reduce the burden of cancer in the District.

(3) Supplementary data would provide a more robust understanding of potential barriers to cancer screening.

Self-reports of cancer screening are subject to recall bias, as survey respondents, especially those who are black and Hispanic, tend to overreport screening (Rauscher, Johnson, et al., 2008). Therefore, it would be useful to supplement BRFSS data by exploring rates of screening developed from other data

sources, such as claims data, and gleaning information from patient navigators in the Citywide Patient Navigation Network to identify barriers to screening among vulnerable populations.

(4) Opportunities exist to learn more about patient experiences across the continuum.

Although measuring patients' experiences with cancer care is a critical component of overall quality assessment, to our knowledge, no systematically collected surveys are conducted with cancer patients in the District regarding their experiences with cancer care at any stage of the continuum. Administration of surveys of experiences with cancer treatment, survivorship, and end-of-life care could inform quality improvement or consumer choices between cancer treatment facilities.

(5) More information is needed on awareness and knowledge of cancer prevention and control among District residents.

Little empirical data are available regarding the degree to which District residents—overall, or by relevant geographic or sociodemographic subgroups—are aware of cancer risks, protective factors, or the benefits of early detection. The National Cancer Institute's Health Information National Trends Survey surveys a nationally representative sample of American adults biennially regarding cancer awareness and communication and may present opportunities for identification of gaps in awareness and knowledge in the District.

(6) More attention needs to be given to understanding the regional burden of disease, patient flows across geographic borders, and regional capacity for cancer care.

Many cancers treated in the District are among non-District residents, suggesting the need for exploration of the key drivers of care-seeking across District boundaries and an assessment of health care capacity that encompasses the District and surrounding counties.

Acknowledgments

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Abbreviations

AAMC	American Association of Medical Colleges
ABHPM	American Board of Hospice and Palliative Medicine
ACS	American Community Survey
ARF	Area Resource File
BRFSS	Behavioral Risk Factor Surveillance System
CAHPS	Consumer Assessment of Healthcare Providers and Systems
CBCC	Capitol Breast Care Center
CDC	Centers for Disease Control and Prevention
CoC	American College of Surgeons' Commission on Cancer
CPNN	Citywide Patient Navigation Network
DC DHCF	District of Columbia Department of Healthcare Finance
DC DOH	District of Columbia Department of Health
DCCC	District of Columbia Cancer Consortium
EAC	estimated annual change
FFS	fee-for-service
FOBT	fecal occult blood test
FPL	federal poverty line
GW	the George Washington University
GWCI	the George Washington Cancer Institute
HEDIS	Healthcare Effectiveness Data and Information Set
HINTS	Health Information National Trends Survey
HPV	human papillomavirus
MCO	managed care organization
NACCR	National Association of Central Cancer Registries
NBCHPN	National Board for Certification of Hospice and Palliative Nurses
NCDB	National Cancer Database
NCI	National Cancer Institute
NIS	National Immunization Survey
PNRP	Patient Navigation Research Program
NSCH	National Survey of Children's Health
PSA	prostate-specific antigen
PUMA	Public Use Microdata Area
UMC	United Medical Center
USCS	United States Cancer Statistics
USPSTF	United States Preventive Services Task Force
VA	U.S. Department of Veterans Affairs
WISH	Women Into Staying Healthy
WONDER	Wide-Ranging Online Data for Epidemiologic Research

1. Introduction

The American Cancer Society estimates that approximately 2,980 new cases of cancer will be diagnosed in the District of Columbia in 2012 and that 1,010 District residents will die of the disease (American Cancer Society, 2012).[1] Cancer is the second leading cause of death in the District of Columbia; approximately one in five deaths is due to cancer (District of Columbia Department of Health, 2009).

The District of Columbia Department of Health (DOH), in an effort to meet a federal mandate to address the burden of cancer in the District, established the DC Cancer Coalition in 2001. The Coalition later became the DC Cancer Consortium (DCCC). Since its inception, the DCCC has grown to include more than 75 health services, education and advocacy organizations, and individuals. The DCCC played a major role in creating the DC Cancer Control Plan for 2005–2010 (DC Cancer Consortium, 2005) and a 2011–2016 update to the plan.

In 2006, the DCCC was awarded $20 million from the Master Settlement Agreement (the "tobacco settlement") to address priority objectives of the Cancer Control Plan in partnership with DC DOH.[2] In 2010, this amount was reduced to $16.5 million because of a District budget shortfall. In the long term, the objectives of the 2011–2016 DC Cancer Control Plan include decreased cancer burden, reduced racial and ethnic disparities in treatment, and increased quality of life for persons with cancer and their families (DC Cancer Consortium, 2011). Short- and medium-term outcomes span increased public awareness of cancer prevention behaviors; increased rates of smoking cessation, healthy eating, and physical activity; increased awareness of cancer-related resources; improved access to care; increased rates of cancer screening; and improved collection and use of data on cancer-related outcomes. To date, the DCCC has addressed the objectives of the 2005–2010 DC Cancer Control Plan by providing grant funding for community-based initiatives, facilitating coordination and cooperation among District cancer organizations, conducting outreach and education regarding cancer prevention for District residents, providing a clearinghouse to health care providers and the public on cancer services, facilitating professional education programs on early detection of cancer, and providing technical assistance and capacity-building support for community-based health organizations.[3]

To help inform future priority-setting by the DCCC and other entities concerned with the burden of cancer in the District, as well as local government policymaking around cancer more broadly, this report synthesizes available data (including information in published reports, as well as the results of new data analyses) regarding cancer-related outcomes among District residents.

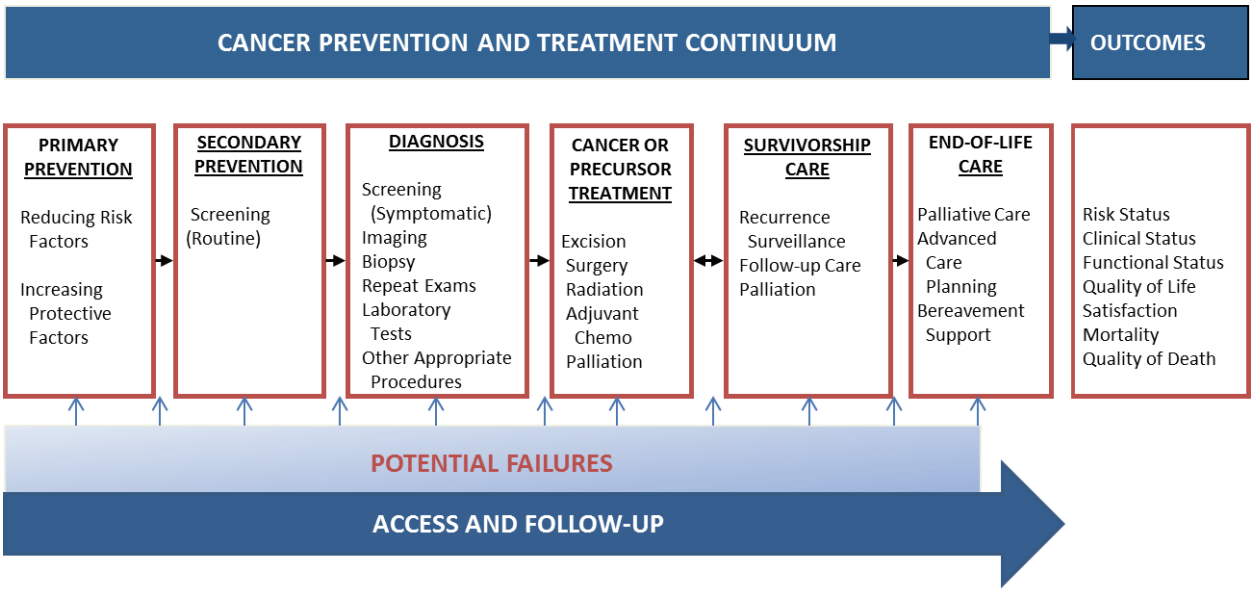
A comprehensive understanding of cancer in the District requires information across the continuum of cancer prevention, treatment, and outcomes, and, moreover, an understanding of the variability in these outcomes for different subgroups of District residents, such as those defined by age, race, gender, location of residence within the District, or type of cancer. Monitoring and tracking of outcomes across the continuum and by population subgroup over time is essential to establishing an adequate evidence base for informed priority-setting and decisionmaking.

This report provides information on as wide a range of outcomes as permitted by available data across the continuum, by population subgroup and over time. Given well-established disparities in cancer incidence and mortality between black and white residents of the District, we pay particular attention to differences on the continuum by race. As shown in Figure 1.1, the cancer continuum spans primary and secondary prevention, diagnosis, treatment, survivorship care, and end-of-life care. Primary prevention refers to

[1] This number includes both children and adults.
[2] $3.5 million was withdrawn to balance the District's general fund deficit.
[3] See Figure A.1 in Appendix A.

avoidance of cancer risk factors, such as smoking, and participation in cancer protective factors, such as regular physical activity; secondary prevention includes guideline-recommended screening, such as mammography and colonoscopy; diagnosis includes screening of symptomatic patients, imaging, biopsy, and other tests and procedures; treatment includes chemotherapy, radiation, surgery, and palliative care; survivorship care includes recurrence surveillance and follow-up; and end-of-life care includes palliative care and bereavement support. Prevention and treatment of cancer across the continuum is designed to reduce incidence; improve the quality of life—and death—of patients diagnosed with cancer; and reduce cancer-associated mortality (Figure 1.1).

Figure 1.1. Continuum of Cancer Prevention, Treatment, and Outcomes



Source: Adapted from Zapka, J. G., S. H. Taplin, et al. (2003). A framework for improving the quality of cancer care: the case of breast and cervical cancer screening. *Cancer epidemiology, biomarkers & prevention* **12**(1): 4-13.

Table 1.1 profiles the data sources used in this report, including the Behavioral Risk Factor Surveillance System (BRFSS), the National Cancer Database (NCDB), the Center for Disease Control and Prevention (CDC) and National Cancer Institute (NCI) Wide-Ranging Online Data for Epidemiologic Research (WONDER) and State Cancer Profiles online databases, and the American Community Survey (ACS). Despite the range of data sources used, there are cancer-related outcomes for which data are scarce or completely unavailable. We identify these and describe possible ways to address these gaps in data.

Table 1.1. Data Sources

Data Source	Time Period	Description
ACS; Decennial Census	2006–2010	We analyzed data from the 2000 and 2010 decennial censuses, as well as the 2006 to 2010 ACS, to highlight changes in the sociodemographic composition of District residents over time.
BRFSS	2000–2010	We conducted analyses of BRFSS's self-reported data on physical activity, tobacco use, and screening for breast, cervical, colorectal, and prostate cancers for District residents aged 18 and over.
NCDB	2006–2009	We used the American College of Surgeons' Commission on Cancer (CoC) and the American Cancer Society's publicly available database to assess use of cancer care services by cancer site and stage for newly diagnosed cancer patients of all ages presenting at 8 CoC-accredited District hospitals.
CDC WONDER	2004–2009	We used the CDC- and NCI-sponsored WONDER online database to document site-specific cancer incidence and mortality nationally and in the District.
State Cancer Profiles	2004–2009	We used the CDC- and NCI-sponsored State Cancer Profiles website to describe and compare trends in cancer incidence and mortality in the District and the United States over time.
Interviews with insurers and care providers	2011–2012	We conducted interviews with stakeholders involved in cancer care capacity, including leaders from area hospital cancer programs, Medicaid managed care organizations (MCOs), safety net providers, and cancer outreach initiatives (n = 7). The interviews used a semistructured protocol, querying interviewees about access to cancer care services for the uninsured and those with public health insurance.

Our findings are presented in the following chapters: Chapter 2 provides background information on basic sociodemographic characteristics of District residents. Chapter 3 describes primary cancer prevention behaviors among District residents, including tobacco and alcohol use, physical activity, and receipt of human papillomavirus (HPV) vaccination, and secondary cancer prevention behaviors, including screening tests for breast, cervical, colorectal, and prostate cancers. Chapter 4 describes cancer incidence and mortality among District residents. Chapter 5 profiles use of first course of cancer treatment services among District residents. Chapter 6 summarizes information about the capacity of the local health care delivery system in the District to provide cancer prevention and treatment services to residents who are uninsured or publicly insured (Medicaid/Alliance managed care or fee-for-service [FFS] Medicaid). Chapter 7 concludes by highlighting key findings and data gaps and noting opportunities for future data collection and analysis.

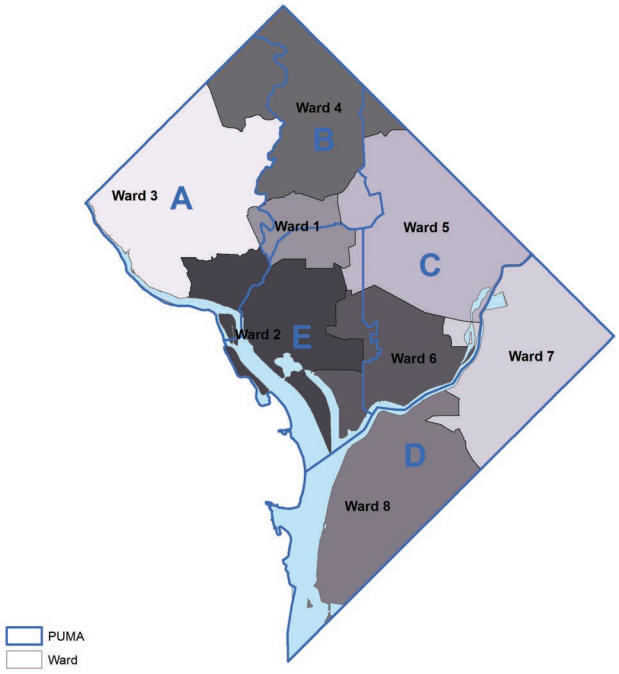
2. Setting the Context: Sociodemographics and Health Care Access in the District

In this chapter, we lay the context for the remainder of the report by profiling the sociodemographic and health care access characteristics of District residents. We report findings for the District overall and by geographic catchment areas within the District. Sociodemographic descriptions are based on data from the 2000 and 2010 decennial censuses and the annual ACS.[4] Section 2.1 illustrates the geography of the District. Section 2.2 presents sociodemographic characteristics of District residents by ward and over time. Section 2.3 highlights migration into and out of the District from neighboring states. Section 2.4 presents data on factors that facilitate access to health care for District residents, including health insurance coverage, having a personal doctor, and financial barriers to care.

2.1. Geography of the District

The District is composed of 100 zip codes and is divided into eight wards corresponding to electoral districts. The District is also home to five Public Use Microdata Areas (PUMAs). PUMAs comprise areas that contain at least 100,000 people and are wholly enclosed within a state or statistically equivalent entity (Figure 2.1).[5]

Figure 2.1. District Wards and PUMAs



The relation of PUMAs to wards is as follows:

- PUMA A covers most of Northwest D.C. and encompasses Ward 3 and part of Wards 2 and 4.
- PUMA B contains most of Ward 4 and parts of Wards 1 and 5.
- PUMA C contains most of Wards 5 and 6.
- PUMA D contains Wards 7 and 8.
- PUMA E comprises parts of Wards 1, 2, and 6.

[4] The ACS collects data annually between decennial censuses and allows for the sociodemographic characteristics of District residents to be summarized at the ward level.
[5] We have labeled PUMAs using letters of the alphabet to avoid confusion with wards.

2.2. Sociodemographic Characteristics of District Residents

In 2010, the District's population numbered 604,453. Table 2.1 highlights the city's racial and economic diversity: Roughly 51 percent of the District's residents are black, 35 percent are white, 9 percent are Hispanic, and 5 percent are Asian. While the median household income in the District is over $60,000, 14 percent of the District's population lives below the federal poverty line (FPL), and nearly one in four residents lives within 185 percent of the FPL.

Table 2.1. Sociodemographic Changes in the District, 2000–2010

	2000	2010
Age		
0 to 17 years (%)	20.0	16.8*
18 to 39 years (%)	38.6	42.3*
40 to 64 years (%)	29.2	29.4
65 years and older (%)	12.3	11.5*
Race and ethnicity		
Black, non-Hispanic (%)	59.5	50.5*
White, non-Hispanic (%)	27.7	34.8*
Asian, non-Hispanic (%)	2.6	5.4*
Hispanic (%)	7.9	9.1*
Foreign born (%)	12.9	13.5
Speak language other than English at home (individuals aged 5+; %)	16.8	14.5*
Family income		
Below FPL (%)	16.7	14.1
Below 1.85 times FPL (%)	29.6	25.4*
Median household income ($)	40,127	60,903
Education (adults aged 25+)		
Less than high school (%)	22.2	12.6*
High school diploma or equivalent (%)	20.6	20.3
Some college	18.2	17.0
College graduate	39.1	50.1*

Statistically significant change from 2000 to 2010, $p < 0.05$.
SOURCES: U.S. Bureau of the Census, Decennial Census 2000, and American Community Survey, 2010.

The total population of the District grew substantially between 2000 and 2010 (from 572,059 in 2000), and the sociodemographic characteristics of District residents also changed substantially over that time period. In the District overall, the proportion of residents aged 18 through 39 grew by almost 4 percent from 2000 to 2010. The proportion of District residents that is black decreased from 2000 to 2010 (59.5 percent versus 50.5 percent), while the proportion that is Hispanic grew slightly (from 7.9 percent to 9.1 percent), the proportion that is Asian grew from 2.6 percent to 5.3 percent, and the proportion that is white grew from 27.7 percent to 34.8 percent. The proportion of residents with at least a high school education increased almost 10 percent, owing largely to increases in the proportion of residents who had graduated from college in PUMAs C and E. Table A.1 in Appendix A describes changes in sociodemographic characteristics by PUMA.

Table 2.2 presents sociodemographic characteristics for each of the District's eight wards using aggregated data for the years 2006 through 2010 from the ACS. Residents of Ward 3 are the best off economically, with the highest median family income of all the wards and only 2.1 percent of families living below the FPL. In contrast, in Wards 7 and 8, more than ten times as many families live in poverty (23.3 percent and 32.0 percent, respectively), and median family incomes are the lowest in the District. Wards 7 and 8 are predominantly black, and Wards 5, 7, and 8 have the highest proportion of black residents. Ward 1 is the most racially and ethnically diverse ward; approximately one-fifth of residents are Hispanic, and slightly more than one-third are black and white, respectively. Ward 8 is the youngest ward, with the highest proportion of children (17 and younger) and the lowest proportion of seniors among its residents (31.9 percent and 6.7 percent, respectively). Seniors comprise about 16 percent of the population in Wards 4 and 5.

Table 2.2. Sociodemographic Characteristics of District Residents by Ward, 2006–2010

Characteristic	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8
Age								
0 to 17 years (%)	13.5	6.0	12.9	19.3	18.5	14.2	27.0	31.9
18 to 39 years (%)	54.1	60.0	42.4	29.7	33.7	44.8	27.4	33.3
40 to 64 years (%)	25.1	25.3	30.2	34.9	32.1	31.6	32.3	28.1
65 years and older (%)	7.2	8.8	14.5	16.0	15.7	9.3	13.3	6.7
Race and ethnicity								
Black, non-Hispanic (%)	35.0	14.5	4.9	61.6	79.4	43.8	95.3	93.6
White, non-Hispanic (%)	38.1	65.2	77.2	18.3	11.3	44.0	1.5	3.1
Asian, non-Hispanic (%)	12.0	6.9	6.3	5.3	2.4	3.0	0.5	0.6
Hispanic (%)	20.5	9.3	7.7	16.4	5.8	5.4	2.1	2.2
Foreign born (%)	22.4	18.6	17.7	20.1	8.8	9.1	3.2	2.7
Speak language other than English at home (individuals aged 5+; %)	23.2	20.7	20.4	22.0	8.6	11.6	3.9	3.8
Family income								
Below FPL (%)	13.0	4.5	2.1	7.0	14.5	14.8	23.3	32.0
Below 1.85 times FPL (%)	27.1	11.9	3.4	18.8	27.0	21.2	38.4	51.9
Median household income ($)	64,973	76,870	97,257	58,668	47,402	78,449	36,828	30,653
Education (adults aged 25+)								
Less than high school (%)	17.5	7.6	3.1	16.5	17.8	11.4	17.3	20.3
High school diploma or equivalent (%)	12.0	6.8	4.5	21.6	28.6	15.0	37.9	44.1
Some college	12.8	10.9	8.6	20.7	23.8	14.3	28.0	24.1
College graduate	57.7	74.7	83.8	41.2	29.7	59.3	16.8	11.6

SOURCE: U.S. Bureau of the Census, American Community Survey, 2006–2010.

2.3. Migration Flows in the Greater D.C. Region

The District is part of a greater metropolitan area that includes pieces of Maryland and Virginia. Residential migration in the greater region is considerable, including "in-migration" from surrounding areas into the District and "out-migration" from the District to surrounding areas. Average annual flows from Maryland and Virginia into the District during the 2005–2009 period numbered approximately 12,200 and 6,200, respectively (Table 2.3). Among Marylanders relocating to D.C., over half (roughly 6,400) moved from Prince George's County, Maryland. Prince George's residents represented 12 percent of all individuals moving into the District.

