DISTRICT OF COLUMBIA

PRIMARY CARE NEEDS ASSESSMENT

2018

DC | HEALTH

JSI

GOVERNMENT OF THE
DISTRICT OF COLUMBIA
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Government of the District of Columbia
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TABLE OF CONTENTS

LIST OF TABLES

APPENDIX TABLES

LIST OF FIGURES

APPENDIX FIGURES

Executive Summary

Introduction and Background

The **Primary Care Needs Assessment (PCNA)** was executed to answer four key questions to guide the District's efforts to assure access to primary care for DC residents. DC Health contracted with JSI to conduct the PCNA in tandem with the District's Health Systems Plan (released in 2017). The following report is the culmination of DC Health and JSI's research into these questions.

DC Primary Care Needs Assessment
Core Questions

QUESTION A: Is there an unmet need for primary care services among DC residents? If so, where in the city (geographic areas) and/or among what population(s) does the unmet need exist?

QUESTION B: What are the factors that inhibit or facilitate District residents' access to primary care services?

QUESTION C: How should the District improve access to primary care for its residents?

QUESTION D: How should the District continue to monitor access to primary care?

Prior to the PCNA, the last comprehensive assessment of access to primary care commissioned by DC Health was completed by the RAND Corporation in 2008. The findings were published in two reports: *Assessing Health and Health Care in the District of Columbia – Phase 1* and *Assessing Health and Health Care in the District of Columbia – Phase* 2. The RAND findings were instrumental in guiding the District's use of proceeds from the sale of the District's Tobacco Settlement Asset-Backed Bonds. Between 2006 and 2015, the Department of Health invested a total of over $90,000,000 of its Tobacco Settlement and other local funds to construct or renovate 16 community-based facilities. Given these investments in the District's health care infrastructure, DC Health determined it to be a critical time to conduct another comprehensive assessment of access to primary care in DC.

Approach

The PCNA research involved four distinct areas of work: 1) quantitative data analysis, 2) key informant interviews, 3) a provider survey, and 4) the synthesis of quantitative/qualitative data in the following report.

DC Health and JSI partnered with several agencies to obtain data for the quantitative components of the assessment. Key local data sources included DC Health's Capital Health Projects data, the Health Regulation and Licensing Administration's Board of Medicine, Board of Nursing, and Board of Dentistry licensure data; the Center for Policy, Planning, and Epidemiology's Behavioral Risk Factor Surveillance System (BRFSS) data; the Department of Health Care Finance's Medicaid & DC Alliance

(Medicaid) enrollment and claims data; and hospital discharge data from the DC Hospital Association. National data sources included: the U.S. Census Bureau's American Community Survey (ACS), the Agency for Healthcare Research and Quality's Medical Expenditure Panel Survey (MEPS), and the Health Resources and Services Administration's Uniform Data System (UDS).

JSI conducted original data collection through key informant interviews, provider surveys, and community forums. The key informant interviews and provider surveys were conducted with senior officials and staff of DC's federally qualified health centers (FQHC's), hospital-affiliated primary care practices, and other major providers of primary care in DC. The interviews and surveys assisted in gathering information related to service utilization, patient characteristics, and provider capacity. The community forums gathered information from residents of Wards 4, 5, 7 and 8 on their perspectives on health care needs, service gaps, and barriers to care.

To answer the PCNA's key question regarding unmet need for care, JSI developed and calculated visit-based estimates of the District's primary care need, demand, and supply based on a range of local and national data. These estimates were based on quantifying the extent of common barriers faced in the health system such as culture, language, economics, education, and insurance status. The analyses also incorporated utilization

> **Measure Definitions:**
> **Need**: the number of annual primary care visits an individual would have based on their age, sex, and health status assuming there are no barriers
>
> **Demand**: the number of annual primary care visits an individual is expected to seek accounting for barriers
>
> **Utilization**: the number of annual primary care visits an individual actually receives
>
> **Supply**: the number of primary care visits available based on aggregated provider full-time equivalents (FTE)

numbers when claims data were available. (See the inset box for the definition for each of the measures.) Using these visit-based calculations allowed for a more precise measurement of the primary care system's capacity than what commonly-used methods such as population–to-provider ratios are able to yield.

Key Findings

The PCNA makes clear that while there are gains to be made towards ensuring access to primary care in the District, achieving those gains will require strategic, data-driven approaches. At the surface, the PCNA confirms that the District has an ample provider supply overall to meet the primary care needs of its residents, and that there are inequities in the distribution of providers geographically across the District. In particular, two of the District's eight wards, Wards 4 and 7, have provider capacity that is below half of the primary care capacity needed to serve the resident population while other wards have capacity six times the level of estimated need for the wards' populations. However, the PCNA's

synthesis of multiple sources of data reveals that the District's primary care system and how residents engage with it is more complex. Key findings from the synthesis of the data include the following:

Sufficient primary care capacity to serve the District's residents

There is an abundant overall supply of primary care providers practicing in the District relative to the resident population; provider capacity, however, is not evenly distributed throughout the city. Visit-based estimates of need, demand, and capacity indicated that Wards 4 and 7 have provider capacity that is below half of what is needed to serve their resident population.

Primary Care Population to Provider Ratio Compared to HPSA Shortage Threshold
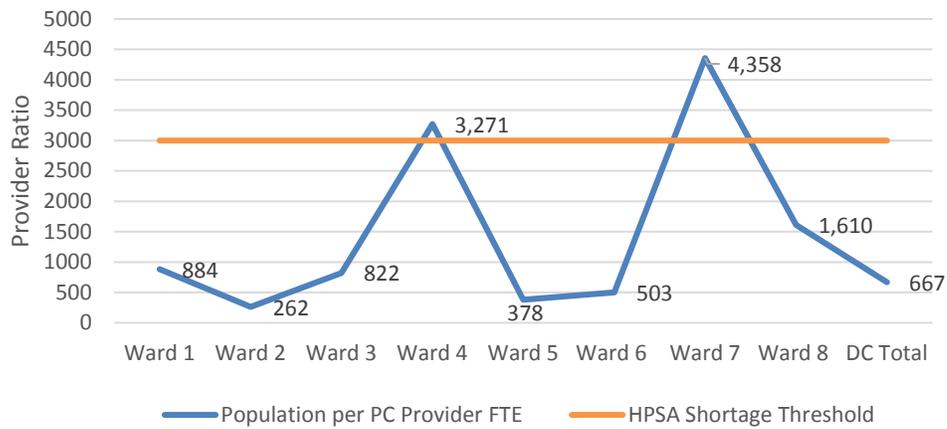
Primary Care Provider Capacity Estimates Compared to Minimum
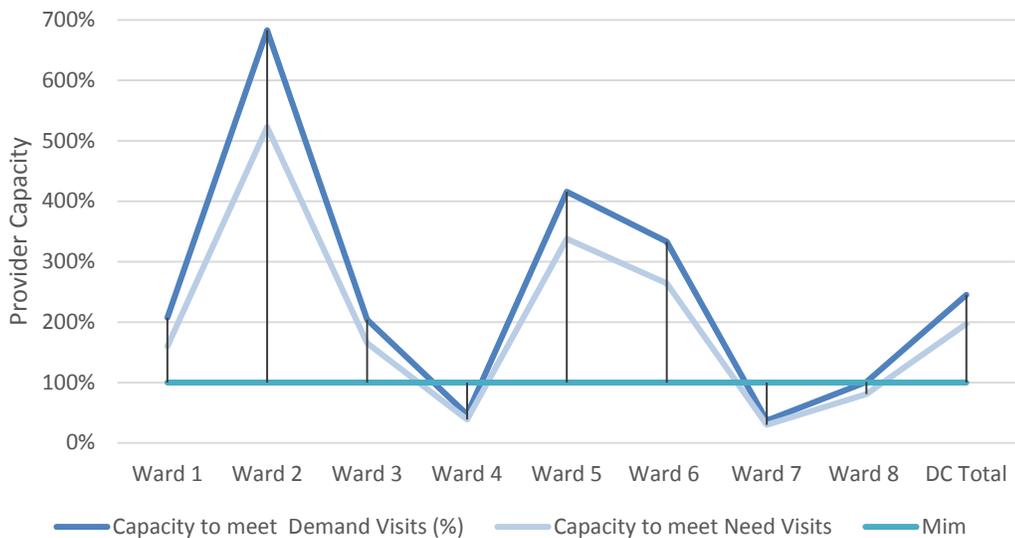
High representation of physicians in the District's primary care workforce