Table 2.3. In-Migration to the District, 2005–2009

County of Origin	Estimated Average Annual Number of Movers to the District	Proportion of Movers to the District
Any county in Virginia	6,231	11.7%
Any county in Maryland	12,248	22.9%
Prince George's County	6,358	11.9%

SOURCE: U.S. Bureau of the Census, American Community Survey County-to-County Migration Files, 2005–2009.

Reverse, "out-migration" flows during 2005–2009 were also substantial. The average annual number of movers from the District to Virginia was approximately 9,500, while approximately 22,800 individuals moved from the District to Maryland annually (Table 2.4). Again, the most substantial D.C.-Maryland migration flows involved Prince George's County. An average of nearly 14,000 District residents moved to Prince George's County annually between 2005 and 2009. On average during 2005–2009, more than one in five (23 percent) of the total number of individuals moving out of the District were destined for Prince Georges County.

Table 2.4. Out-Migration from the District, 2005–2009

Destination County	Estimated Average Annual Number of Movers Out of the District	Proportion of Movers Out of the District
Any county in Virginia	9,477	15.7%
Any county in Maryland	22,786	37.8%
Prince George's County	13,825	22.9%

SOURCE: U.S. Bureau of the Census, American Community Survey County-to-County Migration Files, 2005–2009.

In addition to the significant level of cross-District border migration, a substantial number of Marylanders and Virginians commute to and from the District for work. As of 2010, about 3 in 5 (62 percent) of those who worked in the District lived outside the District.

2.4. Health Care Access in the District

In this section, we present data on factors that facilitate access to health care for District residents, including health insurance coverage, having a personal doctor, and financial barriers to care. Although later chapters describe outcomes related to cancer-specific care, measures of general access to health care provide important context for understanding participation in preventive and treatment care in the District. For example, individuals without a usual health care provider are more likely to be delayed in receiving medical treatment and to experience problems getting needed care, tests, or treatment (DeVoe, Tillotson, et al., 2011).

Within the District, all residents with incomes under 200 percent of FPL are eligible for health care coverage, either from the state- and federally funded Medicaid program or the DC Alliance, a locally funded health care access program. The DC Alliance consists of a group of health care providers, hospitals, and community health centers that are paid by the District to provide health care to uninsured, low-income District residents who are not eligible for Medicaid or Medicare. The majority of Medicaid enrollees in the District (approximately two-thirds) are enrolled in managed care organizations (MCOs); the remainder are in FFS (Department of Health Care Finance, April 2012). At present, two MCOs serve adult District residents with Medicaid: Chartered and United Health Care.[6] Residents can choose to enroll in either of these plans during an open enrollment period. As of October 2012, another MCO plan, Medstar Health, will contract with the District to provide Medicaid services (Fischer, 2012).

Reflecting both relatively generous Medicaid eligibility criteria and the availability of the DC Alliance, rates of uninsurance in the District are substantially lower than the national average of 15 percent for adults and 9 percent for children (BRFSS, 2010; National Survey of Children's Health [NSCH], 2007). Overall, 6.5 percent of District adults responding to the BRFSS reported being uninsured in 2010, a decrease from 9.7 percent in 2005.[7] Nearly two-thirds of District residents (65 percent) report being privately insured through an employer or individual plan, 12 percent report being covered by Medicare, 11 percent report being covered by Medicaid, and 2 percent report having access to health care through Alliance (Washington Post and Kaiser Family Foundation, 2011). The rate of uninsurance among District children remained stable at approximately 3.5 percent between 2003 and 2007, the latest year for which data from the NSCH are available.

Although access to health care providers or services remains a challenge for many District residents, adults in the District report significantly fewer barriers to health care access than adults nationwide. Overall, in 2010, approximately 1 in 5 adult District residents (19.9 percent) reported not having a routine checkup in the past year, compared with nearly one-third (31.9 percent) of adults nationally. Approximately 1 in 10 (8.9 percent) adult District residents reported that there was a time in the past year when they needed to see a doctor but could not because of the cost; approximately 1 in 8 (14.6 percent) adults across the United States reported the same. Finally, 13.6 percent of adult District residents reported that they did not have anyone they considered their personal doctor or health care provider, compared with 18.2 percent nationally.

Black and Hispanic adults living in the District are significantly more likely to be uninsured and to have missed care due to cost in the prior year than white residents (Table 2.5). However, black residents are significantly more likely than white residents to report having had a routine checkup in the past year and

[6] An additional MCO, Health Services for Children with Special Needs, serves children exclusively.
[7] BRFSS asks whether respondents have insurance coverage but does not ask respondents to identify sources of coverage by name. Therefore, it is unclear whether individuals in the DC Alliance count themselves as insured or uninsured.

report having a personal health care provider at a similar rate to whites. Hispanics are significantly less likely than whites or blacks to report having such a provider.

Table 2.5. Health Care Access for Adults (ages 18 to 64) in the District by Race, 2010

	District	White	Black	Hispanic
Uninsured (%)	6.5	2.2	9.0*	8.8*
No routine checkup in past year (%)	19.9	26.9	13.7*	21.2*
No personal health care provider (%)	13.6	12.3	13.2	17.5*
Missed care in last 12 months because of cost (%)	8.9	3.9	11.7*	20.0*

* Indicates statistically different from white, $p < 0.05$.
SOURCE: Analyses of 2010 BRFSS data.

Other data sources, such as hospital discharge data or insurance claims data, can be used to analyze additional measures of access to care. For example, rates of hospital admissions for "ambulatory care sensitive conditions" have been used as a marker for the availability and efficacy of outpatient care.[8] Such measures have been developed for the District (Lurie, Gresenz, et al., 2008) but have not been recently updated.

2.5. Key Findings

Sociodemographic Characteristics of District Residents

- In 2010, roughly 51 percent of the District's residents were black, 35 percent were white, 9 percent were Hispanic, and 5 percent were Asian. While the median household income in the District was over $60,000, 14 percent of the District's population lived below the FPL, and nearly one in four residents lived within 185 percent of the FPL.

- The total population of the District grew substantially, from 572,059 in 2000 to 604,453 in 2010. During that time:
    - The proportion of residents aged 18 through 39 grew by almost 4 percent.
    - The proportion of District residents that is black decreased (from 59.5 percent to 50.5 percent), while the proportion that is Hispanic grew slightly (from 7.9 percent to 9.1 percent), the proportion that is Asian grew from 2.6 percent to 5.3 percent, and the proportion that is white grew from 27.7 percent to 34.8 percent.

- Sociodemographic characteristics vary considerably across wards. Residents of Ward 3 are the best off economically, with the highest median family income of all the wards, while median family incomes in Wards 7 and 8 are the lowest in the District. Wards 7 and 8 are predominantly black, and Ward 8 is the youngest ward, with the highest proportion of children (17 and younger) and the lowest proportion of seniors among its residents (31.9 percent and 6.7 percent, respectively).

[8] Ambulatory care sensitive conditions, such as asthma or heart failure, can usually be treated by timely access to high quality outpatient care, thereby preventing the need for hospitalization.

Migration Flows

- On average, between 2005 and 2009, approximately 12,200 residents of Maryland and 6,200 residents of Virginia moved into the District each year. During the same time period, approximately 22,800 District residents moved to Maryland and 9,500 District residents moved to Virginia each year.

- In addition to the significant level of cross-District border migration, a substantial number of Marylanders and Virginians commute to and from the District for work. As of 2010, about 3 in 5 (62 percent) of those who worked in the District lived outside the District.

General Access to Care

- In 2010, 6.5 percent of adult District residents reported that they lacked health insurance coverage, compared with 15.1 percent of adults across the United States.

- Although District adults reported significantly fewer barriers to health care access than adults nationwide, access to health care providers or services remains a challenge for many District residents.

    - 13.6 percent of District adults reported not having a personal health care provider in 2010, 19.9 percent reported not having a routine checkup in the past year, and 8.9 percent reported missing care in the last 12 months because of cost.

- Black and Hispanic adults in the District were more likely to report being uninsured compared with white District residents in 2010, and both groups were more likely to report missing care because of cost. Blacks were more likely to have had a routine checkup in the last year compared with whites, however.

3. Primary and Secondary Cancer Prevention

This chapter synthesizes and analyzes information about primary and secondary cancer prevention behaviors among District residents. Primary prevention refers to avoidance of cancer risk factors, such as smoking, and participation in cancer protective factors, such as regular physical activity; secondary prevention refers to routine screening to detect cancer before signs or symptoms appear.

We use available data from the BRFSS and the National Immunization Survey (NIS) to provide information about current rates of primary and secondary prevention behaviors among District residents and compare those to U.S. rates. For measures derived from BRFSS, we depict rates of these behaviors among District residents over time between 2000 and 2010. We also conducted analyses of BRFSS data to explore both variations across sociodemographic subgroups in preventive behaviors and changes in primary/secondary prevention behaviors over the last decade.[9] We describe our findings in Section 3.1 (primary prevention behaviors) and Section 3.2 (secondary prevention of breast, cervical, colorectal, and prostate cancers).

3.1. Primary Prevention of Cancer in the District: Behavioral Risk and Protective Factors

We selected a set of primary prevention behaviors among District residents that (a) have a substantial impact on cancer incidence, (b) are amenable to intervention, and (c) are measurable with available data. Behavioral risk factors include tobacco and alcohol use. Protective factors include exercise and receipt of the HPV vaccine.

Across the United States, tobacco use, primarily cigarette smoking, is responsible for approximately 30 percent of all cancer-related deaths (McGinnis and Foege, 1993). Smoking is known to cause at least 11 cancers, including lung, oral, esophageal, bladder, kidney, pancreatic, cervical, colon, stomach, and leukemia (Colditz, Samplin-Salgado, et al., 2002). Alcohol is an independent risk factor for a number of cancers (World Cancer Research Fund/American Institute for Cancer Research, 2007). Low to moderate intake of alcohol increases risk of breast and colorectal cancers slightly, while heavy and persistent intake (i.e., binge drinking and/or alcoholism) is associated with increased risk of liver cancer (Colditz, Samplin-Salgado, et al., 2002).

Overweight or obesity, physical inactivity, and poor nutrition account for approximately a third of all cancer deaths (World Cancer Research Fund/American Institute for Cancer Research, 2007). Physical activity helps to reduce excess weight, which is associated with increased risk for, and mortality from, several cancers (Calle, Rodriguez, et al., 2003; World Cancer Research Fund/American Institute for Cancer Research, 2007).

Finally, HPV vaccines protect against two carcinogenic strains of HPV responsible for approximately 70 percent of cervical cancers (Medeiros, Rosa, et al., 2009; Romanowski, de Borba, et al., 2009; Munoz, Kjaer, et al., 2010). The Centers for Disease Control and Prevention Advisory Committee on Immunization Practices recommends routine three-dose vaccination of girls ages 11 and 12 (Centers for Disease Control and Prevention, 2010). The vaccination series can be initiated in girls beginning at age 9. Catch-up vaccination is recommended for girls and young women ages 13 through 26 who have not been previously vaccinated or who have not completed the full series.

[9] See Appendix A for full results.

3.1.1. Behavioral Risk and Protective Factors in the District and the United States, 2000–2010

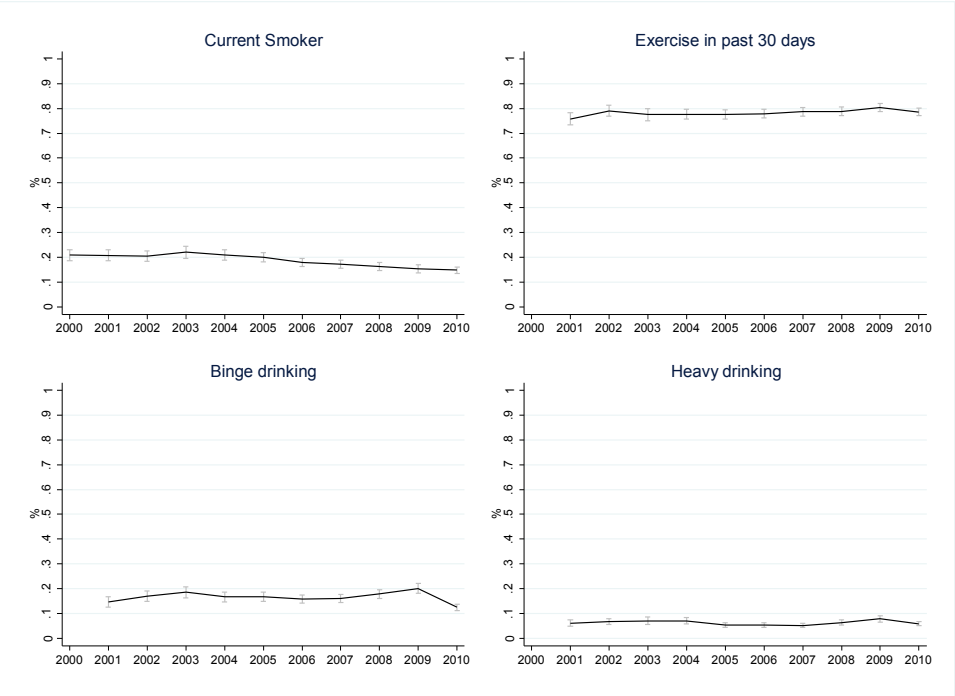
Table 3.1 profiles rates of primary prevention behaviors among District residents and among individuals across the United States in 2010. Figure 3.1 depicts trends over time among District residents.

Table 3.1. Primary Prevention Activities Among District Residents, 2010

Behavior	District	Std Err	United States	Std Err
Current smoker (%)[1]	14.8	(0.01)	17.1*	(0.001)
Binge drinking (%)[2]	12.5	(0.01)	14.7*	(0.001)
Heavy drinking (%)[3]	5.8	(0.00)	4.9*	(0.001)
Exercise in past 30 days (%)[4]	78.6	(0.01)	75.6*	(0.001)
One dose of HPV vaccine, girls ages 13–17 (%)	57.5	(0.09)	48.7	(0.02)

NOTES: Based on analysis of 2010 BRFSS (smoking, drinking and exercise) and 2010 National Immunization Survey data (HPV vaccination).
Smoking, drinking and exercise behaviors are self-reported by adults ages 18 and older. HPV vaccination is reported by adults regarding adolescent daughters.
[1] Includes those who smoked more than 100 cigarettes in the last year and currently smoke on some or all days.
[2] Five or more drinks on the same occasion for males and four or more drinks on the same occasion for females.
[3] More than two drinks per day for males and more than one drink per day for females.
[4] Exercising for leisure at least once in the past 30 days.
* Statistically significant difference between U.S. and D.C. mean, $p < 0.05$.

Figure 3.1. Percentage of Adults Ages 18 and Older in the District Who Report Currently Smoking, Binge Drinking, Drinking Heavily, and Exercising, 2000–2010



NOTE: Based on analysis of 2010 BRFSS.

In the District, approximately 15 percent of adults report being current smokers (defined as smoking more than 100 cigarettes in the last year and currently smoking some or all days). Approximately one in eight (12.5 percent) of adults reported binge drinking, defined as drinking five or more drinks on the same occasion, and 5.8 percent reported heavy drinking over the last year, defined as adult men having more than two drinks per day and adult women having more than one drink per day. Roughly 79 percent of District adults reported exercising at least once in the last 30 days. District adults were less likely to report smoking, binge drinking, or heavy drinking compared with individuals nationally and were slightly more likely to report exercising.

While the comparison to all individuals in the United States is favorable, we nonetheless found no evidence that rates of tobacco or alcohol use have been decreasing over time or that rates of exercise have been increasing over time. There were no statistically significant changes over time in the percentage of adults who reported currently smoking, binge drinking, or drinking heavily, and residents were equally likely to report exercising at the beginning as at the end of the decade (see Figure 3.1 and Table A.3 in Appendix A).

With regard to HPV vaccination, the District mandates that girls must be vaccinated by age 13 in order to attend school, unless their parents elect to opt out (National Council of State Legislatures, 2012). In 2010, more than half (57.5 percent) of adolescent girls ages 13 to 17 in the District had received at least 1 dose of the vaccine (Table 3.1). Among those with at least one dose, 63 percent had completed the three-dose series. By comparison, 48.7 percent of adolescent girls nationwide had received one dose, and of those

who had received one dose, 69.6 percent had received all three (Centers for Disease Control and Prevention, 2011).[10]

3.1.2. Behavioral Risk and Protective Factors in the District, by Race

Previous analyses of 2003–2008 BRFSS data for District residents highlight variation in primary prevention behaviors across individuals grouped by age, race, gender, income, education, and ward (see, for example, Garner and Byrd, September 2010). In Table 3.2, we provide descriptive comparisons of primary prevention behaviors in the District by race, noting statistically significant differences between black and white residents. In 2010, black District residents were significantly more likely than white residents to report smoking and significantly less likely than white residents to report exercising, binge drinking, or drinking heavily.

Table 3.2. Primary Prevention Activities Among District Residents by Race, 2010

Behavior	White	Std Err	Black	Std Err
Current smoker (%)	8.3	(0.01)	20.3*	(0.01)
Binge drinking (%)	17.9	(0.01)	8.7*	(0.01)
Heavy drinking (%)	10.1	(0.01)	3.3*	(0.01)
Exercise in past 30 days (%)	89.8	(0.01)	70.5*	(0.01)

NOTE: Based on analysis of 2010 BRFSS.
* Statistically significant difference between white and black mean, $p < 0.05$.

As described in Appendix A, we used a regression framework to examine the importance of various sociodemographic factors (age, race, ethnicity, income, education, marital status, gender, and insurance status) in explaining variation in preventive behaviors in the District from 2003 to 2010. Our analyses show statistically significant variation in smoking among District residents by age, race, and income (holding all else constant); in drinking by age and race; and in exercise by age, race, and income most notably (Table A.3 in Appendix A). We highlight key findings in what follows.

Current smoking. We find higher rates of smoking among those 35–54 (compared with those 18–25) and lower rates of smoking among District residents aged 65 and over, holding all else constant. We find lower rates of smoking among Hispanics compared with whites, but no statistically significant difference in smoking among blacks and whites, holding all else constant. We find lower rates of smoking among individuals with incomes between $25,000 and $50,000 per year, compared with those with incomes less than $25,000 per year.

Drinking. We find lower rates of binge drinking and heavy drinking among blacks, Hispanics, and other minorities compared with whites and lower rates among older (55 and over) compared with younger individuals.

Exercise in the past 30 days. We find the highest rates of exercise among those ages 25–34; lower rates of exercise among blacks, Hispanics, and other minorities compared with whites; and higher rates of exercise among individuals in families with incomes $35,000–$75,000, compared with those in families with lower incomes.

[10] Data on HPV vaccination in the District and United States are from the National Immunization Survey. Individual-level data were not available to allow for analyses of time trends and/or adjustments for demographics.

While data were not available by ward for these analyses, DC DOH's BRFSS 2008 Annual Report noted qualitatively higher rates of current smoking among residents of Wards 5, 7, and 8 and heavy drinking among residents of Wards 2, 3, and 6 and qualitatively lower rates of exercise among residents of Wards 7 and 8, as compared with all other wards (Garner and Byrd, September 2010).

3.2. Secondary Prevention of Cancer in the District

In this section, we use BRFSS data to describe screening rates for cervical, colorectal, breast, and prostate cancers.[1] BRFSS data are used widely to describe variation in screening rates over time and by geographic and sociodemographic subgroups. Because survey respondents often overreport screening behaviors, estimates of screening rates from the BRFSS may be higher than actual screening rates, especially for black and Hispanic individuals (Rauscher, Johnson, et al., 2008).

Cancer screening guidelines define the age at which to start and stop screening, the optimal length of time between screening tests, and the relative benefits and harms of different tests or combinations of tests for screening. Guidelines are released by the United States Preventive Services Task Force (USPSTF), the American Cancer Society, and relevant specialty societies, among other groups. In keeping with advances in technology and evidence, guidelines evolve over time and have often been subject to debate. In recent years, for example, the USPSTF has generated controversy by proposing more limited use of screening tests for breast and prostate cancers. In 2009, USPSTF released guidelines indicating that women at average risk should begin routine mammography screening for breast cancer at age 50, rather than at age 40, as previously recommended (USPSTF, 2009). These guidelines were at odds with those released by the American Cancer Society (Saslow, Boetes, et al., 2007) and were met with substantial backlash from medical specialty and advocacy groups. Consequently, the Affordable Care Act requires that new insurance plans and policies cover routine mammography screening every one to two years beginning at age 40 with no copayment or coinsurance.[11] In May 2012, the USPSTF released final recommendations against the use of prostate-specific antigen (PSA) testing for prostate cancer screening among men without symptoms, regardless of their age, race, or family history (Moyer, 2012). The task force's synthesis of the evidence found that for men of average risk, the harms of PSA testing, including overdiagnosis and overtreatment of tumors that will not progress to illness or mortality, outweigh the test's benefits for routine screening (Chou, Croswell, et al., 2011). Like the mammography guidelines, these recommendations were met with considerable opposition from specialty and advocacy groups, particularly those that represent black men, who experience a disproportionate burden of prostate cancer.

USPSTF guidelines for cervical and colorectal cancer screening are less controversial and are more closely aligned with guidelines from the American Cancer Society and other clinical specialty groups. For cervical cancer screening, USPSTF and American Cancer Society guidelines agree that women should begin screening at age 21, receive a Pap test every three years between ages 21 and 29, receive a Pap test every three years or a Pap test plus HPV test every five years between ages 30 and 65, and stop screening after age 65 (Moyer, 2012; Saslow, Solomon, et al., 2012).[12] For colorectal cancer screening, USPSTF and American Cancer Society guidelines recommend one of the following options for patients at average risk, beginning at age 50: annual fecal occult blood tests (FOBT), colonoscopy every ten years, or sigmoidoscopy every five years (Calonge, Petitti, et al., 2008; Levin, Lieberman, et al., 2008).

[11] The extension of mammography benefits to women ages 40 to 49 reflects a departure from the Affordable Care Act's other provisions regarding preventive care, which are in keeping with USPSTF guidelines.

[12] Guidelines are for routine screening of those who are asymptomatic and do not have a known elevated risk of cervical cancer. Women whose uterus and cervix were removed in a hysterectomy and who have no history of cervical cancer or precancer should not be screened.

In what follows, we provide findings for screenings recommended by USPSTF, as well as two screenings—annual mammography among women ages 40 and older and PSA testing among men ages 50–74—that are not recommended by USPSTF recommendation but are widely debated in clinical and popular circles. We present additional measures of screening in Table A.2 in Appendix A.

3.2.1. Cancer Screening in the District and the United States, 2000–2010

Table 3.3 shows that self-reported rates of screening among District residents are higher than those among adults nationwide. For example, 90 percent of women ages 21–64 report receiving a Pap test within the last three years, compared with 84 percent of women nationwide, and 86.5 percent of District women ages 50–74 report having had a mammogram within the last two years, compared with 79.8 percent nationally. While rates of screening among District residents are higher than they are nationally, we find no evidence that screening rates among District residents have been increasing over time; indeed, rates appear to be remarkably stable. One exception is that the percentage of women reporting having had a Pap test within the last two years was higher in 2002 compared with other years (holding insurance status and other sociodemographic characteristics constant). However, Pap test rates were constant between 2006 and 2010.

Table 3.3. Cancer Screening Among District Residents

Screening Type	District	Std error	United States	Std error
Cervical				
Pap test within 3 years among women 21–64 with no hysterectomy (%)	90.4	(0.01)	84.1*	(0.002)
Colorectal				
FOBT in last 2 years among adults 50–75	24.7	(0.01)	17.6*	(0.001)
Colonoscopy or flexible sigmoidoscopy ever among adults 50–75 (%)	70.1	(0.01)	64.3*	(0.002)
FOBT in last 2 years or colonoscopy or flexible sigmoidoscopy ever among adults 50–75 (%)	75.2	(0.01)	68.9*	(0.002)
Breast				
Mammogram within 2 years among women 50–74 (%)	86.5	(0.01)	79.8*	(0.00)
Mammogram within 2 years among women 40+ † (%)	81.8	(0.01)	75.4*	(0.00)
Prostate				
PSA test in last 2 years among men 50–74 † (%)	73.2	(0.02)	65.7*	(0.003)

SOURCE: Authors' analyses of 2010 BRFSS data.
* Statistically significant difference between U.S. and D.C. mean, $p < 0.05$.
† Not a USPSTF screening recommendation.

3.2.2. Cancer Screening in the District, by Race

In Table 3.4, we provide descriptive comparisons of cancer screening in the District by race, noting statistically significant differences between black and white residents. In 2010, black District residents ages 50 to 75 were significantly less likely than white residents in that age range to report having an FOBT in the last two years or ever having a colonoscopy or sigmoidoscopy. Black men ages 50 to 74 were significantly less likely than white men of the same age to report a PSA test in the last two years. Rates of cervical and breast cancer screening among black and white residents were similar.

Table 3.4. Cancer Screening Among District Residents by Race, 2010

Screening Type	White	Std error	Black	Std error
Cervical				
Pap test within 3 years among women 21–64 with no hysterectomy (%)	93.6	(0.01)	90.6	(0.016)
Colorectal				
FOBT in last 2 years among adults 50–75	26.9	(0.016)	22.6*	(0.017)
Colonoscopy or flexible sigmoidoscopy ever among adults 50–75 (%)	82.8	(0.014)	62.3*	(0.020)
FOBT in last 2 years or colonoscopy or flexible sigmoidoscopy ever among adults 50–75 (%)	85.1	(0.013)	68.5*	(0.019)
Breast				
Mammogram within 2 years among women 50–74 (%)	88.0	(0.015)	85.6	(0.018)
Mammogram within 2 years among women 40+ † (%)	83.6	(0.014)	81.7	(0.016)
Prostate				
PSA test in last 2 years among men 50–74 † (%)	77.7	(0.023)	70.5*	(0.031)

SOURCE: Based on analysis of 2010 BRFSS.
* Statistically significant difference between white and black mean, $p < 0.05$.
† Not a USPSTF screening recommendation.

In our multivariate regression analyses, we find few differences by race in screening (holding all else constant), with the important exception that black residents were less likely to have received an FOBT in the last two years or to have ever received a colonoscopy or sigmoidoscopy (Table A.4 in Appendix A). Screening rates did vary to some extent by age, gender, and insurance. Women, for example, were less likely to report screening for colorectal cancer, and younger men in the recommended age range were less likely to report prostate and colorectal screening, compared with older men. Importantly, and not unexpectedly, cervical, colorectal, and prostate screening rates were significantly lower among uninsured compared with insured residents. We were not able to test for differences across privately and publicly insured individuals in screening rates because of the limitations of the data. Ward-level data were not available for these analyses.

3.3. Key Findings

3.3.1. Primary Prevention

- Overall, compared to adults nationally, District adults are less likely to report smoking, binge drinking, or heavy drinking and slightly more likely to report exercising.
- The rate of smoking is significantly higher, and the rate of exercise is significantly lower, among black District residents than among white residents.
- Self-reported smoking, alcohol use, and exercise rates among District residents appear stable from 2003 through 2010.

3.3.2. Secondary Prevention

- Overall, self-reported rates of cancer screening among District residents are higher than those among adults nationwide. For example, 90 percent of women ages 21 to 64 report receiving a Pap test within the last three years, compared with 84 percent of women nationwide, and 86.5 percent of District women ages 50–74 report having had a mammogram within the last two years, compared with 80 percent nationally.

- Although rates of breast and cervical cancer screening are similar across racial and ethnic groups in the District, black residents are less likely to report being screened for colorectal cancer than white residents.

- Women are less likely to report screening for colorectal cancer, and younger men in the recommended age range are less likely to report prostate and colorectal screening, compared with older men.

- Cervical, colorectal, and prostate screening rates are significantly lower among uninsured compared with insured residents.

- Self-reported cancer screening rates among District residents appear stable from 2003 through 2010.

- Additional data, not based on individual self-report, would provide a useful counterpoint to available BRFSS estimates.

4. Cancer Incidence and Mortality

4.1. Overview

In this chapter, we describe cancer incidence and mortality in the District (United States Department of Health and Human Services, 2012). We use age-adjusted data from the Centers for Disease Control and Prevention (CDC) WONDER database, which uses the United States Cancer Statistics (USCS) database, the source for official federal statistics on cancer incidence and mortality. The USCS's cancer incidence data are derived from cancer registries, including the DC Cancer Registry, that gather high-quality data. The USCS's cancer mortality statistics are derived from the CDC's National Vital Statistics System (NVSS).[13]

We also present data obtained from the CDC and National Cancer Institute (NCI) State Cancer Profiles website, which allows for description and comparison of trends in cancer incidence and mortality in the District and the United States over time (National Cancer Institute and Centers for Disease Control and Prevention, 2012). We highlight five adult cancers. Four of these—female breast, colorectal, lung and bronchus, and prostate—are the most common cancers. The fifth—cervical cancer—is less common, but is in need of continued attention to maintain and extend high rates of routine screening.

Historically, in both the District and across the country, assessment and reporting of the burden of cancer among Hispanics has been hindered by incomplete and inaccurate cancer registry data regarding the ethnicity of cancer patients. Cancer registry data on ethnicity is derived from existing medical records, such as admissions forms, doctor's notes, and laboratory records. Not all medical facilities collect ethnicity information, and those that do collect the information may do so sporadically and use physical appearance or last name, rather than patient reports, to determine ethnicity (Gomez, Le, et al., 2003; Moscou, Anderson, et al., 2003). Although the availability and accuracy of data on Hispanic ethnicity has improved over time, cancer registry data continue to underreport the number of Hispanics (Clegg, Reichman, et al., 2007). Because of the small number of cancer cases attributed to Hispanics in the District annually, registry-reported rates of incidence and mortality rates fluctuate substantially from year to year and therefore may not provide an accurate reflection of cancer burden among Hispanics. As a result, we do not present separate incidence and mortality rates for this growing subgroup of District residents.

Section 4.2 describes cancer incidence among District residents for all cancers and the most common cancers, by year and race, and Section 4.3 describes the same for cancer mortality.

4.2. Cancer Incidence in the District

4.2.1. Incidence of Most Common Cancers in the District, 2009

The American Cancer Society estimates that approximately 2,980 new cases of cancer will be diagnosed in the District of Columbia in 2012 (American Cancer Society, 2012). In 2009, the most recent year for which cancer incidence data are available, the age-adjusted incidence rate per 100,000 for all adult cancers was 442.4 in the District, similar to the rate for the United States as a whole (Table 4.1).[14]

[13] Cancer registries collect population-based data about cancer incidence from a variety of medical facilities, including hospitals, physicians' offices, radiation facilities, freestanding surgical centers, and pathology laboratories. Vital statistics offices collect data from death certificates on cancer as a cause of death, including cancer type and primary site.

[14] Age adjustment is the process of weighting rates according to the age structure of a standard population. This allows for comparison across populations with different age profiles. In accordance with a 1998 recommendation of

In keeping with the rest of the nation, the most commonly diagnosed cancers among adult men in the District (in decreasing order of incidence) are prostate, lung and bronchus, and colorectal; among adult women, the most commonly diagnosed cancers (in decreasing order of incidence) are breast, lung and bronchus, and colorectal (Eheman, Henley, et al., 2012). The age-adjusted incidence of prostate cancer was higher in the District than in the United States in 2009, while the incidence of lung cancer was lower.[15]

In 2009, there were 23 newly diagnosed cases of cancer among children age 0 to 19 in the District, corresponding to an age-adjusted incidence rate of 163.4 per 1,000,000, comparable to the national incidence rate of 169.0 per 1,000,000 children in the same year.

Table 4.1. Age-Adjusted Incidence Rates per 100,000 Adults for the Most Common Cancers in the District and the United States, 2009[16]

Cancer Site	District	United States
All cancer sites combined†	442.4	457.6
Breast (female)†	130.9	122.8
Cervical[17]	5.4	7.9
Colorectal	43.8	42.3
Lung and bronchus	56.1*	64.4
Prostate	166.9*	137.1

SOURCE: CDC WONDER, 2009.
* Statistically significant difference between the District and the United States, with 95 percent confidence.
† In situ breast cancers are not included in the breast or all sites categories.

While data were not available by ward for these analyses, as of 2004, age-adjusted cancer incidence among adults was highest for breast and prostate cancers in Wards 4 and 8, for cervical cancer in Ward 7, and for colon cancer in Ward 6 (Lurie, Gresenz, et al., 2008).

From 2005 to 2009, rates of age-adjusted cancer incidence in the District, and in the United States overall, remained stable. In both the District and across the country, the rate of lung cancer incidence decreased slightly (estimated annual change [EAC]: –1.9 percent for the District, –2.0 percent for the United States)

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the U.S. Department of Health and Human Services, CDC Wonder uses the 2000 U.S. standard population to age-adjust cancer incidence and mortality rates. The 2000 U.S. standard population is based on the proportion of the 2000 population in specific age groups (younger than 1 year, 1–4 years, 5–9 years, 10–14 years, 15–19 years, and continuing through 85 years or older); the proportions of the 2000 population in these age groups serve as weights for calculating age-adjusted incidence and death rates.

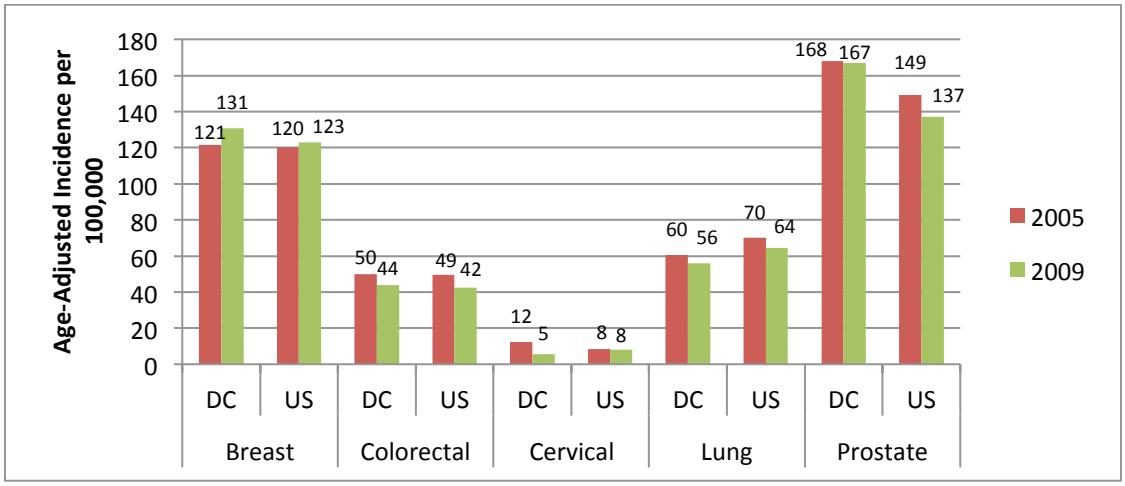
[15] Throughout the chapter, we use the terms "higher" and "lower" to refer to differences in cancer incidence and mortality for which 95-percent confidence intervals do not overlap, and the terms "increasing" and "decreasing" to refer to estimated changes in incidence and mortality for which 95-percent confidence intervals do not span zero. The terms "similar," "stable," or "nonsignificant" are used to note changes that do not reach the threshold of statistical significance.

[16] Tables A.5 and A.6 in Appendix A present cancer incidence in the District by age and sex.

[17] Due to the success of widespread routine screening programs, cervical cancer is no longer among the most common cancers in the United States. It is described here because of the importance of continued prevention efforts, especially among underserved groups that experience a disproportionate burden from cervical cancer.

(National Cancer Institute and Centers for Disease Control and Prevention, 2012). Incidence of breast, colorectal, cervical, and prostate cancers remained stable in the District from 2005 to 2009 (Figure 4.1). During the same time period, national incidence increased for breast cancer, decreased for colorectal and cervical cancers, and remained stable for prostate cancer.

Figure 4.1. Age-Adjusted Incidence Rates per 100,000 for Priority Cancers in the District, 2005 and 2009



SOURCE: CDC WONDER, 2005–2009.

4.2.2. Cancer Incidence by Race, 2009

In 2009, across the United States, overall cancer incidence was 4 percent higher among blacks than among whites. The disparity was more striking in the District, where overall cancer incidence among black District residents was 54 percent higher than the incidence among white District residents (Table 4.2). Nationally, cancer incidence among blacks was similar to that of black District residents. In contrast, nationally, whites experienced substantially higher cancer incidence than white District residents.

Table 4.2. Age-Adjusted Overall Cancer Incidence per 100,000 in the District and the United States by Race, 2009

Race	District	United States
White	313.6 [a b]	454.5
Black	481.8 [b]	473.1

SOURCE: CDC WONDER, 2009.

[a] Statistically significant difference between the District and the United States, with 95 percent confidence.

[b] Statistically significant difference between whites and blacks, with 95 percent confidence.

Higher overall cancer incidence among black District residents is attributable to higher incidence of colorectal, lung and bronchus, and prostate cancers among black than white residents (Table 4.3).

Table 4.3. Age-Adjusted Incidence Rates per 100,000 Adults for the Most Common Cancers in the District, 2009

Cancer Site	White	Black
Breast (female)†	136.0	123.2
Colorectal	24.3*	53.9
Lung and bronchus	31.6*	72.0
Prostate	81.9*	198.2

SOURCE: CDC WONDER, 2009.
NOTE: Incidence of cervical cancer suppressed because of small numbers.
* Statistically significant difference between whites and blacks, with 95 percent confidence.
† In situ breast cancers not included in the breast or all sites categories.

Age-adjusted cancer incidence among both white and black District residents remained stable from 2005 to 2009. During that time, white residents experienced an estimated annual decrease in incidence of 4.8 percent, while black residents experienced an estimated annual increase in incidence of 0.2 percent. While these trends were not statistically different from one another, they suggest that cancer incidence may be improving more among white residents than among black residents of the District. Age-adjusted incidence of colorectal cancer decreased from 37 to 24 per 100,000 among white District residents from 2005 to 2009 but remained stable among black residents during that time (see Table A.9 in Appendix A). Incidence of breast, lung and bronchus, and prostate cancers remained stable among both white and black residents between 2005 and 2009.

On average, nationwide, blacks are diagnosed with cancer at later stages than whites, resulting in poorer survival rates (Ghafoor, Jemal. et al., 2002). DC Cancer Registry data on stage of presentation at cancer diagnosis were not available for this report. Prior analyses of DC Cancer Registry data have noted substantial variation in stage of presentation by ward and race, with black District residents, and those living in predominantly black wards, more likely to present with distant (i.e., stages III or IV) cancers than those living in other wards (DC Cancer Consortium, 2005; Lurie, Gresenz, et al., 2008).

4.3. Cancer Mortality in the District

4.3.1. Cancers with Highest Mortality in the District, 2008

The American Cancer Society estimates that there will be approximately 1,010 deaths from cancer in the District in 2012 (American Cancer Society, 2012). One-quarter (25 percent) of these deaths will be from lung and bronchus cancer, one in ten (10 percent) from colorectal cancer, and approximately 1 in 12 (8 percent) from breast cancer. In 2008, the most recent year for which cancer mortality data are available from CDC WONDER, the age-adjusted mortality rate per 100,000 for all adult cancers was 193.0 in the District, higher than the rate for the United States as a whole (Table 4.4).[18]

[18] Tables A.7 and A.8 in Appendix A present cancer mortality in the District by age and sex.

In keeping with the rest of the nation, cancer sites with the highest mortality among adult men in the District are lung and bronchus, prostate, and colorectal; among adult women, cancer sites with the highest mortality are breast, lung and bronchus, and colorectal. In 2008, age-adjusted mortality rates in the District from each of these most common cancers were similar to national rates.

Table 4.4. Age-Adjusted Mortality Rates per 100,000 Adults for the Cancers with the Highest Rates of Mortality in the District and the United States, 2008

Cancer Site	District	United States
All cancer sites combined†	193.0	175.8
Breast (female)†	26.5	22.5
Colorectal	17.5	16.4
Lung and bronchus	50.1	49.6
Prostate	28.9	22.8

SOURCE: CDC WONDER, 2008.
NOTE: Mortality from cervical cancer suppressed because of small numbers.
† In situ breast cancers not included in the breast or all sites categories.

While data were not available by ward for these analyses, as of 2004–2006, age-adjusted death from cancer was highest in Ward 7 and lowest in Ward 3 (Lurie, Gresenz, et al., 2008).

From 2005 to 2009, rates of age-adjusted cancer mortality in the United States declined by an estimated 1.6 percent per year (Table 4.5) (National Cancer Institute and Centers for Disease Control and Prevention, 2012). In the District, the decline was approximately 2.2 percent per year. Mortality from breast cancer declined by approximately 3.4 percent per year, steeper than the national decline of approximately 1.9 percent per year. Decreases in mortality for colorectal, lung and bronchus, and prostate cancers were similar for the District and the nation during that time period.

Table 4.5. Estimated Annual Percentage Change in Age-Adjusted Mortality Rates per 100,000 for Priority Cancers in the District, 2005–2009

Cancer Site	District	United States
All cancer sites combined	–2.2*	–1.6
Breast	–3.4*	–1.9
Colorectal	–2.6	–2.4
Lung and bronchus	–2.7	–2.2
Prostate	–3.9	–3.2

SOURCE: NCI/CDC State Cancer Profiles for the District of Columbia, 2005–2009.
NOTE: Mortality from cervical cancer suppressed because of small numbers.
* Statistically significant difference between the District and the United States, with 95 percent confidence.

4.3.2. Cancer Mortality by Race, 2008

In 2008, across the United States, overall cancer mortality was 21 percent higher among blacks than among whites. The disparity was much greater in the District, where overall cancer mortality among black District residents was 90 percent higher than mortality among white District residents (Table 4.6). Black residents of the District experienced an overall cancer mortality rate that was 12 percent higher than the rate for blacks nationwide. In contrast, white District residents experienced substantially lower cancer mortality than whites across the United States.

Table 4.6. Age-Adjusted Overall Cancer Mortality per 100,000 in the District and the United States by Race, 2008

Race	District	United States
White	125.1[a, b]	174.9
Black	237.4[a, b]	211.3

SOURCE: CDC WONDER, 2009.
[a] Statistically significant difference between the District and the United States, with 95 percent confidence.
[b] Statistically significant difference between whites and blacks, with 95 percent confidence.