The District's primary care supply is substantially reliant on physicians compared to other provider types. Compared to the national average of 71%, physicians represented over 81% of the provider visit capacity in DC, and in Wards 7 and 8, physicians represented over 90% of primary care capacity.

Representation of Primary Care Staff within Each Ward

Ward 1	Ward 2	Ward 3	Ward 4
77% / 18% / 3% / 2%	79% / 15% / 5% / 1%	76% / 22% / 1% / 1%	66% / 23% / 6% / 5%

Legend: ■ Physician ■ Nurse Practitioner ■ Physician Assistant ■ Certified Nurse Midwife

Ward 5	Ward 6	Ward 7	Ward 8
80% / 16% / 2% / 2%	89% / 9% / 2% / 0%	89% / 11%	90% / 6% / 4%
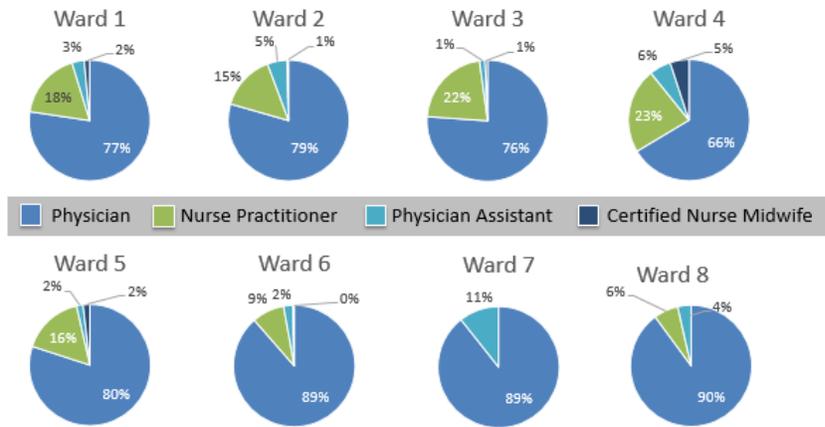
Use of primary care is not defined by geography nor travel time for Medicaid patients

Percentage of Medicaid Enrollees with 1 or more Primary Care Visits

Ward 1: 58%, Ward 2: 49%, Ward 3: 40%, Ward 4: 58%, Ward 5: 54%, Ward 6: 54%, Ward 7: 58%, Ward 8: 58%

Utilization % (y-axis: 0%–70%)

■ Patient Utilization
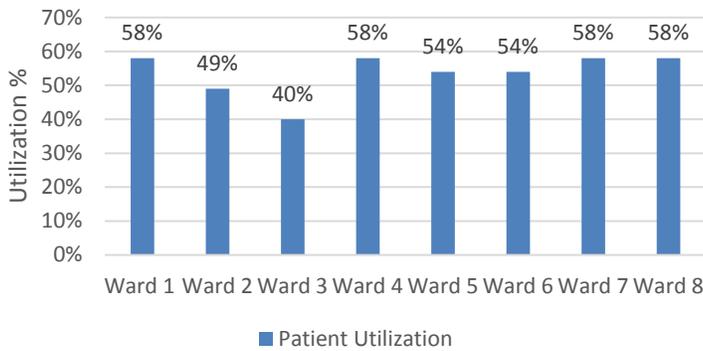
PCNA analyses of Medicaid claims data suggest that engagement in and utilization of care is not clearly associated with available care near a patient's area of residence. Medicaid patients – regardless of ward of residence - generally travel for their care, often bypassing closer care sources.

DC Medicaid Patients Comparison of Location of Received Primary Care

75% all *Outside* their ward

14% all *Inside* their ward
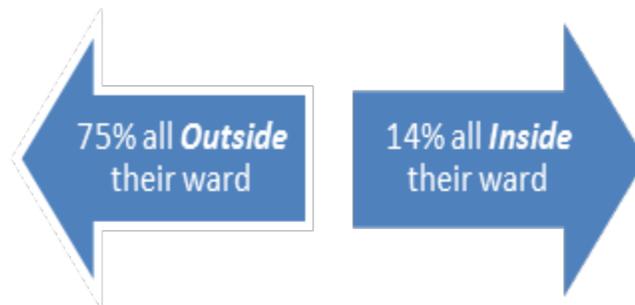
Low community-level preference for local health care resources

At the zip code and ward level, Medicaid analyses revealed that community travel patterns were diffuse. The most frequent destination zip codes generally accounted for less than a quarter of the originating zip codes' primary care claims. Analysis of hospital discharge data indicated that insurance type, private insurance vs Medicaid, rather than the patient's zip code of residence predicted the hospital where the patient received inpatient care.