Higher overall cancer mortality among black District residents is attributable to higher mortality from breast, colorectal, and lung and bronchus cancers among black than white residents (Table 4.7). Prostate cancer mortality data for whites in 2008 are suppressed because of small numbers, as whites experience many fewer prostate cancer deaths than blacks. Age-adjusted cancer mortality among both white and black District residents declined from 2005 to 2009 for cancer overall, and for each of the most common cancers.

Table 4.7. Age-Adjusted Cancer Mortality per 100,000 in the District by Race, 2008

Cancer Site	White	Black
Breast (female)	15.8*	33.3
Colorectal	9.7*	22.2
Lung and bronchus	32.8*	60.7
Prostate	--	41.1

SOURCE: CDC WONDER, 2008.
NOTE: Mortality from cervical cancer for both races, and from prostate cancer for whites, is suppressed due to small numbers.
* Statistically significant difference between blacks and whites, with 95 percent confidence.

4.4. Key Findings

- Overall, age-adjusted cancer incidence in the District is similar to that for the United States as a whole, while mortality is higher. In keeping with the rest of the nation, cancers with highest incidence and mortality in the District are colorectal, lung and bronchus, prostate, and breast.

- Cancer incidence and mortality among black residents of the District are dramatically higher than for white residents of the District. Higher overall cancer incidence and mortality among black District residents is attributable to a higher incidence of colorectal, lung and bronchus, and prostate cancers, and higher rates of mortality for all common cancers, than among white residents.

- Cancer incidence and mortality among white District residents are lower than they are among whites nationally. In contrast, cancer incidence among black District residents is comparable to that for blacks nationally, while cancer mortality among black District residents is higher than it is for blacks nationally.

- Overall cancer incidence rates remained stable in the District from 2005 to 2009, as they did nationally.

- Although cancer mortality appears to have declined slightly faster in the District than it did nationally between 2005 and 2009, mortality rates in 2008 among District residents still exceeded those in the United States.

5. Use of Cancer Treatment Services in the District

5.1. Overview

In this chapter, we describe use of cancer treatment services in the District. Our primary data source is the National Cancer Data Base (NCDB), a national, hospital-based cancer registry jointly sponsored by the American College of Surgeons' Commission on Cancer (CoC) and the American Cancer Society. The database includes approximately 70 percent of all newly diagnosed cases of cancer in the United States from more than 1,500 facilities accredited by the CoC. Registrars record all available diagnostic and treatment information from patients' inpatient and outpatient medical records at the CoC-accredited facility.[19] The NCDB contains standardized data on patient demographics, including sex, age, and race/ethnicity; insurance status; tumor characteristics; first course of treatment; and facility-level characteristics, such as hospital type.[20]

The NCDB includes cancer cases treated at eight District hospitals: George Washington University Hospital; Georgetown University Medical Center; Howard University Hospital; Providence Hospital; Sibley Memorial Hospital; Walter Reed National Military Medical Center; Washington, D.C., VA Medical Center; and Washington Hospital Center. Notably, the data include both District residents and others (largely residents of Maryland and Virginia) who receive care for cancer at these hospitals. Comparing the number of new cancer cases in the NCDB (4,294) at these hospitals in 2009 to the number of new cases of cancer in the District in the DC Cancer Registry (2,662) suggests that at least 40 percent of the newly diagnosed cancers treated in the District may be among non-District residents.[21]

Section 5.2 describes the demographic characteristics and stage presentation of patients receiving cancer treatment in the District, highlighting trends from 2006 to 2009. In Section 5.3, we present the most common first courses of treatment received for each of the most common cancers and compare estimates for the District to national estimates. Section 5.4 illustrates the distribution of cancer cases treated across accredited cancer hospitals in the District in 2009.

5.2. Description of Cancer Patients Receiving Their First Course of Treatment in the District

Table 5.1 describes the demographics of newly diagnosed cancer patients receiving their first course of treatment in the District at CoC-accredited hospitals. In 2009, 30 percent of new cancer patients receiving their first course of treatment at accredited cancer centers in the District were treated for breast cancer, 26 percent were treated for prostate cancer, 16 percent were treated for lung and bronchus cancers, and 12 percent were treated for colorectal cancers.

[19] Thus, the NCDB includes data, for example, on chemotherapy treatments delivered at outpatient facilities affiliated with accredited facilities but does not include data on treatments, such as those for skin cancers, that may be delivered at unaffiliated outpatient sites.

[20] The NCDB records first course of treatment, which refers to all treatment recorded in the treatment plan and administered to newly diagnosed cancer patients before disease progression or recurrence. NCDB does not contain data on treatment of recurrence or progression, also called "subsequent treatment," which includes all cancer-directed treatments administered after the first course of treatment is completed, stopped, or changed.

[21] We are unable to estimate the number of District residents with cancer who seek treatment outside the District. Thus, our calculation likely overestimates the proportion of newly diagnosed cancers treated in the District that are among non-District residents.

Nearly half (46.3 percent) of these patients were privately insured, and more than one-third were covered by Medicare (37.2 percent). One in 20 patients (5.0 percent) was covered by Medicaid, and 1.3 percent were uninsured.

Approximately equal proportions of patients were white and black (44.7 percent and 45.8 percent, respectively), while 3 percent percent were Asian and 2 percent were Hispanic. In contrast, 26 percent of new cancer cases reported in the DC Cancer Registry for 2009 were among white residents, while 66 percent were among black residents.

Table 5.1. Demographic Characteristics of Patients Receiving Cancer Treatment in the District, 2009

	All Cancers	**Breast**	**Colorectal**	**Lung/Bronchus***	**Prostate**
	N=4,294	*N=1,297*	*N=523*	*N=688*	*N=1,102*
Sex					
Female (%)	50.8	100.0	47.9	47.2	0.0
Age					
<20 (%)	0.2	0.0	0.0	0.15	0.0
20–39 (%)	4.1	6.9	3.7	0.44	0.0
40–59 (%)	37.5	48.1	29.2	24.42	35.8
60–69 (%)	30.2	25.0	29.4	32.56	38.9
70+ (%)	28.0	20.1	37.8	42.44	25.2
Race/ethnicity					
White (%)	44.7	45.5	32.8	39.4	42.8
Black (%)	45.8	42.9	57.3	54.2	48.2
Hispanic (%)	2.0	2.1	2.1	1.2	1.9
Asian (%)	3.1	4.3	4.4	1.5	2.5
Other (%)	4.5	5.3	3.4	3.8	4.6
Insurance status					
Private insurance (%)†	46.3	58.4	40.4	29.1	44.3
Medicare (%)	37.2	28.8	44.8	51.6	36.1
VA, TRICARE/Military (%)	7.9	4.9	5.7	9.3	11.4
Medicaid (%)	5.0	4.7	5.5	6.5	4.3
Uninsured (%)	1.3	1.4	1.0	0.9	1.1
Other/unknown (%)	2.5	1.9	2.6	2.6	2.8

SOURCE: NCDB, 2006–2009.
* Includes small cell and non–small cell.
† Includes managed care.

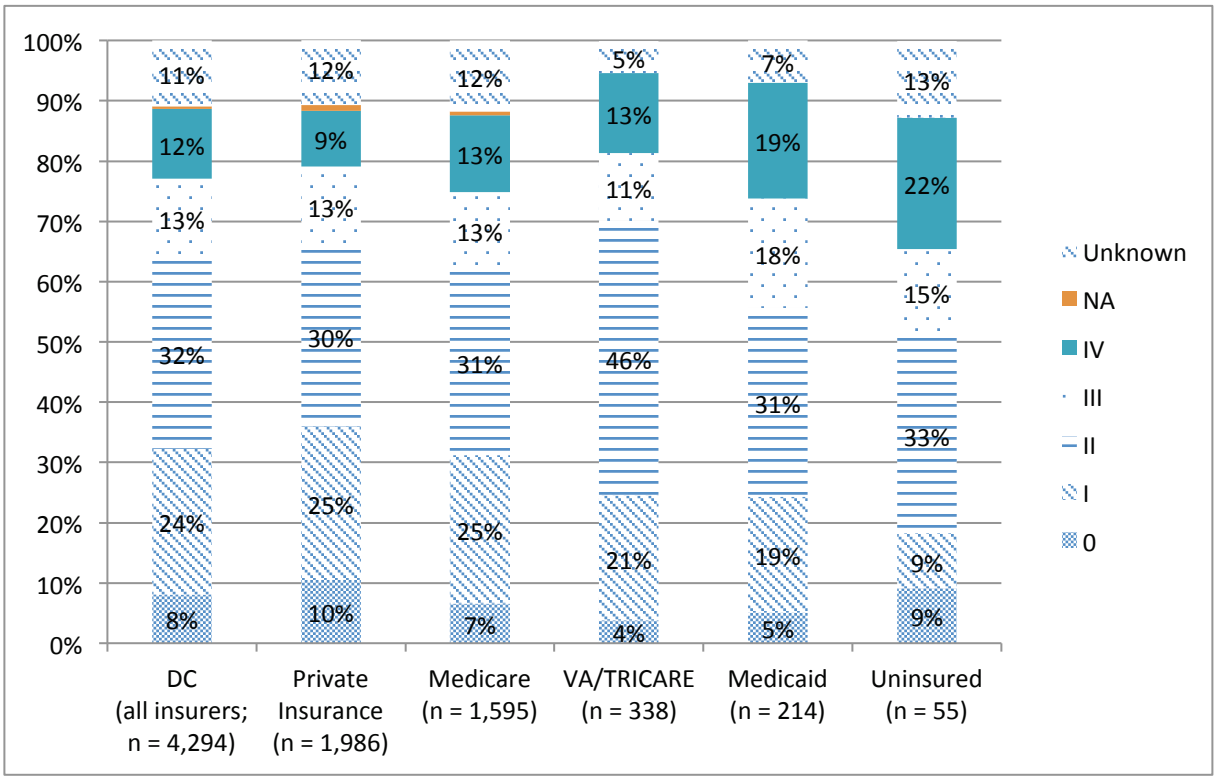
From 2006 to 2009, the proportion of patients with newly diagnosed colorectal, lung and bronchus, and prostate cancer seeking first course of treatment who were black increased, mirroring small increases in the number of cases for these cancer sites among black District residents during that time period (see Table A.10 in Appendix A). The proportion of patients whose treatment was covered by private insurance fell slightly, owing in part to the increasing number of cancer cases among Medicare-eligible patients ages 65 and older.

Figure 5.1 illustrates that in 2009, across all cancer sites, more than one in ten (11.5 percent) of newly diagnosed cancer patients receiving first course of treatment in the District presented with Stage IV

cancer. Nearly one-quarter (24.2 percent) were Stage I, approximately one-third were Stage II (31.7 percent), and 13.1 percent were Stage III.

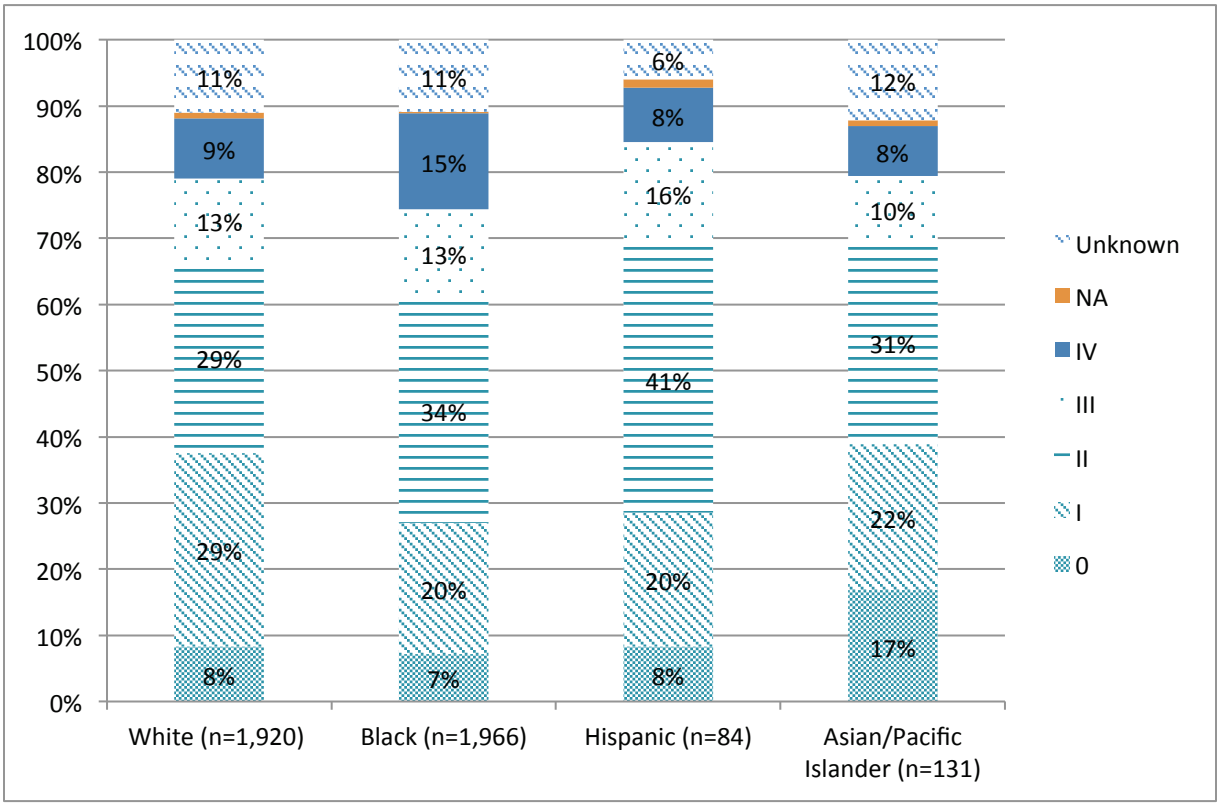
Previous analyses of NCDB data have shown that uninsured patients and those covered by Medicaid are significantly more likely to be diagnosed at later stages than those with private insurance, resulting in worse survival rates among those with no insurance or Medicaid coverage (Ward, Halpern, et al., 2008). In keeping with these findings, in 2009, newly diagnosed cancer patients in the District were more than twice as likely to present with Stage IV cancer if they were uninsured or covered by Medicaid than if they were privately insured (22 percent and 19 percent versus 9 percent; Figure 5.1). In addition, 15 percent of newly diagnosed black cancer patients presented with Stage IV cancer, compared with 9 percent of white patients (Figure 5.2).

Figure 5.1. Newly Diagnosed Cancer Patients by Stage and Insurance Coverage, 2009



SOURCE: NCDB, 2009.

Figure 5.2. Newly Diagnosed Cancer Patients by Stage and Race/Ethnicity, 2009



SOURCE: NCDB, 2009.

5.3. First Course of Treatment for the Most Common Cancers in the District in 2009

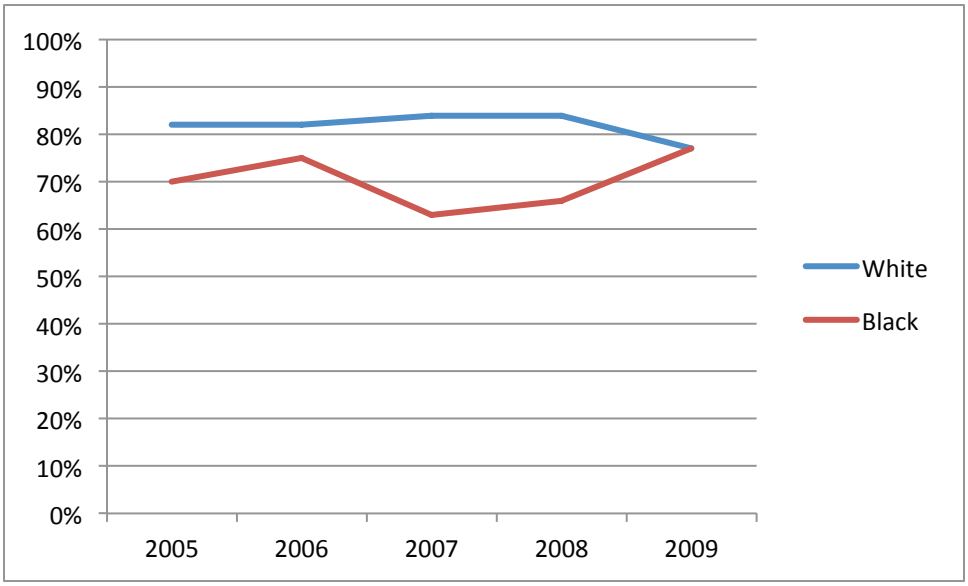
Publicly available NCDB treatment data allow for aggregate assessments of the proportion of newly diagnosed patients receiving surgery, radiation, chemotherapy, hormone therapy, or some combination thereof for their first course of treatment. Tables A.11 to A.15 in Appendix A describe first course of treatment overall and by cancer site in the District in 2009.

Generally speaking, because variation in treatment patterns may be attributable to differences in cancer stage at diagnosis, as well as patient characteristics and preferences, patient-level data are required to assess the degree to which treatments are in keeping with standards of care overall, for particular population subgroups, or in comparison with other geographic regions. In what follows, we use public, aggregate NCDB data to provide an example of how treatment patterns may be compared across population subgroups of interest.

Although surgery is a highly effective treatment for early-stage non–small-cell lung cancer (stages I and II), several studies have found lower rates of surgery—and consequently, lower rates of survival—among black than white patients with this diagnosis (Bach, Cramer, et al., 1999; Lathan, Neville, et al., 2006; Cykert, Dilworth-Anderson, et al., 2010). Figure 5.3 illustrates the proportion of black and white newly diagnosed stage I and II non–small-cell lung cancer patients in the District who received surgery from 2005 to 2009. Rates of surgery varied by race over this time period, with blacks qualitatively less likely than whites to receive surgery from 2005 to 2008 and qualitatively as likely as whites to receive surgery in 2009. Analysis of patient-level data from the NCDB or other sources, such as insurance claims, would allow for assessments of the statistical significance of these differences and for examination of other

factors associated with lower likelihood of recommended treatment across subgroups for this and other cancers.

Figure 5.3. Proportion of Newly Diagnosed Stage I and II Non–Small-Cell Lung Cancer Patients Receiving Surgery in the District, by Race, 2005–2009*



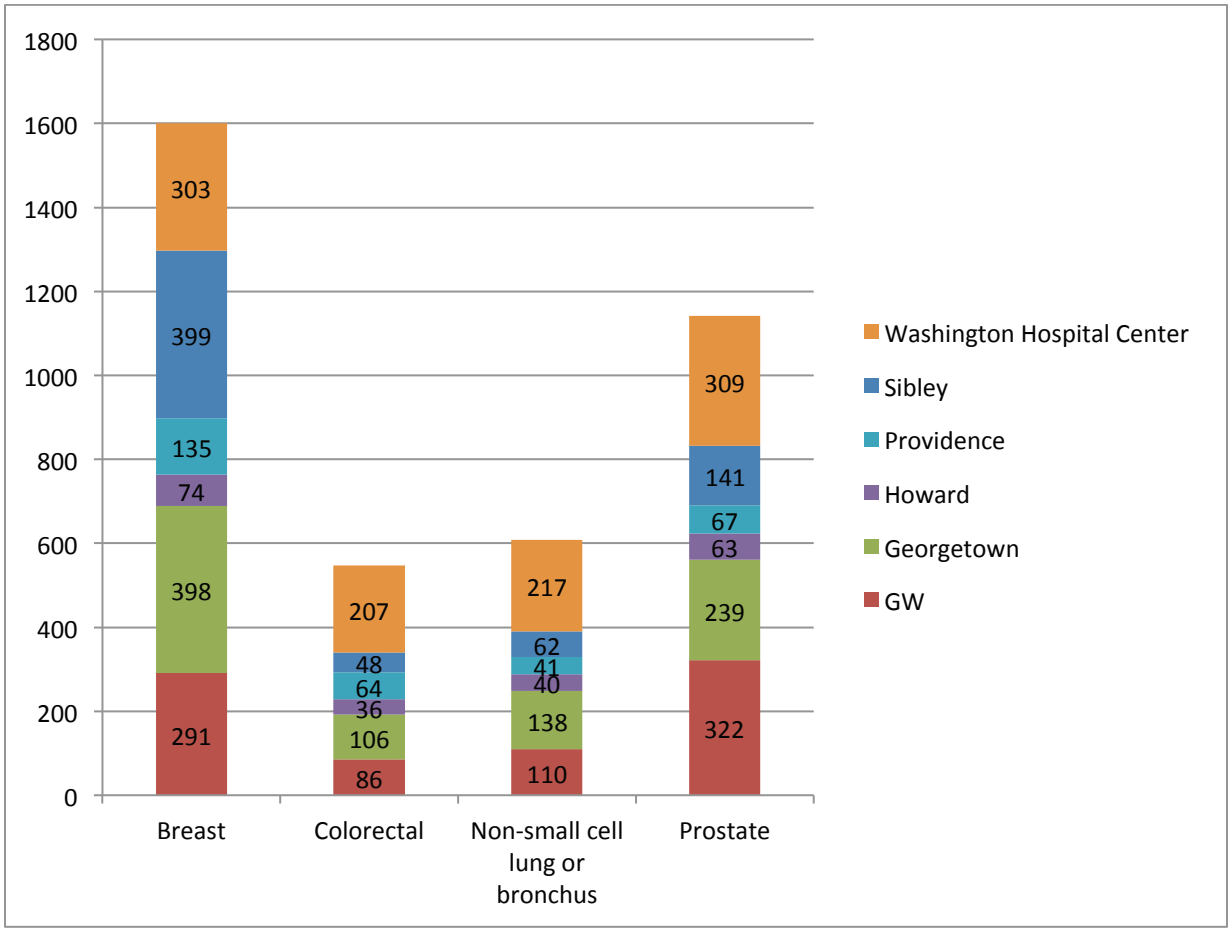
SOURCE: NCDB, 2005–2009.

* Includes surgery alone or in combination with chemotherapy and/or radiation.

5.4. Distribution of Cancer Cases Treated Across Accredited Cancer Hospitals in the District in 2009

Figure 5.4 illustrates the distribution of newly diagnosed cancer patients across CoC-accredited hospitals in the District. Breast cancer patients are most likely to receive their first course of treatment at Sibley Memorial Hospital, Georgetown University Hospital, Washington Hospital Center, or George Washington University Hospital (GW). Washington Hospital Center treats the greatest number of newly diagnosed colorectal and non–small-cell lung and bronchus cancer patients, while GW treats the greatest number of newly diagnosed prostate cancer patients.

Figure 5.4. Newly Diagnosed Cases for Most Common Cancers at District CoC-Accredited Hospitals, 2009



SOURCE: NCDB, 2009.
NOTES: Annual caseload not reported for VA or Walter Reed. Facility-reported cases add to more than the NCDB published total for the District, as NCDB de-duplicates cases across facilities.

5.5. Key Findings

- As many as 40 percent of the newly diagnosed cancers treated in the District may be among non-District residents.

- 9 percent of the District population is Hispanic, whereas 2 percent of patients seeking their first course of cancer treatment in 2009 were Hispanic. Data on the number of new cancer cases among Hispanic residents of the District, as well as data on patterns of seeking cancer treatment outside the District, would be useful for better understanding potential issues around access to cancer treatment among Hispanics.

- From 2006 to 2009, the proportion of black newly diagnosed patients with colorectal, lung and bronchus, and prostate cancers seeking first course of treatment increased, mirroring increases in the number of cases for these cancer sites among black District residents during that time period.

- Approximately 2 in 5 District residents who are diagnosed with cancer are age 65 and older. Correspondingly, approximately 40 percent of patients seeking their first course of cancer treatment are covered by Medicare.

- Although approximately 1 in 5 District residents is uninsured, is covered by Medicaid, or receives care from the DC Alliance, only 6 percent of cancer patients seeking first course of treatment are uninsured or on Medicaid. Data on the number of new cases of cancer by insurance status (any coverage, type of coverage) are important for better understanding potential issues around access to cancer treatment among uninsured District residents and those enrolled in Medicaid.

- Black patients and those who are uninsured or covered by Medicaid appear to be more likely to present for first course of treatment with Stage IV cancers than white patients and those who are privately insured. Delayed diagnosis and first treatment are associated with poorer cancer survival rates.

- Available data are insufficient for assessing the quality of cancer treatment delivered to patients in the District overall or disparities in quality of care across patients of different race or other characteristics.

6. Capacity for Delivering Cancer Care in the District

6.1. Overview

In this chapter, we discuss issues related to capacity for delivering care across the cancer care continuum, with a specific focus on District residents who are uninsured, covered by public insurance, and enrolled in the DC Alliance. These residents comprise approximately one in five people living in the District (*Washington Post* and Kaiser Family Foundation, 2011).

Our data sources include the Area Resource File (ARF) from the U.S. Department of Health and Human Services Health Resources and Services Administration; prior reports on health care, cancer care, and palliative and end-of-life care in the District (Lurie, Gresenz, et al., 2008; Lurie, Gresenz, et al., 2008; Patierno and Leonard, 2011; The Grant Group, November 22, 2010); DCCC internal records of grantee activities; a query of the DC Department of Healthcare Finance (DHCF); and stakeholder interviews conducted between December 2011 and May 2012. A description of the interview methodology, list of interviewees, and copy of the interview protocol are provided in Appendixes B and C.

While there is no "gold standard" that can be used to determine if the supply of health care providers in an area such as the District is sufficient, one potentially useful benchmark is the supply of providers in other metropolitan areas in the United States that are similar demographically to the District. Throughout the chapter, we provide benchmark comparisons to Philadelphia and Baltimore when data are available, recognizing that the specific health needs of the local population may differ across cities.

Measuring capacity is challenging, as supply of providers accepting different types of insurance frequently fluctuates. Consequently, online resources (e.g., Medicaid MCO provider handbooks) become quickly outdated, and it is unclear whether providers listed on these sites continue to be in the networks in any given time period. In addition, supply varies greatly by type of cancer and stage of the cancer care continuum (i.e., cancer screening, diagnosis, treatment, etc.). Although our discussion of capacity is by no means exhaustive, it is intended to highlight major issues in capacity by cancer site and stage of the cancer care continuum. Section 6.2 describes screening capacity for screening, with a focus on cancers for which there are well-established guidelines for routine screening: breast, cervical, and colorectal cancers. Section 6.3 describes diagnostic capacity. Section 6.4 describes treatment capacity. Section 6.5 briefly describes survivorship, and Section 6.6 addresses palliative and end-of-life care. For treatment, survivorship, and end-of-life care, we describe capacity for all cancers combined.

6.2. Screening

Screening for breast, cervical, and colorectal cancers is initiated by primary care providers with reliance on referrals for specialty resources (i.e., gastroenterology for colon cancer) and imaging resources (i.e., mammography centers for breast cancer screening), as needed. There were 781 primary care providers in the District in 2010, the equivalent of 71.4 providers per 100,000 in the daytime population. For comparison, Philadelphia has a similar number of primary care providers (68.5 per 100,000 daytime population), while Baltimore has substantially more than the District (118 per 100,000 daytime population).

Although data on supply by ward were not available for this analysis, prior studies reported that in 2007, supply of primary care providers was greatest for residents of Ward 5 (155 providers per 100,000 daytime

population) and lowest for Ward 7 (6 primary care providers/100,000 daytime population) (Lurie, Gresenz, et al., 2008).[22]

Provider counts represent one critical component of health care access. Regardless of the number of providers in a geographic area, however, availability of appointments can vary considerably by insurance status. A 2011 study using a mystery caller approach found that patients with Medicaid FFS were substantially less likely to be able to schedule a new primary care appointment than those with private insurance (27 percent versus 60 percent; $p < 0.5$) (Blanchard, Pierre-Mathieu, et al., 2012).

Publicly available funds through the Department of Health exist for breast, cervical, and colorectal cancer screening (Pearson-Fields, 2011). In addition, some hospitals, such as Howard University Hospital, host programs that provide free or low-cost screening for prostate cancer. In addition, much prostate cancer screening occurs in primary care offices.

6.2.1. Breast Cancer Screening

There are 14 mammography centers in the District. Most are affiliated with major hospitals (American College of Radiology, 2012):

- Capital Breast Care Center (CBCC)
- Drs. Groover, Christie, and Merritt*
- George Washington University Hospital
- George Washington University Mobile Mammogram Program
- Georgetown University Hospital
- Howard University Hospital
- Kaiser Permanente North Capitol
- Kaiser Permanente West End
- Med Star Georgetown
- Providence Hospital
- Sullivan Center for Breast Health at Sibley Memorial Hospital
- United Medical Center (UMC)
- Washington Cancer Institute (Washington Hospital Center)
- Washington Radiology Associates.*

* Non-university/hospital affiliated/private practice.

With the exception of the two Kaiser sites, the mammography sites are available to most women with several types of private insurance. In addition, excluding Kaiser, the websites of all of the providers except Washington Radiology Associates indicate that they also take Medicaid FFS insurance.

The DC Breast and Cervical Cancer Early Detection Program, also known as Project WISH (Women Into Staying Healthy), is a program funded by the CDC to provide free cancer education, screening, and diagnostic services to women who are uninsured or underinsured or who have family incomes less than 250 percent of FPL (District of Columbia Department of Health, 2012).[23] Intake occurs through patient

[22] These estimates account for providers in the 2007 Health Professional Licensing Files supplemented by provider specialty information from the Washington Physician Directory. The estimates do not take into account full-time equivalents or the availability of ancillary providers, such as physician assistants or nurse practitioners, who also provide primary care.

[23] Underinsurance refers to having insurance coverage with a high deductible or without a mammography insurance benefit.

self-referral (walk-in or through calling the Project WISH program) or through provider referral and community-based outreach and navigation from partner sites. In the 2011 program year, 389 mammograms were covered through Project WISH. In 2010, 581 mammograms were covered by the program. Many recipients of these mammograms were residents of Virginia and Maryland, since the District has relatively comprehensive insurance benefits. For example, Medicaid MCOs and Alliance cover screening for women in the District (Pearson-Fields, 2011).

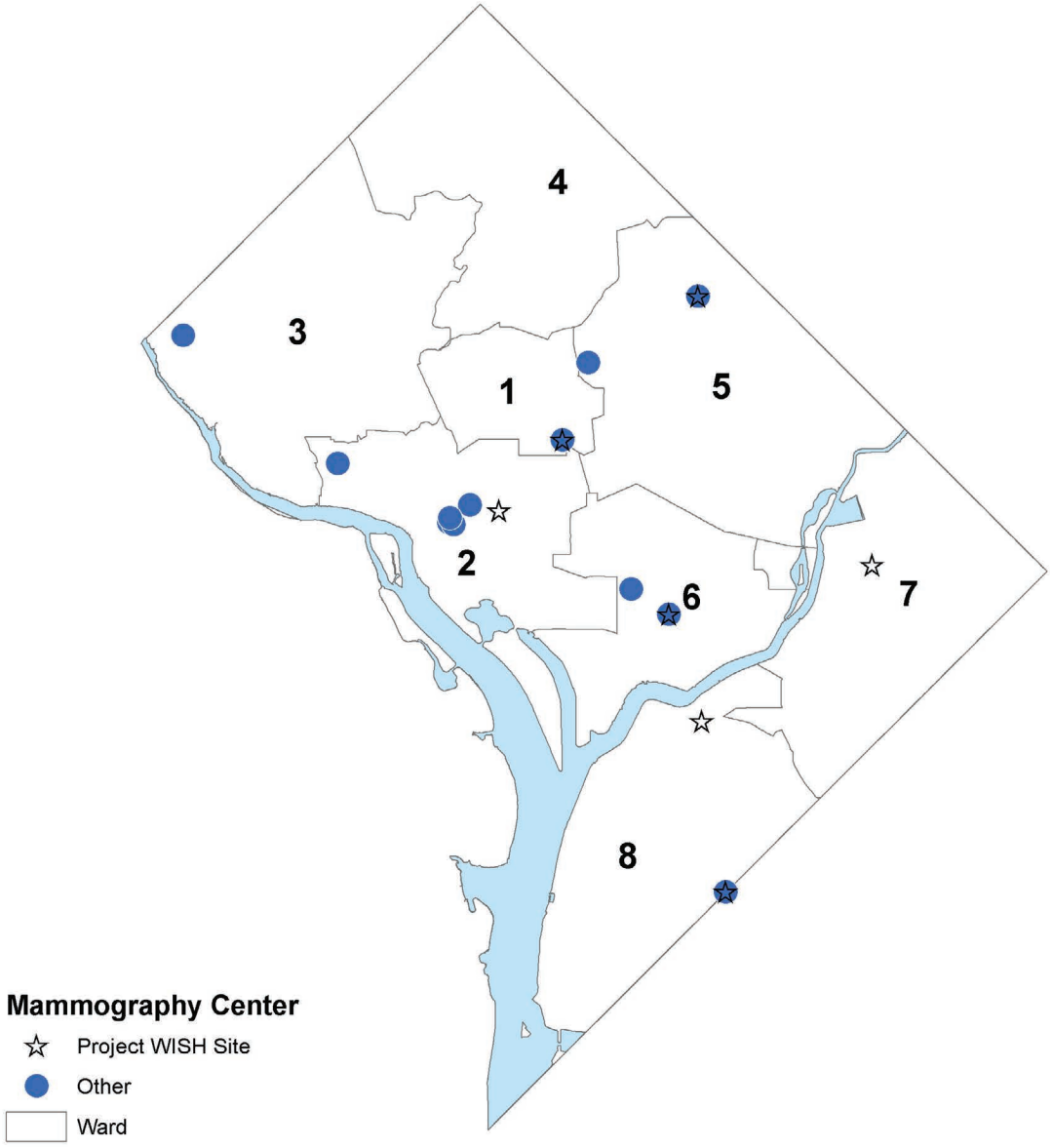
Women who seek screening though Project WISH can generally be served within a few days of referral. As of January 2012, there were six principal Project WISH sites that offered mammography, clinical breast exams, or Pap tests:

- Providence Hospital
- Planned Parenthood
- UMC
- Family Medical
- Howard University Cancer Center
- Capitol Breast Care Center.

The DCCC funds several initiatives that offer breast cancer screening for women who are not otherwise eligible through Project WISH or other insurance coverage. CBCC provides a breast cancer outreach and screening program for women under age 40 with breast cancer symptoms, as well as for undocumented immigrant women over age 65 in need of routine screening. From March 2010 through February 2011, 77 women received screening services through this program (DC Cancer Consortium, 2011). Howard University also offers breast cancer screening for women with family incomes between 250 and 350 percent of FPL through funding from the DCCC. From July 2010 through June 2011, 44 women were screened through this program (DC Cancer Consortium, 2011).

Figure 6.1 illustrates the distribution of mammography sites across all wards within the District. Ward 4 is the only ward without a mammography center. Project WISH sites are located in Wards 1, 2, 6, 7, and 8.

Figure 6.1. Mammography Centers in the District by Ward, 2012



Capacity for screening for women with Medicaid MCO coverage differs by MCO. Women enrolled in the Chartered MCO can receive mammograms through self-referral at the Capitol Breast Care Center. Chartered enrollees also have the option of receiving mammograms at participating sites within its provider network. Although the network provider list is not available, the number of available screening facilities is much greater for Chartered than that provided by United (Coleman, 2011). Women enrolled in the United MCO have fewer options, as they are required to get a referral to one of six sites, only three of which are in the District.

Although the Alliance provider list was not available, the stakeholders we interviewed suggested that there are few sites that provide screening (Coleman, 2011; Goetcheus, 2012).

6.2.2. Cervical Cancer Screening

Estimating cervical cancer screening capacity is challenging, as most screening occurs in primary care or gynecology offices. As noted above, the District has fewer primary care providers per daytime population than neighboring Baltimore, but a similar number to Philadelphia. Similarly, the District has roughly the same number of general obstetricians and gynecologists per daytime population as Philadelphia (16.2 per 100,000 in the District, compared with 16.9 per 100,000 in Philadelphia), but fewer than Baltimore (21.6 per 100,000).

We have limited information on screening capacity by insurance status. Project WISH covers the cost of Pap tests for women who are uninsured or underinsured with family incomes less than 250 percent of FPL. As noted above, there are six Project WISH sites. Although most sites offer both breast and cervical cancer screening in some capacity, many offer the two types of screenings on different days, requiring repeat visits to receive both screenings and challenging care coordination. In the 2011 program year, 150 Pap tests were performed through Project WISH. In the 2010 program year, 232 were performed through the program. Women with Alliance and Medicaid managed care can receive cervical cancer screening from providers in the network, as described above (Pearson-Fields, 2011).

DCCC-funded programs, such as those run by CBCC and Howard University, also provide cervical cancer screening to District residents. From March 2010 through February 2011, 29 women received cervical cancer screening through CBCC's program (DC Cancer Consortium, 2011). From July 2010 through June 2011, 11 women were screened through Howard's program (DC Cancer Consortium, 2011).

6.2.3. Colorectal Cancer Screening

As described in Chapter 3, several screening test options are available for colorectal cancer, including annual stool testing, flexible sigmoidoscopy every five years, or colonoscopy every ten years. Although stool testing and flexible sigmoidoscopy can be administered by a primary care provider, colonoscopies are performed by gastroenterologists. We focus on capacity for colonoscopy screening in this section.

In the District, as of 2010, there were 6.5 gastroenterologists per 100,000 daytime population, compared with 7.1 per 100,000 in Philadelphia and 9.3 per 100,000 in Baltimore. As of 2007, most gastroenterologists in the District were situated around hospitals, and just two were east of the River in Wards 7 and 8 (Lurie, Gresenz, et al., 2008).

The DC Screen for Life, a DCCC-sponsored program, provides colonoscopies for uninsured and underinsured individuals in the District ages 50–64 with incomes up to 500 percent of FPL through a partnership between Howard University Hospital and the Georgetown Lombardi Cancer Center. The program is an extension of the CDC national Screen for Life campaign and is funded by a grant from the DCCC in collaboration with the Department of Health's Comprehensive Cancer Control Program. It provides colorectal cancer screening, outreach, and education to District residents, with a particular focus on Wards 4, 7, and 8 (DC Cancer Consortium, 2011). From June 2010 through December 2011, DC Screen for Life provided screening to 345 individuals. Individuals are referred to the program by various providers and through community outreach. Usually, patients receive screening within two weeks after referral. Most patients are screened at Howard University Hospital, with overflow to Georgetown as needed (Bradner, 2011).

6.3. Diagnostic Capacity

Although cancer screening is fairly accessible to the uninsured and underinsured in the District, receipt of appropriate diagnostic tests once a suspicious lesion is detected presents a challenge for many patients.

Diagnosis tends to be more segmented, particularly for Medicaid MCO and Alliance enrollees, as hospitals may be contracted with MCOs for only parts of the diagnostic workup (Coleman, 2011; Pearson-Fields, 2011; Goetcheus, 2012).

Patient navigators play an important role in directing patients to the proper diagnostic services to follow up positive screening test results. The overall concept of patient navigation is that the provision of supportive services, such as the arrangement of follow-up, transportation, and emotional support, will facilitate access to cancer care services and ultimately improve rates of cancer diagnosis and treatment (Freund, Battaglia, et al., 2008). These services have been shown to be particularly important for minority populations (Glick, Clarke, et al., 2012; Naylor, Ward, et al., 2012). In the District, navigation services are provided through the Citywide Patient Navigation Network (CPNN), funded by DCCC and operated by George Washington Cancer Institute (GWCI) in partnership with many DCCC member organizations. Data from nine sites across the country participating in the Patient Navigator Research Program (PNRP) suggest that underserved individuals with abnormal cancer screening tests who received patient navigation services were more likely to receive timely diagnostic resolution than those who did not receive the navigation services (Freund, Paskett, et al., 2011); however, patient navigation did not influence the time from cancer diagnosis to the start of first course of treatment (Patierno and Raich, 2011). Stakeholders we interviewed indicated that support services provided by District navigators substantially facilitate receipt of initial cancer screening and appropriate follow-up for abnormal screening tests in the District. This assistance is particularly important for Alliance and Medicaid enrollees, for whom fragmented diagnosis and treatment services necessitate visiting multiple clinical sites to receive different types of needed care (Coleman, 2011; Pearson-Fields, 2011; Goetcheus, 2012).

6.3.1. Breast Cancer Diagnosis

Project WISH covers the cost of diagnostic breast biopsies in eligible women and reimburses providers at Medicaid rates. Project WISH, however, does not cover operating room time. As of December 2011, Project WISH was contracted with surgical oncologists at Providence and CBCC for biopsies. CBCC has the capacity to do ultrasound guided biopsies on site (Pearson-Fields, 2011). In addition, Howard also has some capacity for breast cancer biopsies for underinsured women between 250–350 percent of FPL through DCCC funding; four biopsies were conducted via this mechanism from July 2010 through June 2011 (DC Cancer Consortium, 2011).

For women with Medicaid managed care or Alliance, diagnostic care varies based on provider network. Patients with Chartered Medicaid can generally seek services from a broad network of providers. Per our interviews with providers, there are more limits for patients with Medicaid United MCO coverage. For example, of the mammography centers contracted with United, only two conduct both diagnostic and screening mammograms. Of these, only one is in the District. In addition, only one of the sites offers diagnostic biopsies (Coleman, 2011).

6.3.2. Cervical Cancer Diagnosis

Project WISH covers the cost of colposcopies in eligible women who have positive Pap tests requiring follow-up colposcopies. The program reimburses providers at Medicaid rates but does not cover operating room time. As noted for breast cancer, the program guideline indicates that there should be a maximum of 60 days between diagnosis and initiation of treatment. As of December 2011, Planned Parenthood was the only site offering colposcopies for Project WISH patients. Washington Hospital Center previously participated and may rejoin the program in the future (Pearson-Fields, 2011).

Women with Medicaid MCO and Alliance receive diagnostic workups at a network of gynecologists. However, provider handbooks do not indicate which providers offer colposcopies.