Medicaid Primary Care Visits, Volume and Preference by Zip Code (2015 - 2016)
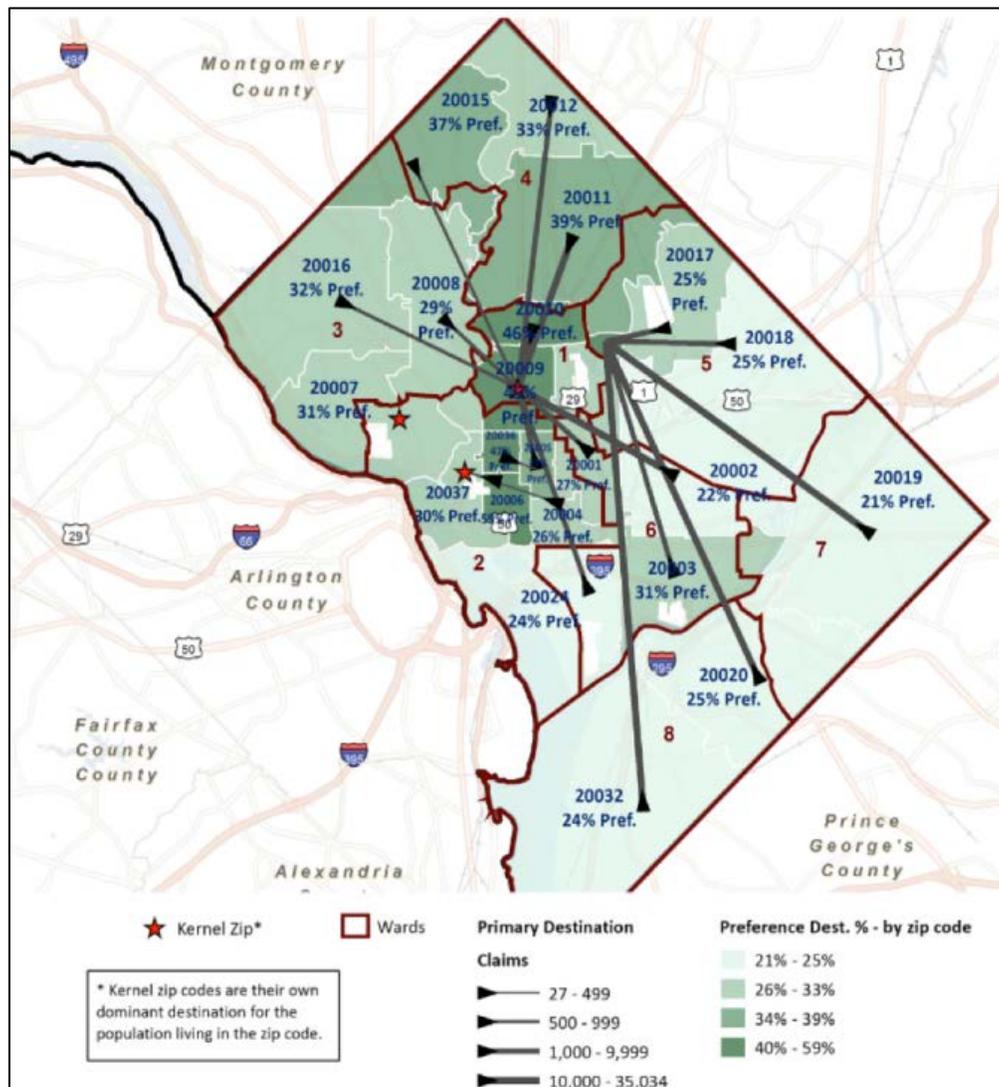
Hospital Patient Discharge:
Zip Code Origin-Destination & Preference for Medicaid vs Private Insurance (2014)
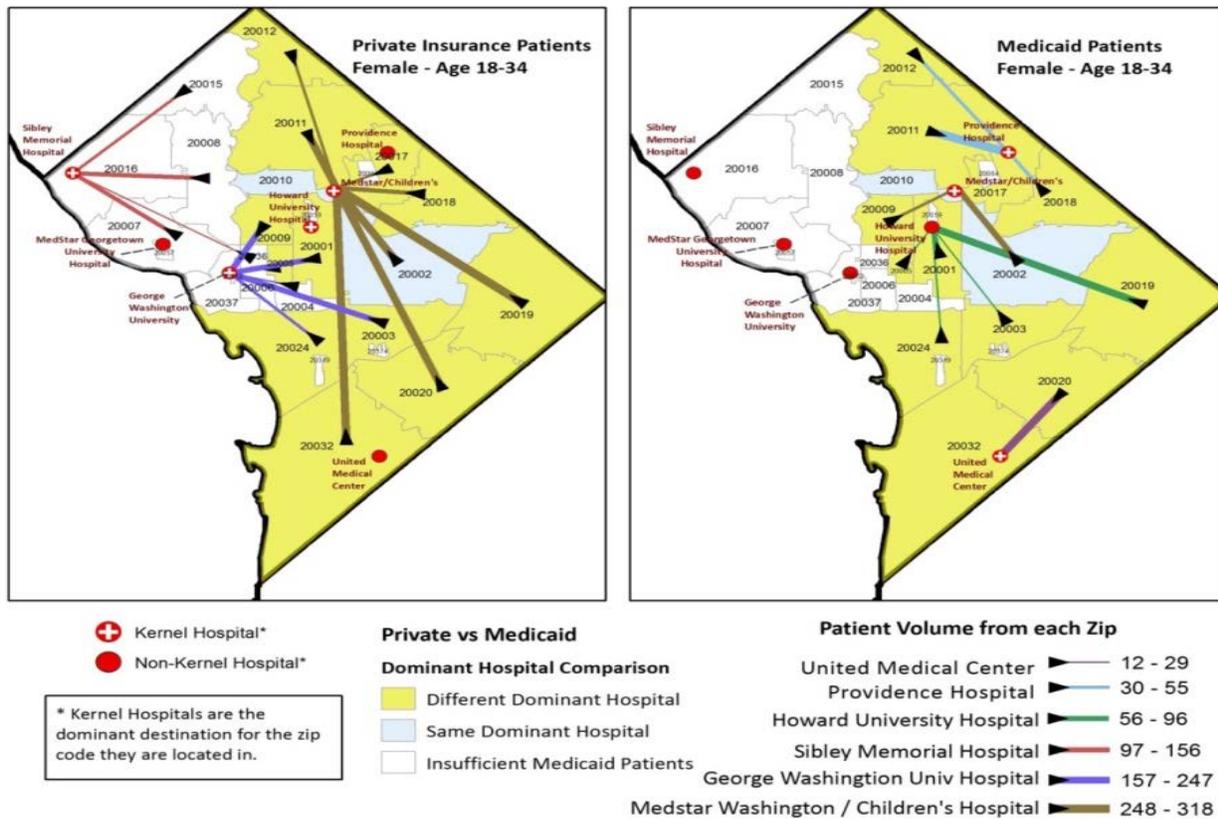
Low engagement with a medical home for primary care

At least two out of five Medicaid enrollees received primary care services at multiple locations. Children were the most likely to receive primary care at one location while women aged 18 to 34 were least likely to receive their primary care at one location.

Number of Sites Medicaid & Alliance Patients Accessed
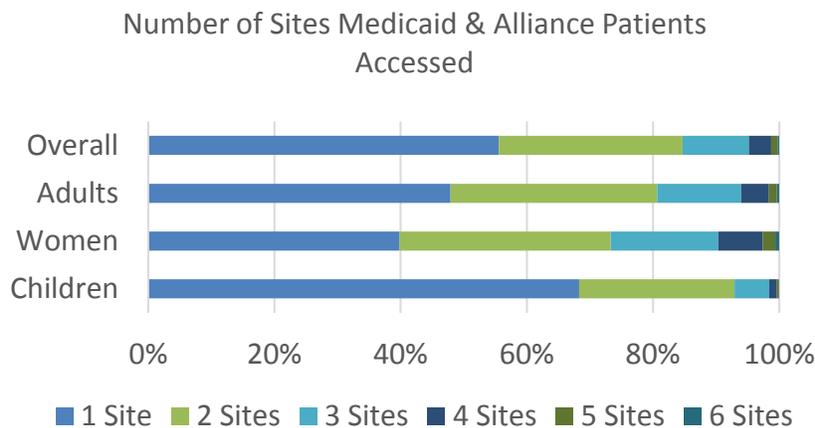
Low utilization of primary care amongst all Medicaid enrollees

Approximately four out of ten DC Medicaid enrollees did not have any primary care visits in the 12-month period reviewed. Women aged 18 to 34 were the least likely among the population groups to have had a primary care visit. Data also showed that almost 70 percent of these women were not engaged in care.

Medicaid Engagement by Sub-Group

Overall 56%
(0 – 100+)

Adults 54%
(35 – 64)

Women 32%
(18 – 34)

Children 65%
(<18)
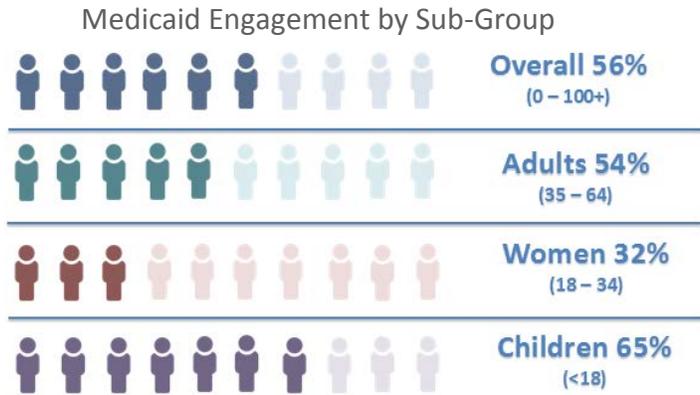
Higher-than-expected utilization amongst Medicaid enrollees who accessed care

DC Medicaid enrollees are expected to demand 1.9 visits per enrollee (given existing barriers) and to need 2.4 visits (after overcoming barriers.) However, Medicaid enrollees who had at least one primary care visit over a 12-month period (i.e. patients) utilized more primary care than predicted, accessing 3.7 visits per enrollee.

Patients' Primary Care Utilization Compared to Estimates of Need and Demand

Ward	Need	Demand	Utilization
Ward 1	2.42	1.96	3.81
Ward 2	2.34	1.91	3.92
Ward 3	2.59	2.13	3.43
Ward 4	2.41	1.94	3.57
Ward 5	2.45	1.99	3.81
Ward 6	2.36	1.92	3.72
Ward 7	2.38	1.91	3.61
Ward 8	2.35	1.87	3.57
DC Total	2.39	1.93	3.68
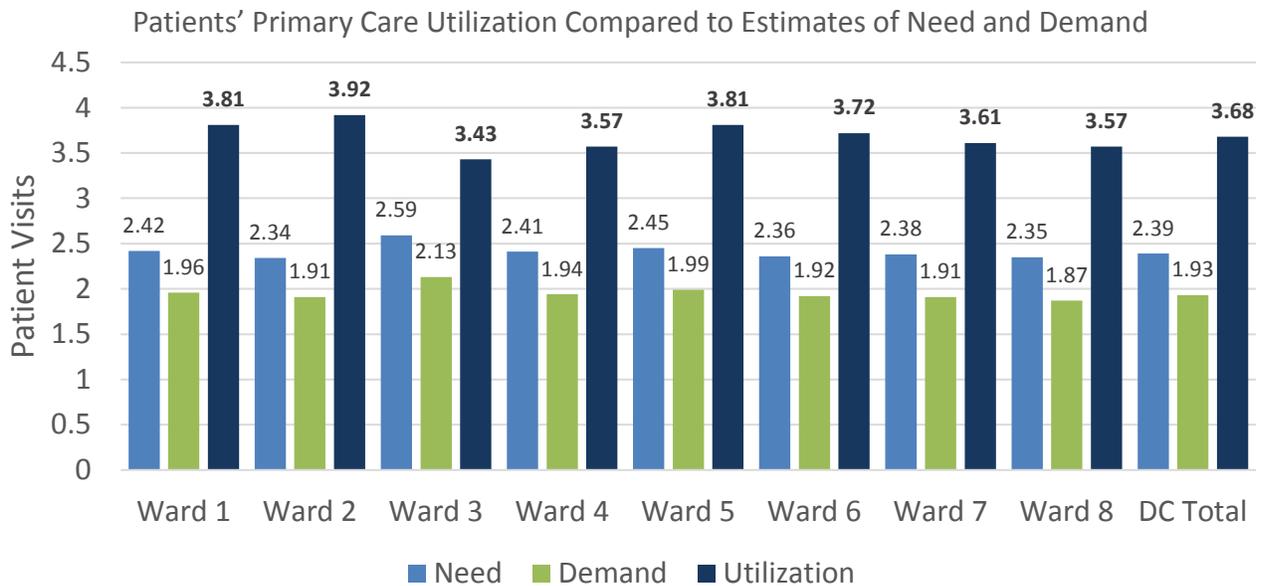
Untapped Medicaid provider capacity

Review of the Medicaid claims showed that there is a substantial proportion of providers who are actively participating in Medicaid - but at a fraction of their total potential capacity (at an average of 15% of their total capacity). It is therefore likely that the existing pool of actively participating Medicaid providers could absorb additional Medicaid patient demand.

Comparing Medicaid Provider Participation to Estimated FTE to Meet Patient Demand
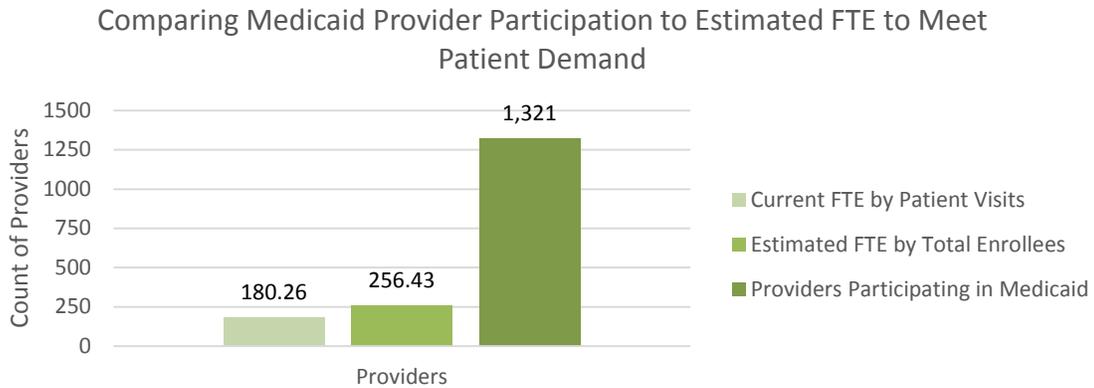
Gaps in systems of care

Qualitative data indicates there is a high degree of care fragmentation and lack of structural avenues for care coordination in the District. This fragmentation exists within the continuum of care, regarding integrated health care services, thus preventing patients from comprehensively addressing their health care needs.