6.3.3. Colorectal Cancer Diagnosis

Patients who screen positive for a suspicious colon cancer lesion through the DC Screen for Life program are covered for further workup, such as a sonogram, CT scan, or biopsy, through grant funding. The DC Screen for Life Program relies on a network of a surgeon, an oncologist, and a radiation oncologist, all at Howard. From June 2010 through December 2011, the program detected four positives, all diagnosed at stages 1 and 2 (Bradner, 2011).

6.4. Treatment Capacity

Cancer treatment spans across specialties, including surgeons, radiation oncologists, and urologists, among others. In this section, we discuss the capacity for medical oncologists to treat all cancers, rather than specific cancers. Overall, there is a national shortage of oncologists—with future supply thought to be short of demand, given the aging of the population and overall average age of oncologists in the United States. According to a 2007 workforce study by the Association of American Medical Colleges (AAMC), in 2005, there were only 8,402 providers with a primary specialty in adult medical oncology. Although national demand for oncologists is expected to grow by 48 percent by 2020, supply is only projected to grow by 20 percent (AAMC Center for Workforce Studies, 2007). As of 2007, there were approximately 6.9 oncologists per 100,000 daytime population in the District, with most oncologists concentrated around major hospitals (Lurie, Gresenz, et al., 2008).

In most cases, individuals who are diagnosed with cancer who qualify for Medicaid FFS are switched to this insurance to increase their options for care.[24] The delay in Medicaid enrollment can be the biggest impediment to care for this population (Swain, 2012). Patients who receive a breast or cervical cancer diagnosis through Project WISH receive special provisions for Medicaid enrollment. Although Medicaid enrollment generally occurs approximately 45 days after the establishment of eligibility, those with a new breast or cervical cancer diagnosis may be enrolled within one to two days (DHCF, 2012). This provision comes as a result of the Breast and Cervical Cancer Prevention and Treatment Act of 2000, which gives the states the option to provide Medicaid coverage for women with a positive cancer screen detected through the CDC's early cancer screening and detection program. However, a woman must have a confirmed diagnosis to receive such coverage (Patierno and Leonard, 2011). Per Project WISH guidelines, there should be a maximum of 60 days between diagnosis and initiation of treatment. (Pearson-Fields, 2011). Although there are no specific provisions for cancers diagnosed through other means, usually patients can qualify for Medicaid FFS based on a prognosis of disability, which is how many patients with prostate, lung, colon, or breast cancers not diagnosed through Project WISH obtain Medicaid FFS (Patierno and Leonard, 2011; Goetcheus, 2012). Providers have faced challenges in obtaining Medicaid FFS for Medicaid MCO and Alliance patients diagnosed with cervical cancer outside of Project WISH, as these patients often do not qualify for disability status readily (Goetcheus, 2012). In addition, enrollment in Medicaid FFS is dependent on eligibility requirements. Thus, District residents diagnosed with cancer who are not citizens of the United States cannot be enrolled (Goetcheus, 2012).

Most academic medical center oncologists, with the exception of those at the George Washington University's Hospital and the GW Medical Faculty Associates (the physician outpatient practice associated with the University) report providing medical oncology care for Medicaid FFS patients (Siegel, 2012; Swain, 2012; Weiner, 2012). GW cites long-term problems with delays in reimbursement for expensive chemotherapy as the primary factor leading to the decision to discontinue participation in Medicaid FFS, Medicaid MCO, or Alliance for medical oncology care (Siegel, 2012).

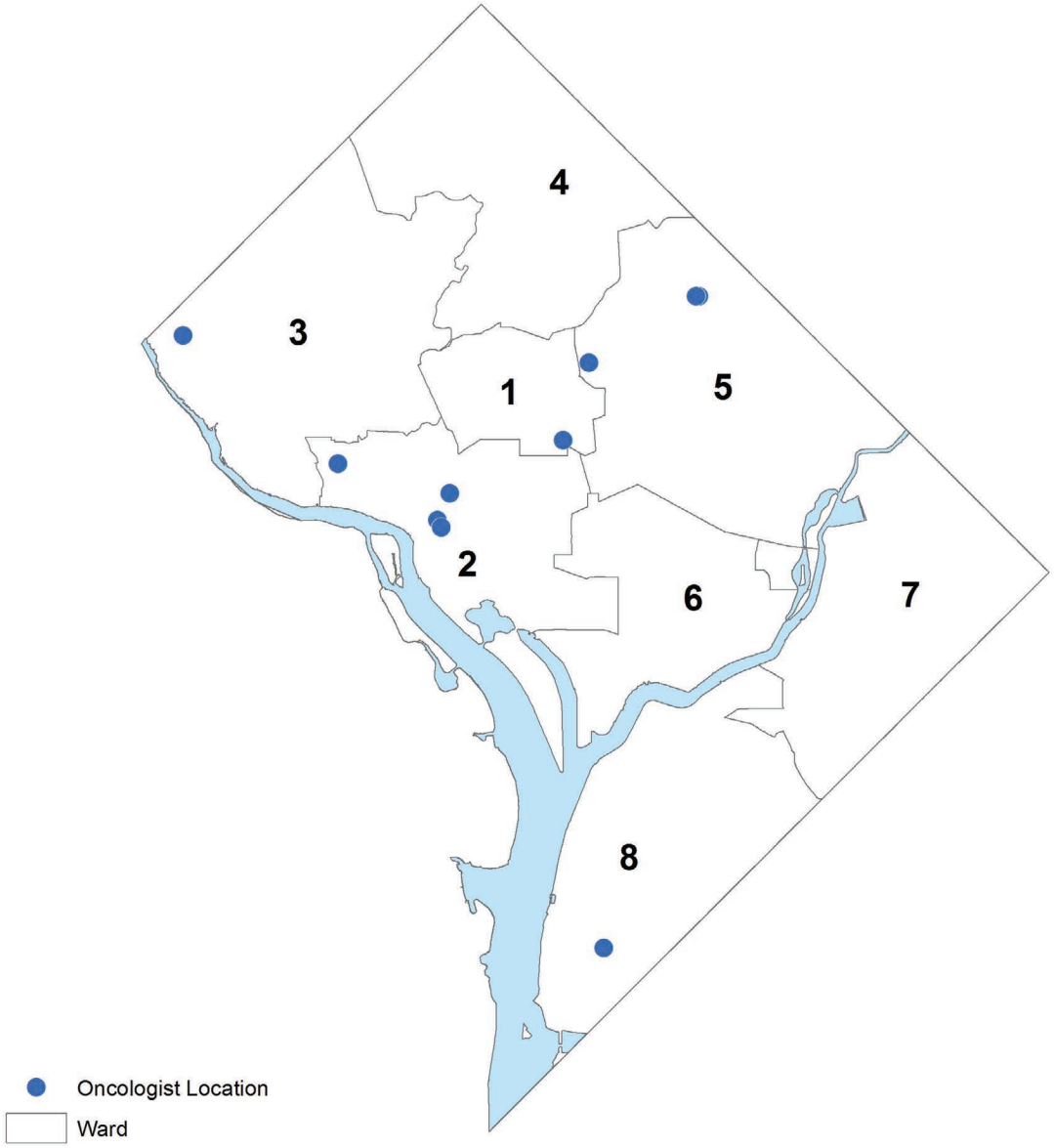
[24] To qualify for Medicaid FFS, individuals must meet Supplemental Security Income requirements and have incomes less than 250 percent of FPL.

There are few options for treatment for the uninsured and for persons with Alliance. Many providers rely on a referral network of charity care through Catholic Charities. In addition, some providers try to help patients enroll in National Institutes of Health trials if they are eligible. This is particularly true for hepatocellular cancer patients, who have had particularly difficult challenges accessing care (Goetcheus, 2012).

Less information is available regarding the supply of oncologists for Medicaid MCOs. To determine the number of oncologists providing care to those in Medicaid MCOs, we cross-checked a DHCF list of MCO network providers with the District DOH's Health Professional Licensing Administration (HPLA) database and provider websites to confirm provider specialty (Health Professional Licensing Administration, 2012).[25] As of January 2012, the Chartered Health network contained three adult medical oncologists, one surgical oncologist, five gynecology oncologists, and 18 radiation oncologists (adult providers). Within the United Health care network, there were four adult medical oncologists, one surgical oncologist, two gynecology oncologists, and five radiation oncologists (DHCF, 2012). Figure 6.2 illustrates the location of these oncologists by ward and highlights the scarcity of oncology treatment services available in Wards 7 and 8.

[25] Some network providers on the Medicaid MCO provider lists were described as having a different specialty than indicated by licensing data and provider websites.

Figure 6.2. Medicaid MCO Oncologists in the District by Ward, 2012[26]



6.4.1. Challenges to Realizing Access to Treatment

From our interviews, we identified a number of challenges to realizing access to treatment in the District. Individuals with public insurance and no insurance face a number of challenges to accessing cancer treatment:

Inability to receive the full spectrum of cancer diagnostic and treatment services at one institution. Most hospitals provide some level of care for Medicaid FFS patients but do not provide all services. Among

[26] Multiple oncologists operating from the same facility are indicated with one marker.

Medicaid MCO patients, there are more options for treatment for patients with Chartered than for patients with United (Goetcheus, 2012). For example:

- George Washington will provide surgery and radiation services for Medicaid FFS and MCOs but does not provide any medical oncology services for Medicaid FFS, Medicaid MCOs, or Alliance.
- Washington Hospital Center provides care for Chartered Medicaid and Medicaid FFS but does not offer services or treatment for United Medicaid or Alliance.
- Georgetown does not have contracts with any Medicaid MCOs. Because it has a partnership with the CBCC and WHC, however, Georgetown can refer patients to these sites.
- Howard provides care to Medicaid FFS, Medicaid MCOs, and Alliance cancer patients across the treatment spectrum.
- Providence Hospital provides most services across insurance types, although these services are not as comprehensive as Howard's. (For example, Providence does not offer radiation oncology services.)
- Most of the physicians who work at UMC are in private practices. Consequently, coverage of oncology-related services at UMC is based on whether the individual provider participates in a given plan. In general, UMC does not have any radiation or medical oncology capacity (Goetcheus, 2012).

Information-sharing across institutions. Referral to providers and hospitals for services is not only a function of service availability, but also of ease of transmission of records. For example, the CBCC seeks to refer patients in need of follow-up to sites that utilize an electronic medical record to enable sharing of results. Consequently, the main site that they use for workup of positive screens is Washington Hospital Center. A number of other sites, including Providence and Howard, do not have a medical record through which they can easily share results (Coleman, 2011).

Limited capacity at safety net clinics. Availability of cancer treatment specialists, such as hematologists and oncologists, would improve care access for those who seek treatment at safety net sites, such as Unity (Goetcheus, 2012). Currently, such care is not available. Leaders at GW and Georgetown have expressed interest in partnerships that would enable academic providers, such as fellows, to work in the community to expand services for underserved District residents (Siegel, 2012; Weiner, 2012).

Inadequate coverage for cancer chemotherapy services. As described earlier, reimbursement for cancer chemotherapy services from Medicaid and Alliance can be significantly delayed, representing a significant disincentive for oncologists (Siegel, 2012). These delays, coupled with low reimbursement rates, add to the challenge of finding providers who are willing to provide cancer care in the District for Medicaid and Alliance enrollees. Often, rates are inadequate to cover the full cost of drugs, which can be extremely expensive. In addition, Medicaid MCOs have limited formularies that do not cover the spectrum of current recommend chemotherapy regimens (Patierno and Leonard, 2011; Siegel, 2012).

Challenges to transitions in care. Because of poor coverage of services for Medicaid MCO enrollees, once a cancer diagnosis is confirmed, providers attempt to transition MCO enrollees to Medicaid FFS, which offers more options for treatment. Although patient screened through Project WISH can get this coverage for breast and cervical cancer, other patients with a cancer diagnosis screened outside of Project WISH qualify based on disability status (Patierno and Leonard, 2011; Goetcheus, 2012). Transitions from Medicaid MCO to Medicaid FFS may result in disruptions in provider continuity and changes in formularies (Patierno and Leonard, 2011).

6.5. Survivorship

Survivorship care includes four components: (1) prevention and detection of new cancers and recurrent cancer; (2) surveillance for cancer spread, recurrence, or second cancers; (3) intervention for consequences of cancer and its treatment, including medical problems, psychological distress, and practical concerns, such as employment and insurance; and (4) coordination between specialists and primary care providers to ensure that all health needs are met (Institute of Medicine, 2005). Essential elements of caring for survivors in the medical setting include the development of survivorship care plans, psychosocial care plans, and treatment summaries, as well as symptom management and provision of palliative care (Rechis, Beckjord, et al., 2011).

Across the country, systemic problems in health care delivery lead to lower quality of care, such as underuse of post-treatment screening for cancer, for some cancer survivors. Suboptimal survivorship care can often be traced to lack of coordination between primary care providers and cancer care providers (Institute of Medicine, 2005). Although limited data are available on survivorship care in the District, previous reports have established that across diagnoses, there are barriers to outpatient primary and specialty care services for those with Medicaid and Alliance (Lurie, Gresenz, et al., 2008), and that these residents experience a large unmet need for mental health services (Acosta, Blanchard, et al., 2010; Gresenz, Blanchard, et al., 2010).

According to the DHCF, one of the biggest challenges for ongoing care for persons diagnosed with cancer is the lack of medical services, particularly oncologic care, in the southeast quadrant of the District, as most providers are located in the northwest quadrant. In addition, transportation is not a covered benefit for Alliance members, which makes it difficult to access ongoing services when needed (DHCF, 2012). The DCCC funds several programs that offer transportation services to cancer survivors to their treatment sites, including programs sponsored by GWCI, the Mautner project, and Transcend Services (DC Cancer Consortium, 2011).

The DCCC also funds several partners in survivorship activities, including Nueva Vida, which offers workshops for Latino cancer survivors on living a healthy and balanced life after cancer diagnosis, and a GWCI program that offers support and navigation services for pediatric cancer survivors to help them transition into adult care (DC Cancer Consortium, 2011).

Additional study is needed to examine the capacity for comprehensive case management services for cancer survivors in the District, especially for residents covered by Medicaid and Alliance.

6.6. Palliative Care

There is increasing support for integrating palliative care services into standard oncology practice at the time a person is diagnosed with metastatic or advanced cancer. As of 2009, there were five physicians certified by the American Board of Hospice and Palliative Medicine (ABHPM), one advanced practice nurse certified by the National Board for Certification of Hospice and Palliative Nurses (NBCHPN), and six registered nurses certified by the NBCHPN living in the District in 2009 (Morrison, Meier, et al., 2011). Palliative care programs serving the District have noted limited supply of qualified and experienced palliative care clinicians, as well as scarce resources to compensate new staff (The Grant Group, November 22, 2010).

As of 2009, all hospitals in the District offered palliative care services, compared to 90 percent of Maryland hospitals and 78 percent of Virginia hospitals (Morrison, Meier, et al., 2011). Palliative care consultative services offered in hospitals are available for patients at any age and at any stage of illness, and may be provided alongside curative therapies.

Most palliative and end-of-life programs are located in the northwest quadrant of the District, limiting access to those living in other areas. Models of care delivery vary and include the hospice care model, which emphasizes coordinated interdisciplinary care for the physical, psychological, spiritual, and social needs of dying patients and their families, either at home or in institutional settings; the palliative care and end-of-life care model, which emphasizes prevention and relief of suffering, regardless of disease stage or other ongoing treatment, in a variety of settings; and the home visiting model, which provides long-term care outside of institutional settings. One example of the home visiting model is the Washington Hospital Center House Call program, which provides long-term care services in patients' homes (The Grant Group, November 22, 2010).

Patients with Alliance and Medicaid MCOs are able to receive hospice care through Capital Hospice, which contracts with Chartered and United. However, Medicaid MCOs and Alliance do not offer coverage for long-term nursing care. Gift of Peace (run by the Missionaries of Charity, the group established by Mother Teresa) does accept terminally ill patients and provides limited capacity for the uninsured and underinsured (Goetcheus, 2012). The Chartered and United Medicaid MCO online provider handbooks indicate that these MCOs also have contracts with Washington Home Community Hospice.

The DC Pediatric Palliative Care Collaboration is a subsidiary of DCCC offering advocacy and continuing education for health care providers to improve pediatric palliative care. The Collaboration also offers support for families with children in palliative care, including referrals for home and hospice care and grief counseling services for family members (DC Cancer Consortium, 2012).

6.7. Key Findings

- While available data suggest that capacity for screening is largely adequate for individuals with insurance coverage, capacity for diagnostic and treatment care is limited for the uninsured, those in the DC Alliance, and those with Medicaid coverage.

- Actual availability of diagnostic and treatment services is likely to be considerably more limited than provider lists suggest. Once an individual has a positive screening result, patient navigators often must work extensively to find a clinical site that will take a patient with Medicaid managed care or Alliance coverage.

- Navigation services, such as those provided by the Citywide Patient Navigation Network, play a vital role in helping patients receive needed care across a fragmented system in which availability of care varies by insurance type and clinical sites.

- In most cases, providers try to enroll eligible individuals (who are uninsured or covered by Medicaid MCOs or Alliance) diagnosed with cancer in FFS Medicaid. However, enrollment may be challenging for patients whose initial screening tests are conducted outside of Project WISH (a program funded by the CDC to provide free cancer education, screening, and diagnostic services to women who are uninsured or underinsured or who have family incomes less than 250 percent of FPL).

- Medicaid FFS enrollees have many more options for care than Medicaid managed care enrollees. However, transitioning from managed care to FFS Medicaid may result in disruptions in care, including changes in providers and drug formularies.

- Additional study is needed to examine the capacity for comprehensive case management services for cancer survivors in the District, especially for residents covered by Medicaid and Alliance.

- Few providers and facilities offering cancer treatment, palliative, and end-of-life care are located in Wards 7 and 8.

7. Summary and Conclusion

This report synthesizes available data regarding cancer-related outcomes among District residents with the goals of providing a basis for future priority-setting by entities concerned with the burden of cancer in the District and informing local government policymaking around cancer more broadly. Several key findings emanate from our synthesis and analyses of available data, as outlined below.

General Access to Care

- In 2010, 6.5 percent of adult District residents reported that they lacked health insurance coverage, compared with 15.1 percent of adults across the United States.
- Although District adults reported significantly fewer barriers to health care access than adults nationwide, access to health care providers or services remains a challenge for many District residents.
    - 13.6 percent of District adults reported not having a personal health care provider in 2010, 19.9 percent reported not having a routine checkup in the past year, and 8.9 percent reported missing care in the last 12 months because of cost.
- Black and Hispanic adults in the District were more likely to report being uninsured compared with white District residents in 2010, and both groups were more likely to report missing care because of cost. Blacks were more likely to have had a routine checkup in the last year compared with whites, however.

Primary Prevention

- Overall, compared with adults nationally, District adults are less likely to report smoking, binge drinking, or heavy drinking and slightly more likely to report exercising.
- The rate of smoking is significantly higher, and the rate of exercise is significantly lower, among black District residents than among white residents.
- Self-reported smoking, alcohol use, and exercise rates among District residents appear stable from 2003 through 2010.

Secondary Prevention

- Overall, self-reported rates of cancer screening among District residents are higher than those among adults nationwide. For example, 90 percent of women ages 21 to 64 report receiving a Pap test within the last three years, compared with 84 percent of women nationwide, and 86.5 percent of District women ages 50–74 report having had a mammogram within the last two years, compared with 80 percent nationally.
- Although rates of breast and cervical cancer screening are similar across racial and ethnic groups in the District, black residents are less likely to report being screened for colorectal cancer than white residents.
- Women are less likely to report screening for colorectal cancer, and younger men in the recommended age range are less likely to report prostate and colorectal screening, compared with older men.
- Cervical, colorectal, and prostate screening rates are significantly lower among uninsured compared with insured residents.
- Self-reported cancer screening rates among District residents appear stable from 2003 through 2010.
- Additional data, not based on individual self-report, would provide a useful counterpoint to available BRFSS estimates.

Cancer Incidence and Mortality

- Overall, age-adjusted cancer incidence in the District is similar to that for the United States as a whole, while mortality is higher. In keeping with the rest of the nation, cancers with highest incidence and mortality in the District are colorectal, lung and bronchus, prostate, and breast.
- Cancer incidence and mortality among black residents of the District are dramatically higher than for white residents of the District. Higher overall cancer incidence and mortality among black District residents is attributable to a higher incidence of colorectal, lung and bronchus, and prostate cancers, and higher rates of mortality for all common cancers, than among white residents.
- Cancer incidence and mortality among white District residents are lower than they are among whites nationally. In contrast, cancer incidence among black District residents is comparable to that for blacks nationally, while cancer mortality among black District residents is higher than it is for blacks nationally.
- Overall cancer incidence rates remained stable in the District from 2005 to 2009, as they did nationally.
- Although cancer mortality appears to have declined slightly faster in the District than it has nationally between 2005 and 2009, mortality rates in 2008 among District residents still exceeded those in the United States.