Patient Care-Seeking | **Vertical Fragmentation** | **Horizontal Fragmentation**
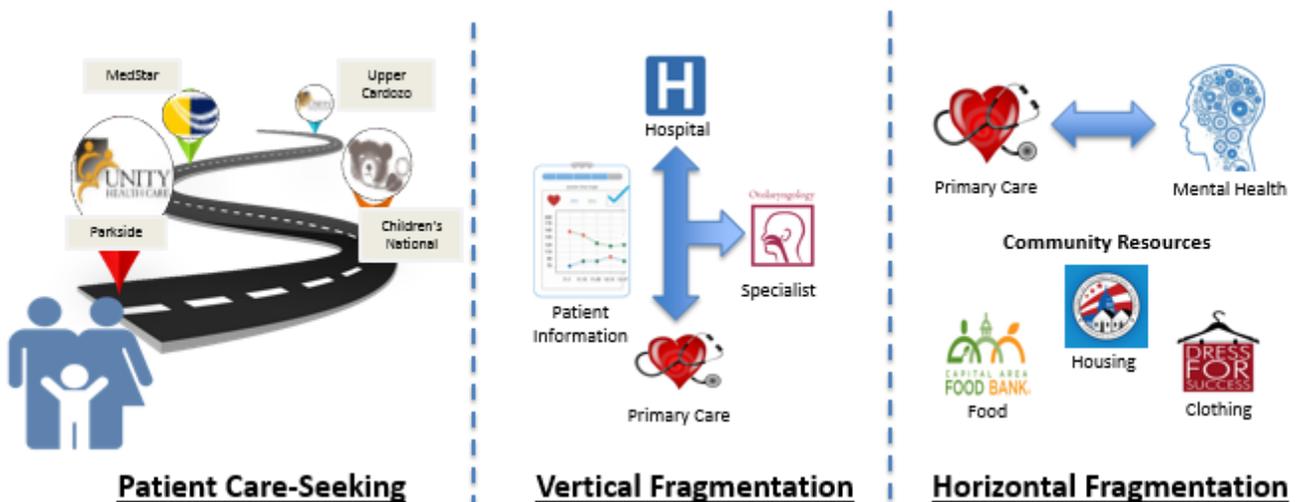
From Assessment to Action

In response to the key findings and recommendations from JSI, DC Health has identified the following priorities that will be woven into its diverse efforts to strengthen the District's primary care system and maximize the system's role in improving the health of District residents. While DC Health will use the PCNA to guide the development of new programs, its approach will reflect a recurring theme from the PCNA: first, leverage existing resources and partnerships where possible to address priorities.

Address patient perception of brand, quality, and convenience: The Health Care Access Bureau (HCAB) through its Primary Care Office (PCO) will target resources to support initiatives to improve care quality and customer service, with an emphasis on initiatives to increase cultural competency of the primary care workforce, increase patient satisfaction, and increase care accessibility. DC Health will also work to increase the public's awareness of where residents can access primary care and the benefits of doing so (i.e. primary care literacy). The PCO will also conduct "deep dives" of available data to identify trends and significant determinants of patients' selection and utilization of a medical home.

Promote use and accessibility of the medical home, especially among women: Beginning in Fiscal Year 2019, the PCO will provide funding through the Care Transformation (CaT) grants to support team-based care coordination, patient engagement and satisfaction, and clinical-community linkages to improve continuous engagement and health outcomes for women.

Engage residents who are not accessing care: DC Health will target bringing residents into care by adding to its work with community partners an explicit focus on populations that have not utilized primary care in two or more years. Two grant programs developed for FY19 include this focus. Innovative outreach methods that DC Health will use or support to reach these residents include but are not limited to, city-wide marketing campaigns, targeted educational interventions, care coordination, patient navigation, and other health literacy initiatives.

Promote the development of systems of care that emphasize community-clinical linkages and care transitions, and ensure that residents across the District can access these systems locally: DC Health, in partnership with District sister-agencies, is also increasing its focus on ensuring greater vertical and horizontal integration among local sources of care. Strengthening connections across sources of care will be a central facet of its direct work with medical and social service providers.

Ensure a workforce that supports team-based care delivery: HCAB will leverage its existing workforce programs, such as the Health Professional Loan Repayment Program (HPLRP), to promote team-based models of care delivery as well as encourage team-based care models and

diversification of the primary care workforce through the CaT grants and various Oral Health Workforce grant initiatives. HCAB's PCO and Oral Health Programs will also continue to gather data and conduct analyses on the composition of the workforce through its partnerships with the Boards of Medicine, Nursing, and Dentistry and will engage with DC's health professional schools and associations, and employers to implement policies and programs that respond to identified workforce trends and gaps.

Encourage maximizing and strategically leveraging existing provider resources to address identified and perceived gaps: HCAB will provide guidance to agency and community partners, such as the SHPDA, to identify and implement solutions to District-wide needs that emphasize adapting existing resources and building new partnerships - before recommending new health care access points.

Strengthen partnerships and systems to routinely collect, analyze, and disseminate data on access to care: DC Health is actively establishing, evaluating and enhancing data-sharing partnerships among agency and community partners to facilitate sharing of critical data for assessment and evaluation purposes. Examples of key data partners include DHCF, the DC Hospital Association, and within DC Health: Vital Records; Center for Policy, Planning and Epidemiology; and HRLA. Both the PCO and the Oral Health Program are in the process of establishing key indicators for continuously assessing primary care access and are exploring the best mechanisms for disseminating the data and findings. These mechanisms include both technology platforms for sharing data, such as Tableau, and written materials such as fact sheets, reports, and policy documents.

Identify and explore emerging issues through targeted quantitative and qualitative data collection and analyses: HCAB programs will conduct targeted explorations of key findings from the PCNA. These in-depth explorations will involve collecting and analyzing existing and new datasets to address key questions identified through routine monitoring activities. Recognizing that many questions cannot be answered quantitatively, the programs will collect qualitative data from consumers and providers, through focus groups and key informant interviews, to understand key populations' experiences and decision-making processes related to accessing and providing care.

Collectively, these activities will help DC Health and stakeholders in appropriately targeting and directing resources to strengthen the capacity of the primary care system to ensure that every resident has access to quality primary care at the right place and right time.

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INTRODUCTION AND BACKGROUND

Introduction

The purpose of this Primary Care Needs Assessment (PCNA) report is to provide critical guidance to the DC Department of Health (DC Health) and other primary care stakeholders across the District on the development of a strong, accessible, equitable primary care system capable of providing the highest quality services in a cost-effective manner to those who live and work in DC. The PCNA Report was informed by the collection, compilation, and analysis of quantitative and qualitative data related to primary care need, demand, and supply in DC. The original intent of the primary care needs assessment was to answer the following questions:

- Is there an unmet need for primary care services among DC residents? If so, where in the city (geographic areas) and/or among what populations does the unmet need exist?
- What are the factors that inhibit or facilitate District residents' access to primary care services?
- How should the District improve access to primary care for its residents (prioritized)?
- How should the District continue to monitor access to primary care?

And the findings from the PCNA were intended to accomplish the following:

- Inform the primary care component of a Health Systems Plan for the District;
- Guide DC Health's investments in access to care initiatives;
- Provide information to key stakeholders that are involved in decision-making around health center expansions, including: health centers, the DC Primary Care Association, hospitals, and the State Health Planning and Development Agency (SHPDA);
- Prioritize Health Care Access Bureau (HCAB) Health Professional Shortage Area (HPSA) and Medically Underserved Area (MUA) designation reviews;
- Assist the HCAB to target recruitment and retention activities; and
- Complement existing needs assessment efforts.

DC Health contracted with John Snow, Incorporated (JSI) to conduct the PCNA in conjunction with the Health Systems Plan (published in July 2017). The Health Systems Plan (HSP) was developed by the SHPDA and the Statewide Health Coordinating Council (SHCC) to serve as a roadmap for the development of a comprehensive, accessible, equitable health care system in DC with respect to the core components of DC's health system: hospital services, behavioral health services, post-acute care services, and primary care. The PCNA lends to the HSP a more rigorous review of DC's primary care system than what was possible for the other core health service components covered (i.e. hospital services, behavioral health, and post-acute care).

The PCNA analyses and report were completed jointly by JSI and staff of the Health Care Access Bureau (HCAB) within DC Health's Community Health Administration.

The HCAB is the organizational home of DC's Primary Care Office (PCO) which, through a cooperative agreement with the Health Resources and Services Administration (HRSA), is responsible for coordinating activities and resources within the District that relate to the delivery of primary care services and the recruitment and retention of critical health care providers. Specifically, the PCO carries out the following key activities:

- Conduct statewide analysis of unmet need, disparities, and health workforce issues.
- Coordinate the HPSAs and Medically Underserved Areas/Populations (MUA/Ps) designation process within the District to ensure consistent accurate assessment of underservice including data collection, verification, and analysis as applicable.
- Provide technical assistance and collaboration to expand access to primary care including: coordination of the District's Health Professional Loan Repayment Program, of the National Health Service Corps (NHSC) and NURSE Corps programs; planning and execution of other provider recruitment and retention activities; collaboration with health center planning and development; and collaboration with other HRSA partners and organizations to support access to primary care services.

In addition to guiding DC Health's work in primary care, the PCNA Report also helps to fulfill one of DC Health's requirements as part of its PCO cooperative agreement with HRSA.

Background

There is an increasing awareness of the importance of a strong patient-centered health care system that is able to provide comprehensive primary care to all segments of a region's population. DC Health defines primary care as the provision of first contact, person-focused, ongoing preventive and sick care as well as the coordination of care for patients that require higher-level services. Inherent in this concept of primary care is that care addresses the "whole-person" and is thus inclusive of medical, dental, mental health, and substance use services as well as case management and other enabling or non-clinical services. These services are most effectively delivered through a patient-centered medical home (PCMH) model in which patients are at the forefront of care and services provided embody the following attributes: comprehensive, patient-centered, coordinated, accessible, and quality services.[1] The patient centered medical home (PCMH) model encourages close partnerships between patients, primary care providers, and a range of health-related stakeholders to ensure that individuals and families are able to navigate an increasingly complex health care system.[2]

There is ample research that shows the effects of primary care and its ability to prevent or manage illnesses before they become severe and impair health status. The availability of high quality, whole-person centered, and accessible primary care has been shown to improve health outcomes and increase longevity. It has also been shown to reduce preventable hospital emergency department visits and inpatient stays, as well as reduce the need for costly tests and specialty care services. Individuals with a regular primary care provider are also more likely to receive vital health education and the preventive services that are necessary to preventing and managing illness and death.

To effectively address patient needs, primary care practices must be one component of a network of care including other public and private, clinical and non-clinical organizations across the service continuum. Some partners that complement the network of care are: public health agencies, social service organizations, hospitals, behavioral health providers, dental providers, post-acute providers, and other clinical and non-clinical providers. While collaboration is critical regardless of the type of health-related services provided, the

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[1] Agency for Health Care Research and Quality (AHRQ). Defining the PCMH. AHRQ Website: https://pcmh.ahrq.gov/page/defining-pcmh. Accessed March 2017

[2] Defining the medical home: A patient-centered philosophy that drives primary care excellence. Patient-Centered Primary Care Collaborative Web site. https://www.pcpcc.org/about/medical-home. Accessed March 2017.

fundamental nature of primary care makes it even more important that there are broad efforts to allow for communication, collaboration, and coordination of services across the health system. Research shows that a strong primary care system enhances the overall performance of health systems with respect to both outcomes and costs.[3] This is especially important in the context of a region's "safety net" system, given the needs and challenges facing low-income, underserved, and vulnerable populations who are more likely to face barriers to access and disparities in health-related outcomes.

Recognizing the critical importance of primary care as the cornerstone of a strong system of health care for the District – and driven by assessments of the District's health care system, between 2006 and 2015, the Government of the District of Columbia invested over $90 million in local funds to renovate, expand, or construct new community-based primary care facilities throughout the District. A total of 16 projects were carried out with funding from both annual appropriations and proceeds from the sale of bonds backed by the District's share of the tobacco settlement (i.e. Tobacco Settlement Asset-Backed Bonds). The Tobacco Settlement funds supported nine of the most expansive projects, including seven community health center projects and two hospital projects in Wards 2, 4, 5, 7, and 8. Completed projects ranged from renovations within hospital emergency departments to construction of multi-floor multi-purpose stand-alone buildings and yielded a total of 186,000 additional square feet of clinical and multi-use space.

Given the expansion of primary care services resulting from the District's investments outlined above and other complimentary changes in the health care landscape, DC Health proposed to conduct, through a contract with JSI, a comprehensive needs assessment to assess the current system. The PCNA, as originally proposed, was intended to provide an update to the assessments conducted by the RAND Corporation in 2008 that guided the District's investment of Tobacco Settlement Funds: *Assessing Health and Health Care in the District of Columbia – Phase 1* and *Assessing Health and Health Care in the District of Columbia – Phase* 2.

I.   APPROACH, DATA SOURCES, AND METHODOLOGY

Section Highlights

- Four components of assessment: quantitative data collection and analysis, key informant interviews, PCNA provider survey, and synthesis of quantitative and qualitative data measures

- Key PCNA data sources: Medicaid claims (DHCF), provider licensure data (HRLA), hospital discharge (DCHA), U.S. Census, Behavioral Risk Factor Surveillance System (BRFSS), Uniform Data System, Medical Expenditure Panel Survey (MEPS)

- Key indicators measured: supply/capacity, need, demand, and utilization

- Visit-based calculation of all indicators

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[3] Phillips, RL and Bazemore, A. Primary care and why it matters for the US health system reform. *Health Aff.* 2010; 29: 5806-5810.