Cancer Treatment

- As many as 40 percent of the newly diagnosed cancers treated in the District may be among non-District residents.
- 9 percent of the District population is Hispanic, whereas 2 percent of patients seeking their first course of cancer treatment in 2009 were Hispanic. Data on the number of new cancer cases among Hispanic residents of the District, as well as data on patterns of seeking cancer treatment outside the District, would be useful for better understanding potential issues around access to cancer treatment among Hispanics.
- From 2006 to 2009, the proportion of black newly diagnosed patients with colorectal, lung and bronchus, and prostate cancers seeking first course of treatment increased, mirroring increases in the number of cases for these cancer sites among black District residents during that time period.
- Approximately 2 in 5 District residents who are diagnosed with cancer are age 65 and older. Correspondingly, approximately 40 percent of patients seeking first course of cancer treatment are covered by Medicare.
- Although approximately 1 in 5 District residents is uninsured, covered by Medicaid, or receives care from the DC Alliance, only 6 percent of cancer patients seeking first course of treatment are uninsured or on Medicaid. Data on the number of new cases of cancer by insurance status (any coverage, type of coverage) are important for better understanding potential issues around access to cancer treatment among uninsured District residents and those enrolled in Medicaid.
- Black patients, and those who are uninsured or covered by Medicaid, appear to be more likely to present for first course of treatment with Stage IV cancers than white patients and those who are privately insured. Delayed diagnosis and first treatment are associated with poorer cancer survival rates.
- Available data are insufficient for assessing the quality of cancer treatment delivered to patients in the District overall or disparities in quality of care across patients of different race or other characteristics.

Survivorship and End-of-Life Care

- Additional study is needed to examine the capacity for comprehensive case management services for cancer survivors in the District, especially for residents covered by Medicaid and Alliance.
- Little data are available on quality of survivorship and end-of-life care for cancer patients in the District overall or by racial or ethnic subgroups.

Health System Capacity

- While available data suggest that capacity for screening is largely adequate for individuals with insurance coverage, capacity for diagnostic and treatment care is limited for the uninsured, those in the DC Alliance, and those with Medicaid coverage.
- Actual availability of diagnostic and treatment services is likely to be considerably more limited than provider lists suggest. Once an individual has a positive screening result, patient navigators often must work extensively to find a clinical site that will take a patient with Medicaid managed care or Alliance coverage.
- Navigation services, such as those provided by the Citywide Patient Navigation Network, play a vital role in helping patients receive needed care across a fragmented system in which availability of care varies by insurance type and clinical sites.
- In most cases, providers try to enroll eligible individuals (who are uninsured or covered by Medicaid MCOs or Alliance) diagnosed with cancer in FFS Medicaid. However, enrollment may be challenging for patients whose initial screening tests are conducted outside of Project WISH (a program funded by the CDC to provide free cancer education, screening, and diagnostic services to women who are uninsured or underinsured or who have family incomes less than 250 percent of FPL).
- Medicaid FFS enrollees have many more options for care than Medicaid managed care enrollees. However, transitioning from managed care to FFS Medicaid may result in disruptions in care, including changes in providers and drug formularies.
- Few providers and facilities offering cancer treatment, palliative, and end-of-life care are located in Wards 7 and 8.

In the District, cancer incidence and mortality among black residents are dramatically higher than they are among white residents, mirroring patterns observed nationally, although racial disparities are more pronounced in the District. In terms of mortality, rates among black District residents are higher compared with rates among blacks nationally, while white District residents have lower mortality rates compared with whites nationally. Differences in cancer mortality may reflect a combination of factors, including poor access to medical care, which can affect time to diagnosis, as well the quality of cancer treatment provided (Bach, Schrag, et al., 2002; Ghafoor, Jemal, et al., 2002). Nationally, blacks are more likely than whites to be diagnosed at a more distant stage of disease, when cancer treatments are less likely to be successful, and, further, even controlling for stage at diagnosis, blacks experience lower survival rates than whites for almost all cancers (Siegel, Ward, et al., 2011).

Our findings reveal disparities in cancer-related outcomes between black and white District residents across the continuum. First, black District residents are more likely than white residents to be uninsured. Lack of insurance is associated with lower rates of routine cancer screening among asymptomatic patients and may delay care for patients experiencing early symptoms of cancer. In addition, the rate of smoking is significantly higher, and the rate of exercise is significantly lower, among black District residents than among white residents, placing black residents at higher risk of the most common cancers. Further, black residents are less likely to report being screened for colorectal cancer than white residents. While rates of

breast and cervical cancer screening are similar across racial and ethnic groups in the District, national studies of self-reported screening data suggest that black and Hispanic survey respondents may overreport screening behaviors more than whites do (Rauscher, Johnson, et al., 2008). Other evidence suggests that black District residents face barriers to cancer treatment other than insurance coverage: Insured black District residents with suspicious mammogram results experience substantially longer times to diagnostic resolution than insured whites (Hoffman, LaVerda, et al., 2011). Finally, black cancer patients in the District are more likely to present for first course of cancer treatment at later stages than white patients, reducing their likelihood of survival.[28] Limitations in general access to health care, in primary and secondary prevention, and in access to cancer-related treatment all likely contribute to observed differences in mortality from cancer between black and white District residents. In what follows, we highlight important opportunities for data collection and analysis across the continuum of cancer prevention, treatment, and outcomes, noting the scarcity of information for describing certain population subgroups, as well as current limitations of data for tracking historical and future trends in outcomes.

(1) More needs to be known about cancer treatment patterns and quality in the District.

Though the NCDB provides useful information on the treatment for newly diagnosed cancer patients, it suffers from important limitations. First, while the database works closely with accredited cancer care facilities to identify information on first course of treatment from patients' inpatient and outpatient medical records, it does not include data on treatments delivered at unaffiliated outpatient sites or at nonaccredited inpatient facilities. In addition, more comprehensive data on treatment is needed to assess the full range of treatment received by patients and to assess the degree to which treatment is in accordance with standards for quality of cancer care, such as the National Voluntary Consensus Standards developed by the National Quality Forum (National Quality Forum, 2009).

To characterize treatment trajectories and assess quality of care, new data collection or analytic approaches may be required. One strategy is to analyze insurance claims data for cancer patients, assessing claims from a range of sources, including private insurance, Medicaid and Alliance, and Medicare. Longitudinal data allows for assessment of timing and types of treatment across the continuum, from screening to diagnosis through treatment and end-of-life care, if applicable. A key challenge is that the data must be linked with cancer registry data in order to identify the date of initial diagnosis.

Another possibility is to use cancer registry as a sampling frame for selecting newly diagnosed patients for primary data collection (Potosky, Tercyak, et al., 2012). Primary data collection efforts could include abstraction of data from patients' medical records, provider interviews, and patient surveys regarding such issues as access to care, quality of life, general health status, and other metrics not readily examined using data from medical records or claims data.

Additional data from the NCDB, currently available only to participating clinical sites, could provide further insight regarding the statistical significance of differences in treatment observed across subgroups of patients within the District, or between the District and other localities. In addition, analyses of these data would allow for assessment of the relationship between insurance status and stage at diagnosis and/or rates of survival; the proportion of treatment that adheres to clinical guidelines; and utilization of certain treatment types, such as breast conservation surgery, over time and across subgroups of interest.

(2) Regular, continued monitoring and timely reporting of cancer-related outcomes among District residents are essential, as is assuring the validity and comprehensiveness of cancer registry data in the District.

[28] More robust data on cancer stage at presentation is available from the DC Cancer Registry; however, these data were not available for this report.

The DC Cancer Registry is a rich source of standardized data on all new cases of cancer diagnosed in the District. As a result of efforts to enhance data quality in the registry, the North American Association of Central Cancer Registries (NAACCR) certifies it to be of the highest quality. Nonetheless, some data elements within the registry, such as receipt of initial cancer treatments and date and stage of diagnosis, are in need of validation to ensure that they are complete and accurate (Potosky, Tercyak, et al., 2012). Further, available data could be supplemented to include insurance status, for example. In addition, as described, the registry could be used as a platform for additional data collection to enhance knowledge of treatment outcomes.

Routine, consistent, and timely reporting of cancer-related outcomes in the District is vital. The DC Department of Health has recently renewed efforts to comprehensively analyze registry data and to increase the availability of data for research; these efforts provide essential information required to guide the efforts of government and nongovernmental entities around reducing the burden of cancer in the District.

Finally, improving data quality and reporting for Hispanics diagnosed with cancer in the District is critical for understanding outcomes for this growing subgroup of District residents, especially as this population may face unique cultural and linguistic challenges to participation in cancer prevention and treatment.

(3) Supplementary data would provide a more robust understanding of potential barriers to cancer screening.

Data from the BRFSS are frequently used to establish prevalence of cancer risk and protective behaviors, as well as cancer screening utilization. The frequency of data collection, as well as standardization of questions over time and across geographies, makes the BRFSS a useful data source. However, information on type of insurance coverage—not currently available from BRFSS—is important for understanding potential disparities in screening rates among individuals with public or private coverage, for example. In addition, self-reports of cancer screening are subject to recall bias, as survey respondents, especially those who are black and Hispanic, tend to overreport screening (Rauscher, Johnson, et al., 2008). As such, it would be useful to explore rates of screening developed from other data sources, such as claims data, although these would not capture screening obtained for free or at low cost outside of the plan. Finally, information gleaned from patient navigators in the Citywide Patient Navigation Network is likely to be essential for uncovering barriers to screening among vulnerable populations.

(4) Opportunities exist to learn more about patient experiences across the continuum.

Measuring patients' experiences with cancer care is a critical component of overall quality assessment. To our knowledge, no systematically collected surveys are conducted with cancer patients in the District regarding their experiences with cancer care at any stage of the continuum. To assess patient experiences of surgical, chemotherapeutic, or radiation cancer treatments, the Agency for Healthcare Research and Quality and the National Cancer Institute have collaborated to develop a cancer-specific version of the Consumer Assessment for Healthcare Providers and Systems (CAHPS) survey. Once in the public domain, such a survey could be administered by District cancer care programs to their patients to inform quality improvement efforts. Alternatively, such surveys can be required or administered by a central entity, such as the DOH or the DCCC, to collect data on experiences with cancer care across facilities or to inform consumer choices between cancer treatment facilities.

To assess experiences of cancer survivorship, national surveys have assessed the physical, emotional, and practical concerns of cancer survivors and the degree to which those concerns are addressed (LIVESTRONG, 2010). To assess experiences of end-of-life care, surveys of familial caregivers have

assessed such outcomes as whether health care workers provided the desired physical comfort and emotional support to the dying person, supported shared decisionmaking, treated the dying person with respect, attended to the emotional needs of the family, and provided coordinated care (Teno, Clarridge, et al., 2004).

(5) More information is needed on awareness and knowledge of cancer prevention and control among District residents.

Awareness and knowledge regarding cancer risk and protective factors and early detection practices are important to improving cancer outcomes in the District. However, little empirical data are available regarding the degree to which District residents—overall, or by relevant geographic or sociodemographic subgroups—are aware of cancer risks, protective factors, or the benefits of early detection. The National Cancer Institute's Health Information National Trends Survey (HINTS) surveys a nationally representative sample of American adults biennially regarding cancer awareness and communication (see, for example, Oh, Shaikh, et al., 2010). Enrichment of the HINTS sample for particular geographic areas is possible and may be desirable for identification of gaps in awareness and knowledge in the District.

(6) More attention needs to be given to understanding the regional burden of disease, patient flows across geographic borders, and regional capacity for cancer care.

NCDB data suggest that as many as 40 percent of the newly diagnosed cancers treated in the District may be among non-District residents—an unsurprising finding, given high rates of migration and commuting to and from the District and surrounding counties. This finding suggests the need for exploration of the key drivers of care-seeking across District boundaries and an assessment of health care capacity that encompasses the District and surrounding counties.

The key findings we enumerate above pertaining to access to care, primary and secondary cancer prevention, cancer treatment, survivorship, end-of-life care, health system capacity, and cancer incidence and mortality contribute to the backdrop against which the DCCC, local government agencies, and other entities concerned with the burden of cancer in the District can engage in evidence-based priority-setting and policymaking. While addressing the six key data gaps articulated is critical to a more comprehensive understanding of the burden of cancer among District residents, regular and sustained monitoring of the outcomes described in this report is likewise essential for tracking the long-term trajectory of cancer outcomes among District residents and to assessing the effects of efforts to reduce the burden of cancer.

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Appendix A. Additional Figure and Tables

Figure A.1. Logic Model of DCCC's Activities and Desired Outcomes

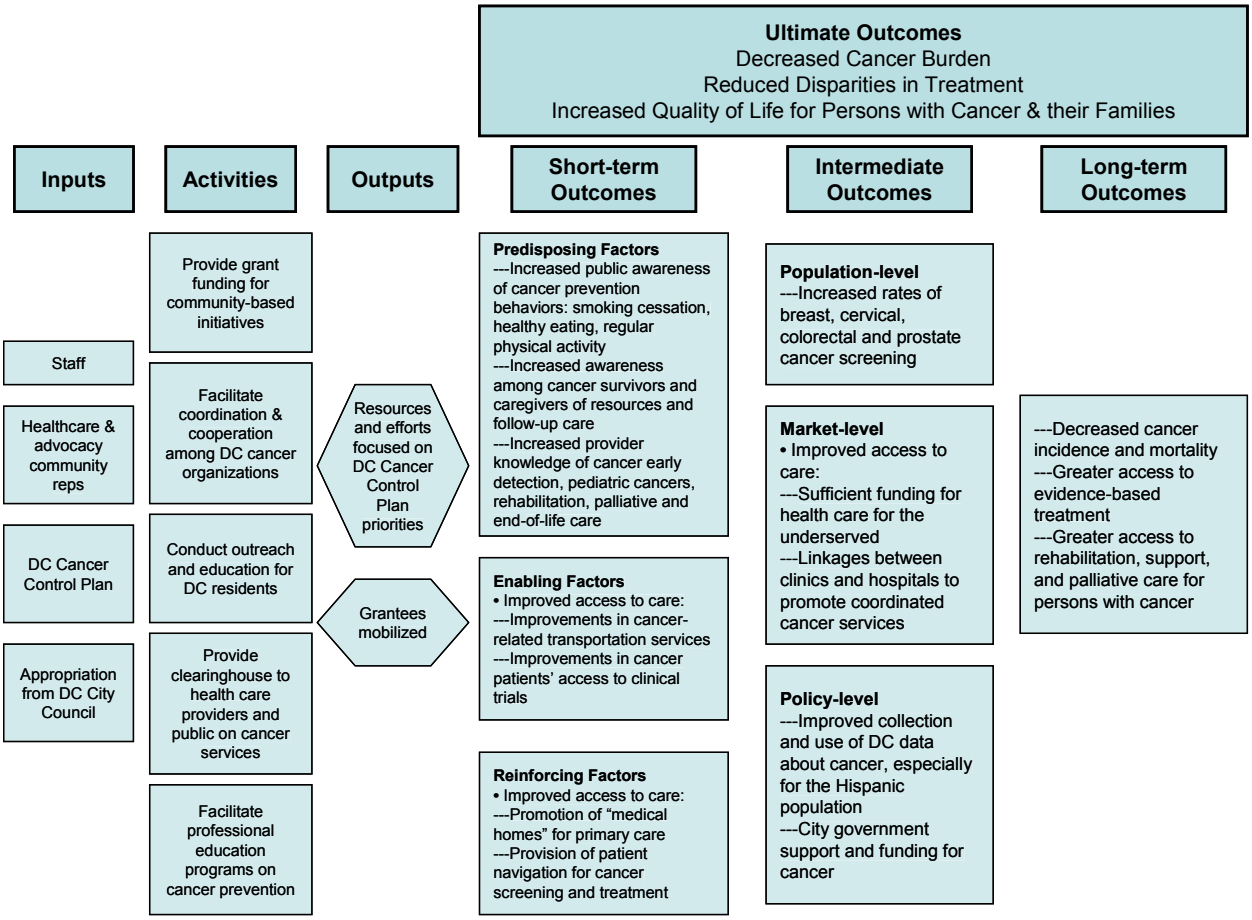

Table A.1. Sociodemographic Changes in the District by PUMA, 2000–2010

Characteristic	PUMA A		PUMA B		PUMA C		PUMA D		PUMA E	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
Age										
0 to 17 years (%)	11.3	12.9*	20.1	17.5*	19.2	16.5*	31.8	27.4*	13.6	8.4*
18 to 39 years (%)	44.0	42.9	36.2	40.0*	34.8	39.9*	30.7	30.7	50.3	59.6*
40 to 64 years (%)	30.6	28.8	30.7	31.9	31.1	31.6	27.4	30.5*	26.5	23.9*
65 years and older (%)	14.0	15.4	13.0	10.7*	14.9	12.0*	10.2	11.4	9.7	8.2*
Race and ethnicity										
Black, non-Hispanic (%)	6.0	531	61.9	54.7*	76.5	62.0*	94.2	95.2	46.7	31.0*
White, non-Hispanic (%)	84.2	85.5	19.8	33.6*	19.3	31.1*	3.3	3.4	38.6	54.3*
Asian, non-Hispanic (%)	5.3	6.1	2.0	2.0	1.1	2.1	0.5	0.1*	4.9	8.2*
Hispanic (%)	6.1	N	20.1	N	2.7	6.0*	1.1	N	12.1	10.8
Foreign born (%)	18.1	17.7	24.7	21.7	4.9	9.8*	1.7	2.8*	19.5	17.3
Speak language other than English at home (individuals aged 5+, %)	22.0	N	28.0	N	8.3	N	4.6	N	24.8	N
Family income										
Below FPL (%)	2.5	N	12.3	10.7	14.6	14.8	27.5	29.0	20.0	8.5*
Below 1.85 times FPL (%)	5.0	N	25.5	25.8	26.2	24.6	44.3	48.4	37.8	18.0*
Median household income	N	$104,777	N	$57,193	N	$56,885	N	$31,749	N	$75,838
Education										
Less than high school (%)	4.1	2.8	28.1	18.6*	23.8	14.0*	31.1	18.4*	22.4	8.6*
High school diploma or equivalent (%)	6.4	3.5*	20.2	23.2	24.2	22.7	35.5	42.2*	14.5	10.1*
Some college	10.5	9.8	19.7	17.7	20.8	20.2	23.0	23.9	15.9	13.2*
College graduate	79.1	83.9*	32.0	40.5*	31.1	43.2*	10.5	15.5*	47.1	68.0*

* Statistically significant change from 2000 to 2010, $p < 0.05$.

SOURCE: U.S. Bureau of the Census, Decennial Census 2000; American Community Survey 2010. "N" indicates that data are unavailable due to small sample sizes.

In the following three tables, we provide additional information and analyses from BRFSS data regarding primary and secondary preventive behaviors among District residents. Table A.2 provides descriptive data for screening measures other than those reported in the main text.

Table A.2. Secondary Prevention Among District Residents: Additional Measures

Screening Type	District	Std Err	United States	Std Err
Cervical				
Pap test within 3 years among women 18–64 with no hysterectomy (%)	90.4	(0.01)	84.5*	(0.002)
Colorectal				
FOBT in last 2 years among adults 50–75 (%)	24.7	(0.01)	17.6*	(0.00)
Colonoscopy or flexible sigmoidoscopy ever among adults 50–75 (%)	70.1	(0.01)	64.3*	(0.00)
FOBT in last 2 years; colonoscopy or flexible sigmoidoscopy ever among adults 50–75 (%)	75.2	(0.01)	68.9*	(0.00)
Breast				
Mammogram within 2 years among women 40+ (%)	81.8	(0.01)	75.4*	(0.00)
Mammogram within 2 years among women 50+ (%)	84.4	(0.01)	78.3*	(0.00)
Mammogram within 2 years among women 40–74 (%)	82.9	(0.01)	75.8*	(0.002)
Prostate				
PSA test in last 2 years among men 40+ (%)	66.8	(0.02)	53.7*	(0.00)
PSA test in last 2 years among men 40–74 (%)	66.0	(0.02)	51.3*	(0.00)
Digital rectal exam ever among men 40–74 (%)	83.3	(0.01)	71.5*	(0.00)
Digital rectal exam in last 2 years among men 40–74 (%)	62.5	(0.02)	48.8*	(0.00)
Digital rectal exam in last 2 years among men 50–74(%)	68.7	(0.02)	59.3*	(0.00)
PSA in last 2 years or digital rectal exam ever among men 40–74 (%)	89.2	(0.01)	77.6*	(0.00)
PSA in last 2 years or digital rectal exam ever among men 50–74(%)	94.0	(0.01)	88.6*	(0.00)

* Statistically significant difference between U.S. and D.C. mean, $p < 0.05$.
SOURCE: Authors' analyses of 2010 BRFSS data.

Tables A.3 and A.4 provide results from regression analyses in which the dependent variable is a dichotomous (0/1) indicator for the behavior and the control variables include sociodemographic characteristics of individuals (age, race, income, education, marital status, gender, and insurance status) and indicators for each year (versus the reference year of 2002). We use data from the 2002–2010 BRFSS data. Our analyses use post-stratification weights (developed by BRFSS) and standard errors adjusted to account for the BRFSS sampling strategy. Table A.3 provides results for selected primary prevention indicators and A.4 for selected secondary prevention indicators.