A. Overall Approach

The PCNA endeavored to collect and compile a range of data to assess primary care demand and supply in the District, including the extent to which there is inadequate primary care capacity (unmet need) or barriers that inhibit primary care access for DC residents. Through both quantitative and qualitative data analysis, the PCNA sought to answer the four core questions related to primary care access (see box). Ultimately, conducting the needs assessment involved four distinct areas of work: 1) quantitative data analysis, 2) key informant interviews, 3) a provider survey, and 4) the synthesis of quantitative/qualitative data. The first three tasks were conducted essentially in parallel and then, once completed, were woven into the fourth and final synthesis and reporting task. The following is a brief description of each of these tasks.

Task 1: Quantitative Data Collection and Analysis

In order to accomplish the PCNA, a range of secondary data was compiled that allowed the HCAB to assess primary care demand and supply. More specifically, with respect to demand, the HCAB, in concert with SHPDA and the SHCC, compiled data from the U.S. Census Bureau on the size and distribution of the current population with respect to geography, race, ethnicity, language, income, disability status, and other variables. Additional secondary data from a variety of sources was also compiled to assess health status, risk factors, the burden of disease, and the impact of social determinants of health. These data were compiled and summarized and were used to inform both the HSP and the PCNA. A full discussion of these issues is included in the HSP and is referenced in the PCNA. Next, data was drawn from the DC Board of Medicine Physician and Physician Assistant Workforce Capacity Survey

> **DC Primary Care Needs Assessment Core Questions**
>
> **QUESTION A:** Is there an unmet need for primary care services among DC residents? If so, where in the city (geographic areas) and/or among what populations does the unmet need exist?
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> **QUESTION B:** What are the factors that inhibit or facilitate District residents' access to primary care services?
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> **QUESTION C:** How should the District improve access to primary care for its residents (prioritized)?
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> **QUESTION D:** How should the District continue to monitor access to primary care?

to inform primary care provider capacity. In this regard, there was significant effort to compile, parse, and standardize the data so that it could be used to effectively inform this work. Finally, Medicaid primary care claims data was compiled from the DC Hospital Association and the DC Department of Health Care Finance to augment the capacity assessment, by underscoring the utilization patterns of the patients. This data was applied primarily to inform a response to Question A related to unmet need. A more thorough review of the methods that were applied to fully integrate these data and determine the level of unmet need is included below.

Task 2: Key Informant Interviews

The PCNA was anchored by the quantitative data discussed in Task 1. This data is integral to describing and determining what is occurring, but it does not provide the more nuanced information to explain underlying factors, why various factors are happening, and how it is impacting District residents and the service system. In

this regard, key informant interviews were conducted with senior representatives from 15 of the District's core primary care practice providers, a list that was compiled based on HCAB's extensive knowledge and experience working with DC's primary care network. This list was compiled with the aim of including a representative set of providers of various types that were responsible for providing the bulk of primary care services to District residents. The qualitative information gathered through the interviews was used to better understand the major needs, service gaps, and barriers to care facing DC's residents, as well as the leading strengths, weaknesses, and challenges facing the District's primary care network. This data was applied primarily to inform the barriers that inhibit access to care as asked by Question B. A listing of the key informants that were interviewed for the PCNA is included in Appendix C. The Key Informant Interview Guide is included in Appendix D. The qualitative information collected through these interviews was greatly augmented by the HSP qualitative data collected through its 33 key informant interviews and three community forums. A discussion of these interviews and community forums can be found in the 2017 DC HSP.

Task 3: PCNA Provider Survey

Additional quantitative and qualitative information was captured through a survey that was completed by the same set of Core Primary Care Providers who were interviewed in Task 2. This comprehensive survey was designed to capture quantitative and qualitative data related to: 1) general practice characteristics, 2) practice staffing/capacity, and 3) services provided and patient characteristics. The quantitative and qualitative data compiled through the survey was used to augment the quantitative data compiled in Task 1 to clarify unmet need, as well as the qualitative information collected in Task 2 to clarify barriers that inhibit primary care access. Despite substantial efforts, the response rate for the survey was only 36%. Substantive vital information was collected but the response rate limited HCAB's ability to use the quantitative data to augment some of the PCNA's core questions. A copy of the PCNA Provider Survey is included in Appendix D.

Task 4: Synthesis of Quantitative/Qualitative Data and Reporting

Once Tasks 1, 2, and 3 were completed, HCAB and its consultant team synthesized and integrated the broad range of quantitative and qualitative data that was collected for both the PCNA and HSP and developed a series of draft reports, which were reviewed internally at HCAB to ensure that the findings, discussions, and various other report components were clear and comprehensive.

B. Data Sources

The following is a listing and brief description of the breadth of quantitative and qualitative data that was compiled and analyzed to inform the PCNA.

i.   *QUANTITATIVE DATA SOURCES*

a.   *Population Characteristics, Social Determinants, and Health Status*

To describe and assess population characteristics, quantitative data was compiled to characterize the population (demographically, socioeconomically, and geographically) and to identify the (1) leading health-related risk factors, (2) social determinants of health, (3) causes of morbidity/mortality, and (4) at-risk target populations. This information was compiled primarily from existing quantitative secondary data sources, including data from *Healthy People 2020*, the Behavioral Risk Factor Surveillance System (BRFSS), a recent

Community Health Needs Assessment (CHNA) conducted by the DC Healthy Communities Collaborative, and a range of other existing secondary sources provided by DC Health. The leading data sources and associated core variables included:

Demographics, Socioeconomics, and Social Determinants
- **US Census Data**. *American Community Survey (ACS)* Data (2011-2015), 1-Year Estimates and 5-Year Estimates. These datasets includes demographic, family composition, poverty, income, housing, and other data variable for DC residents overall, by census tract and by ward.

Epidemiologic Data
- **Healthy People 2020.** *The District of Columbia Healthy People 2020* Framework is a shared community health agenda that monitors 150 objectives and targets for the year 2020, and recommends over 85 strategies to improve population health. Data was pulled on selected variables to assess current health status.

- **BRFSS (2014).** The *Behavioral Risk Factor Surveillance Survey* is an annual telephone survey conducted in every state in the U.S., DC, and three U.S. territories. The survey collects data on chronic diseases and related health behaviors from a randomly selected adult in each household that participates. Data was pulled on selected variables to assess current health status.

- **DC Healthy Communities Collaborative Community Health Needs Assessment.** The DC Healthy Communities Collaborative is group of community health leaders and organizations, formed in 2012, to assess and address community health needs in the DC area. In 2015-2016, the collaborative conducted a community health assessment identifying health needs within the District.