Table A.3. Full Regression Results: Self-Reported Primary Preventive Behaviors Among District Residents Age 18 and Older

	Current Smoking[1] Coefficient (SE)	Binge Drinking[2] Coefficient (SE)	Heavy Drinking[3] Coefficient (SE)	Exercise in Past 30 Days[4] Coefficient (SE)
Year (reference 2002)				
2003	0.018 (0.03)	0.035 (0.03)	0.014 (0.02)	0.004 (0.03)
2004	0.037 (0.03)	0.032 (0.03)	0.021 (0.02)	–0.022 (0.03)
2005	0.028 (0.03)	0.006 (0.02)	–0.006 (0.01)	–0.017 (0.03)
2006	0.026 (0.03)	0.024 (0.02)	0.005 (0.01)	–0.059 (0.03)
2007	0.022 (0.03)	0.024 (0.02)	–0.005 (0.01)	–0.024 (0.03)
2008	0.015 (0.03)	0.006 (0.02)	0.003 (0.01)	0.011 (0.03)
2009	0.024 (0.03)	0.008 (0.02)	0.012 (0.02)	–0.040 (0.03)
2010	0.024 (0.03)	0.024 (0.02)	0.016 (0.01)	0.023 (0.03)
Age (reference 25–34)				
35–44	0.063 (0.02)*	–0.025 (0.02)	–0.017 (0.01)	–0.071 (0.02)*
45–54	0.110 (0.03)*	–0.023 (0.02)	–0.003 (0.01)	–0.076 (0.02)*
55–64	–0.025 (0.03)	–0.056 (0.02)*	–0.025 (0.01)	–0.101 (0.03)*
65–74	–0.137 (0.03)*	–0.109 (0.02)*	–0.045 (0.01)*	–0.079 (0.03)*
75–84	–0.220 (0.03)*	–0.123 (0.02)*	–0.048 (0.01)*	–0.091 (0.03)*
85+	–0.255 (0.03)*	–0.129 (0.02)*	–0.056 (0.01)*	–0.148 (0.04)*
Female (reference male)	–0.072 (0.02)*	–0.062 (0.01)*	0.003 (0.01)	–0.098 (0.02)*
Race/ethnicity (reference white)				
Black, non-Hispanic	0.008 (0.03)	–0.167 (0.03)*	–0.077 (0.02)*	–0.166 (0.02)*
Hispanic	–0.152 (0.04)*	–0.159 (0.04)*	–0.105 (0.03)*	–0.188 (0.04)*
Other, non-Hispanic	–0.029 (0.05)	–0.153 (0.04)*	–0.048 (0.03)	–0.152 (0.04)*
Marital status (reference married)				
Divorced/separated/widowed	0.045 (0.02)*	0.002 (0.01)	–0.001 (0.01)	0.018 (0.02)
Never married/unmarried couple	0.059 (0.02)*	0.002 (0.02)	–0.007 (0.01)	0.029 (0.02)
Income (reference < $24,000)				
$25,000–$35,000	–0.051 (0.02)*	–0.005 (0.02)	–0.008 (0.01)	0.016 (0.02)
$35,000–$50,000	–0.088 (0.03)*	0.006 (0.02)	–0.001 (0.01)	0.085 (0.02)*
$50,000–$75,000	–0.056 (0.03)	–0.039 (0.02)	–0.031 (0.01)*	0.111 (0.03)*
$75,000+	–0.178 (0.03)*	0.001 (0.03)	–0.011 (0.02)	0.128 (0.03)*
Refused to answer/uncertain	–0.081 (0.02)*	–0.039 (0.01)*	–0.030 (0.01)*	–0.015 (0.02)
Education (reference < high school)				
Graduated high school/GED	–0.119 (0.14)	0.035 (0.07)	–0.029 (0.07)	–0.091 (0.11)
Some college/technical school	–0.072 (0.14)	0.043 (0.07)	–0.033 (0.07)	0.032 (0.11)
Graduated from college	–0.148 (0.14)	0.040 (0.07)	–0.048 (0.07)	0.032 (0.11)
Uninsured (reference insured)	0.028 (0.03)	0.060 (0.02)*	0.020 (0.01)	–0.036 (0.02)

* Indicates statistically different from the reference group, $p < 0.05$.

[1] Smoking more than 100 cigarettes in the last year and currently smoking some or all days.

[2] Having more than five or more drinks on the same occasion for males and four or more drinks on one occasion for females.

[3] Having more than two drinks per day for adult men and more than one drink per day for women.

[4] Exercise for leisure at least once in the past 30 days.

SOURCE: Authors' analyses of 2010 BRFSS data.

Table A.4. Full Regression Results: Secondary Preventive Behaviors

	Pap Test Within 3 Years[1]	FOBT Last 2 Years or Colonoscopy-Sigmoidoscopy Ever[2]	Mammogram Within 2 Years[3]	PSA Test in Last 2 Years[4]	Digital Rectal Exam Ever[4]
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
Year (reference 2002)					
2003	--	--	--	--	--
2004	–0.040 (0.03)	–0.004 (0.05)	–0.013 (0.05)	–0.011 (0.06)	–0.053 (0.07)
2005	--	--	--	--	--
2006	–0.088 (0.03)*	–0.051 (0.05)	0.005 (0.04)	–0.032 (0.06)	–0.079 (0.06)
2007	--	--	--	--	--
2008	–0.038 (0.03)	–0.031 (0.05)	0.021 (0.05)	–0.043 (0.06)	0.014 (0.06)
2009	--	--	--	--	--
2010	–0.066 (0.03)*	–0.001 (0.05)	0.065 (0.05)	0.037 (0.06)	0.017 (0.06)
Age (reference 25–34)					
35–44	0.012 (0.03)	--	--	–0.262 (0.06)*	--
45–54	0.034 (0.03)	–0.319 (0.08)*	–0.032 (0.03)	–0.211 (0.05)*	–0.179 (0.05)*
55–64	0.027 (0.03)	–0.172 (0.08)*	–0.037 (0.03)	–0.110 (0.04)*	–0.118 (0.04)*
65–74	--	0.009 (0.08)	--	--	--
75–84	--	--	--	--	--
85+	--	--	--	--	--
Female (reference male)	--	0.77 (0.03)*	--	--	--
Race/ethnicity (reference white)					
Black, non-Hispanic	0.049 (0.06)	–0.144 (0.05)*	0.081 (0.05)	–0.065 (0.05)	–0.049 (0.05)
Hispanic	0.028 (0.08)	–0.149 (0.09)	0.133 (0.09)	–0.109 (0.10)	–0.062 (0.13)
Other, non-Hispanic	–0.101 (0.11)	–0.076 (0.08)	–0.024 (0.10)	–0.026 (0.10)	–0.038 (0.11)
Marital status (reference married)					
Divorced/separated/widowed	0.039 (0.03)*	–0.109 (0.04)*	–0.016 (0.03)	–0.27 (0.04)	–0.017 (0.05)
Never married/unmarried			–0.064 (0.04)	–0.006 (0.05)	–0.0021 (0.05)
Couple	0.030 (0.03)	–0.137 (0.04)*			
Income (reference < $24,000)					
$25,000–$35,000	0.078 (0.02)*	0.009 (0.04)	0.071 (0.04)	0.026 (0.06)	0.026 (0.06)
$35,000–$50,000	0.057 (0.03)*	0.072 (0.05)	0.067 (0.04)	0.046 (0.06)	0.013 (0.06)

$50,000–$75,000	0.023 (0.03)	0.075 (0.06)	0.092 (0.05)	0.113 (0.07)	0.123 (0.06)*
$75,000 +	–0.002 (0.07)	0.090 (0.07)	0.119 (0.05)	0.178 (0.06)*	0.101 (0.06)
Refused to answer/uncertain	–0.026 (0.04)	–0.014 (0.04)	0.048 (0.03)	–0.114 (0.07)	–0.024 (0.07)
Education (reference < high school)					
Graduated high school/GED	0.224 (0.20)	–0.368 (0.14)*	–0.075 (0.05)	–0.027 (0.14)	0.067 (0.09)
Some college/technical school	0.141 (0.20)	–0.308 (0.13)*	–0.065 (0.06)	0.081 (0.13)	0.045 (0.07)
Graduated from college	0.217 (0.20)	–0.231 (0.13)	–0.110 (0.05)*	–0.064 (0.13)	0.144 (0.06)
Uninsured (reference insured)	–0.076 (0.04)*	–0.099 (0.05)*	–0.095 (0.05)	–0.132 (0.07)*	–0.155 (0.07)*

* Indicates statistically different from the reference group, $p < 0.05$.

† Missing years of data reflect years in which data on the variable were not collected on the BRFSS.

[1] Among women 21–64.

[2] Among adults 50–74.

[3] Among women 50–74.

[4] Among men 50–74.

SOURCE: Authors' analyses of 2010 BRFSS data.

Table A.5. Incidence of Cancer in the District by Age, 2009

Age Group	Cancer Site				
	All Cancers Combined*	Female Breast*	Colorectal	Lung and Bronchus	Prostate
20–24	20	0	0	0	0
25–29	43	#	#	0	0
30–34	37	#	#	#	0
35–39	57	16	#	#	0
40–44	85	30	#	#	#
45–49	157	43	18	#	16
50–54	266	58	23	35	35
55–59	332	52	28	41	69
60–64	367	48	33	41	92
65–69	385	55	45	54	84
70–74	299	44	31	46	66
75–79	244	29	32	35	37
80–84	171	24	18	35	22
85+ years	199	23	24	31	17

* Does not include in situ breast cancers.

Data are suppressed if fewer than 16 cases reported.

NOTE: Incidence of cervical cancer is suppressed because of small numbers.

SOURCE: National Program of Cancer Registries: 1999–2009 Incidence, WONDER Online Database.

Table A.6. Age-Adjusted Incidence of Cancer in the District by Sex, 2009

Cancer Site	Male	Female
All cancers combined*	516.2	396.8
Breast (female)*	Not applicable	130.9
Cervical	Not applicable	5.4
Colorectal	50.8	39.3
Lung and bronchus	73.9	44.5
Prostate	166.9	Not applicable

* Does not include in situ breast cancers.

Data are suppressed if fewer than 16 cases reported.

NOTE: Incidence of cervical cancer is suppressed because of small numbers.

SOURCE: National Program of Cancer Registries: 1999–2009 Incidence, WONDER Online Database.

Table A.7. Mortality of Cancer in the District by Age, 2008

Age Group	Cancer Site All Cancers Combined
20–24	#
25–29	#
30–34	#
35–39	#
40–44	22
45–49	48
50–54	81
55–59	116
60–64	138
65–69	133
70–74	127
75–79	142
80–84	135
85+ years	171

Data are suppressed if fewer than 16 cases reported.

SOURCE: United States Cancer Statistics: 1999–2008 Mortality, WONDER Online Database.

Table A.8. Age-Adjusted Mortality of Cancer in the District by Sex, 2008

Cancer Site	Male	Female
All cancers combined	253.2	155.3
Breast (female)	Not applicable	26.5
Colorectal	19.2	16.3
Lung and bronchus	68.8	37.3
Prostate	28.9	Not applicable

NOTE: Mortality of cervical cancer is suppressed because of small numbers.

SOURCE: United States Cancer Statistics: 1999–2008 Mortality, WONDER Online Database.

Table A.9. Age-Adjusted Cancer Incidence per 100,000 in the District by Race, 2005–2009

	White		Black	
Cancer Site	2005	2009	2005	2009
Breast (female)	128.1	136.0	112.2	123.2
Colorectal	37.2	24.3*	55.6	53.9
Lung and bronchus	33.5	31.6	74.0	72.0
Prostate	114.0	81.9	186.3	198.2

* Estimated change in incidence statistically different from 2005 to 2009, with 95 percent confidence.
SOURCE: CDC WONDER Online Database, 2005–2009.
NOTE: Incidence of cervical cancer is suppressed because of small numbers.

Table A.10. Demographic Characteristics of Patients Receiving Cancer Treatment in the District, 2006–2009

	All Cancers		Breast		Colorectal		Lung and Bronchus*		Prostate	
	2006	**2009**	**2006**	**2009**	**2006**	**2009**	**2006**	**2009**	**2006**	**2009**
N	*4,016*	*4,294*	*1,231*	*1,297*	*590*	*523*	*644*	*688*	*866*	*1,102*
Sex										
Female (%)	52.9	50.8	100.0	100.0	52.4	47.9	46.1	47.2	0.0	0.0
Age										
< 20 (%)	0.5	0.2	0.0	0.0	0.0	0.0	0.2	0.15	0.0	0.0
20–39 (%)	4.6	4.1	5.7	6.9	3.4	3.7	1.4	0.44	0.1	0.0
40–59 (%)	39.8	37.5	49.9	48.1	36.8	29.2	29.7	24.42	34.5	35.8
60–69 (%)	26.3	30.2	22.7	25.0	22.2	29.4	28.3	32.56	37.2	38.9
70+ (%)	28.8	28.0	21.8	20.1	37.6	37.8	40.5	42.44	28.2	25.2
Race/ethnicity										
White (%)	50.3	44.7	50.0	45.5	41.0	32.8	46.1	39.4	47.3	42.8
Black (%)	43.2	45.8	42.7	42.9	52.8	57.3	49.7	54.2	45.8	48.2
Hispanic (%)	2.0	2.0	2.4	2.1	1.9	2.1	1.7	1.2	1.9	1.9
Asian (%)	2.1	3.1	2.7	4.3	1.9	4.4	1.2	1.5	1.4	2.5
Other (%)	2.0	4.5	2.2	5.3	2.4	3.4	1.2	3.8	3.6	4.6
Insurance status										
Private insurance (%)†	50.2	46.3	60.5	58.4	44.7	40.4	37.9	29.1	45.3	44.3
Medicare (%)	35.6	37.2	27.3	28.8	44.0	44.8	47.8	51.6	36.0	36.1
VA, TRICARE/military (%)	8.1	7.9	5.8	4.9	5.8	5.7	6.2	9.3	14.6	11.4
Medicaid (%)	3.5	5.0	2.9	4.7	3.2	5.5	5.8	6.5	2.5	4.3
Uninsured (%)	1.5	1.3	1.8	1.4	1.5	1.0	1.2	0.9	1.0	1.1
Other/unknown (%)	1.2	2.5	1.7	1.9	0.9	2.6	1.1	2.6	0.6	2.8

* Includes small cell and non–small cell.

† Includes managed care.

SOURCE: NCDB, 2006–2009.

Table A.11. First Course of Treatment for Breast Cancer in the District, 2009

First Course of Treatment	Early Stage (Stages I and II)	Late Stage (Stages III and IV)
N	*789*	*153*
Surgery (%)	22.8	7.8
Surgery and radiation (%)	14.8	12.4
Surgery and chemotherapy (%)	10.6	11.8
Surgery, radiation, and chemotherapy (%)	9.6	14.4
Surgery, radiation, and hormone therapy (%)	12.0	2.0
Surgery and hormone therapy (%)	8.6	1.3
Surgery, radiation, chemotherapy, and hormone therapy (%)	7.5	14.4
Surgery, chemotherapy, and hormone therapy (%)	4.7	6.5
Other	5.2	22.9
No treatment (%)	4.1	8.5

SOURCE: NCDB, 2009.

Table A.12. First Course of Treatment for Colon Cancer in the District, 2009

First Course of Treatment	Early Stage (Stages I and II)	Late Stage (Stages III and IV)
N	*141*	*167*
Surgery (%)	89.4	32.3
Surgery and chemotherapy (%)	6.4	47.9
Other (%)	2.1	14.4
No treatment (%)	2.1	5.4

SOURCE: NCDB, 2009.

Table A.13. First Course of Treatment for Prostate Cancer in the District, 2009

First Course of Treatment	Early Stage (Stages I and II)	Late Stage (Stages III and IV)
N	*817*	*167*
Surgery (%)	48.0	64.7
Radiation (%)	23.0	1.8
Radiation and hormone therapy (%)	7.1	9.6
Hormone therapy (%)	3.8	10.8
Other (%)	2.6	10.8
No treatment (%)	15.5	4.2

SOURCE: NCDB, 2009.

Table A.14. First Course of Treatment for Non–Small-Cell Lung Cancer in the District, 2009

First Course of Treatment	Early Stage (Stages I and II)	Late Stage (Stages III and IV)
N	*228*	*308*
Surgery (%)	68.4	6.5
Radiation (%)	8.8	17.9
Surgery and chemotherapy (%)	7.0	2.3
Radiation and chemotherapy (%)	1.7	35.1
Chemotherapy (%)	3.1	15.9
Surgery, radiation, and chemotherapy	1.3	2.3
Other	3.9	1.0
No treatment (%)	5.7	19.2

SOURCE: NCDB, 2009.

Appendix B. List of Stakeholders Interviewed

Stacy Bradner
Program Manager, DC Screen for Life
December 6, 2011

Teesha Coleman
Program Director, Capital Breast Care Center
December 19, 2011

Dr. Janelle Goetcheus
Chief Medical Officer and Executive Vice President for Medical Affairs, Unity Health Care, Inc.
January 19, 2012

Dr. Amari Pearson-Fields
Program Manager, Comprehensive Cancer Control Program, Community Health Administration, Washington, District of Columbia Department of Health
December 7, 2011

Dr. Robert Siegel
Director Hematology/Oncology, Medical Director, George Washington Cancer Institute
April 19, 2012

Dr. Sandra Swain
Medical Director, Washington Cancer Institute (Washington Hospital Center)
May 1, 2012

Dr. Robert Vowels (via email communication, documents from staff)
Medical Director, District of Columbia Department of Healthcare Finance
January–February 2012

Dr. Louis Weiner
Director, Georgetown Lombardi Comprehensive Cancer Center
April 24, 2012

Appendix C. Semistructured Guide for Stakeholder Interviews

Thank you for taking the time to talk with us today about your organization's role in providing cancer screening and care for District of Columbia residents. Our conversation today is part of a study by the RAND Corporation. RAND is working with the DC Cancer Consortium to help better understand needs for cancer services for District residents. As part of this effort, we are interviewing some of the programs that provide cancer care in the city.

Before we begin, I want to assure you that your responses to our questions will be held in strict confidence. We will not attribute comments to specific individuals or include names of people we speak with in any of our reports. We will take notes during our conversation to help us capture your feedback. These notes will be destroyed at the end of the project and will not contain your name.

Let me also remind you that your participation is voluntary and if you are uncomfortable with any questions that are asked, please feel free to not respond to the questions. We estimate that our conversation will take about 45 minutes to cover all of the different aspects of your organization's activity. Feel free to stop at any time.

CONSENT TO PARTICIPATE
Do you voluntarily agree to participate in this conversation?

- No -> Okay, thank you for your time and have a nice day.
- Yes -> Thank you very much, we really appreciate your support. Do you have any questions before we begin?

Below is a list of general interview questions (numbered 1–11). Below each question are some key prompts for the interviewer to use, as needed.

1) Please tell me about your program.
    - Which types of cancer care services does your program/site offer (i.e., screening, diagnostic workup, treatment, survivorship, end of life)?
    - On which cancer(s) does your program focus?
    - Do you serve all insurances?
    - Do you focus on any particular ward or area in the city?

2) How is your program staffed?
    - How many people are on your staff?
        - What are their titles and roles (i.e., doctors by specialty, nurses, administrative staff, patient navigators, etc.)?
        - How many are full time? (If part time, how much time do they work per day or week?)
    - What percent of each staff member's time is spent on cancer care?

3) Could you please describe the experiences for a typical person receiving services through your program?

- How do participants get referred for your services?
- With what services do you assist participants?
- What is the average amount of time that participants work with your staff?
- If program/site offers screening: Once a person screens positive, what happens next?
    - What is the average time between positive screening and appointment for further workup?
    - Do your staff assist participants who may need further workup at other institutions? If yes, what type of assistance is offered? If not, why not?

4) About how many individuals per year receive cancer care services in your program/site? *(Ask specifically about each of the cancer care services mentioned in Question 1.)*

5) Do you feel that you have adequate capacity to accommodate all persons who approach your program for services?
    - Does capacity vary by insurance?
    - Does capacity vary by type of cancer (if services provided for more than one cancer)?
    - Does capacity vary by site (if more than one site, e.g., Unity clinics)?

6) What is the average wait time for services?
    - Does wait time vary by insurance status?
    - Does wait time vary by type of cancer (if services provided for more than one cancer)?
    - Does wait time vary by site (if more than one site, e.g., Unity clinics)?

7) If your program/site does not have adequate capacity to accommodate a person in need of services, where else might they go for services? *(Ask specifically about which other programs/sites offer each of the services for which capacity is limited.)*
    - How do you go about connecting patients with services offered by other programs or sites?

8) What are some of the challenges you face overall in the program?
    - What challenges do you face after someone screens positive?
    - What particular challenges do you face by type of insurance?
    - What particular challenges do you face by ward of residence?
    - (If services provided for more than one cancer) What challenges do you face by type of cancer? (For cervical cancer, make sure to ask about colposcopy barriers.)
    - If more than one clinic site, what challenges by site (for Unity clinics)?

9) Do you collect data on insurance, ward of residence, or other demographics?
    - What is the general insurance breakdown of your participants?
    - What is the general ward of residence breakdown of your participants?
    - What is the general racial breakdown of your participants?

- If you do collect data, is it possible to share your summary data with us?

10) How is your program funded?
    - How is screening (or cancer-related service offered through program) funded?
        - Through insurance reimbursement?
        - Through other grants?

11) How do you feel your program can be improved?

12) Are there any changes you expect in your program in the immediate future?

13) Are there any other contacts you recommend we speak to in the future?