- **Range of Data from DC Government Sources.** Data was compiled from a broad range of sources from across DC Government including DC Health, the Office of Planning, the Department of Housing and Community Development, the Department of Health Care Finance, the Department of Behavioral Health, and others.

b.   *Assessment of Primary Care System Strength, Service Distribution, and Utilization Trends*

With respect to assessing the strength and capacity of DC's primary care system, an array of health service utilization, capacity, and claims data was compiled and analyzed to assess primary care capacity, service gaps or shortages, unmet need, and distribution of services across the District.

Utilization and Claims Data
- **Hospital Discharges.** The inpatient discharge data reflects a de-identified list of all hospitalizations taking place at short-term medical hospitals located within DC during 2014. This data provides information about the patients' location (zip code only), age, sex, and other personal characteristics, as well as the facility to which they were admitted, the length of stay, diagnoses, procedures, etc. The data permits the examination of access patterns for hospital services by DC residents, as well as the utilization of DC facilities by residents of surrounding states. The diagnoses can be used to examine

Ambulatory Care Sensitive (ACS) conditions and serve as a 'marker' or reference condition for hospitalizations.

- **Hospital Emergency Department (ED) Discharges (2014).** Similar to the hospitalization data, this data set provides the ability to look at patterns of ED utilization and the degree to which primary care and ambulatory-care sensitive conditions are being provided through the ED. Similar origin-destination matrices are developed to examine patient flow from within a community for ED services.

- **Medicaid Claims Data.** Claims information was generated based on a structured de-identified data request that was submitted at the outset of the project. This data set covers all Medicaid and DC Alliance (Medicaid[4]) billed office visits during a one-year period from June 2015-May 2016. The data request yielded a total of over one million claims. This file was then scrubbed to limit the PCNA analyses to enrollees residing within the District and for services billed by a primary care physician, ultimately resulting in a total of 630,902 claims. It should be noted that FQHCs may be overrepresented in the claims data as all claims localized to a FQHC were included in the final claims data set regardless of whether they were confirmed to be primary care.

- **Medicaid Enrollee Data.** Medicaid enrollee data information was generated based on a data request for a de-identified list of all enrollees covered by Medicaid between June 2015 and May 2016. Data elements provided included the member's sex, zip code, ward, date of birth, and certificate of eligibility and enrollment dates.

Primary Care Supply and Capacity Data
- **Primary Care Licensure and Survey Data (2016).** Files listing all licensed providers in the typical primary care disciplines (i.e. Family Medicine, Internal Medicine, Pediatrics, and Obstetrics and Gynecology) were obtained from the Board of Medicine, which included data on all Physicians (MDs and DOs) and Physician Assistants (PAs). The physician data also provided data on Psychiatrists – one of the listed specialties for mental health. Separately, the Board of Nursing supplied licensure data on Nurse Practitioners (NPs) and Certified Nurse Midwives (CNMs). Lastly, the Board of Dentistry provided licensure and capacity data for general and pediatric Dentists. With the exception of the Board of Nursing data, the files also contained the responses to routine surveys conducted as part of the licensure process, with details on the locations, hours, and nature of the providers' practices.

- **PCNA Provider Survey and Interviews (2017).** Quantitative and qualitative information on capacity were collected through a survey and interviews of Core Primary Care Providers. The survey was developed and distributed to over 20 District providers.

- **FQHC Uniform Data System (UDS) (2015).** Capacity and other health-related data is compiled from HRSA's Bureau of Primary Health Care, the DC Primary Care Association, and DC's Federally Qualified Health Centers.

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[4] The term "Medicaid" will be used from here and throughout to express the representation of both DC Medicaid and DC Alliance.

Specific Characteristics of DC's Core Primary Care Practices

PCNA Provider Survey and Interviews. In addition to capacity data referenced above, the Provider Survey also gathered information on: 1) general practice characteristics, 2) practice staffing, 3) services provided, and 4) patient characteristics.

ii.   QUALITATIVE DATA SOURCES

Quantitative data was supplemented by qualitative data collection methods that engaged the population and gathered information on community perceptions, care seeking behaviors, and attitudes related to major health issues, barriers to care, service gaps, unmet needs, and overall strengths and weaknesses of the health care system. The following is the array of qualitative methods that were applied to engage the community and other key stakeholders in DC.

- **PCNA Key Informant Interviews.** Key informant interviews were conducted with senior representatives from 15 of the District's Core Primary Care Practice Providers, which was compiled based on HCAB's extensive knowledge and experience working with DC's primary care network. The qualitative information compiled through the interviews was used to better understand the major needs, service gaps, and barriers to care facing DC's residents, as well as the leading strengths, weaknesses, and challenges facing the District's primary care network.

- **General Key Informant Interviews.** Face-to-face interviews were conducted as part of the HSP with over 30 individuals from August to December of 2016. HSP key informants include health and public officials, service providers, representatives from advocacy groups, consumers, and other community leaders. The purpose of the interviews was to collect qualitative information that would allow for confirmation and refinement of quantitative data findings. This information provided important context and clarified the needs and priorities of the community. Finally, the interviews identified a series of core initiatives, tied to community need and health system capacity, that were likely to have broad buy-in for the HSP. A list of HSP key informant interviews can be found in Appendix A.

- **Community Forums.** Three community forums were organized as part of the HSP to capture input from residents on community need and health-related priorities, service gaps, and barriers to care across a wide array of health-related service and community resource domains (e.g., health, housing, parks and recreation, transportation). These forums engaged the community in a way that was both educational, in that they provided information on issues that were affecting their health, and engaging. Care was taken to reach out to, identify, and engage those who are typically hard to reach to ensure that all ideas and perspectives were gathered. This allowed the assessment to gather important community input to inform the assessment and prioritization of the health-related issues identified by other parts of the assessment. Most importantly, the forums supported the development of a targeted, community-oriented HSP and PCNA. The community forums took place over a 2–3 hour period and involved a structured set of plenary and group activities, which maximized engagement and information gathering. The forums took place in Wards 7/8 (December 7, 2016), Ward 5 (December 10, 2016), and Ward 4 (January 14, 2017), allowing the project to gather information directly from community residents who were likely experiencing the greatest health disparities.

C. Methodology

The first consideration to be addressed in the PCNA is that of provider adequacy: Is there an unmet need for primary care services among DC residents? If so, where in the District (geographic areas) and/or among what populations does the unmet need exist?

It is worthwhile starting this discussion with some background that will help explain the methods used and the findings for this section of the report. The question of identifying and measuring unmet 'need' for primary care services is a deceptively simple proposition on the surface, but the answer is fraught with complexities in both definition and measurement. Even once the underlying factors have been quantified there are several different ways of comparing them and for setting the threshold for 'adequacy.' In this report we have sought to employ methods that take the many nuances of the need and capacity calculation into account to derive estimates that are as reflective as possible of the underlying characteristics of DC's varied communities, and to rely on comparative methods that objectively define what levels would be considered both adequate and also optimal. The difference between these two estimates is a broad range of 'barriers' to care that will be discussed separately. The methods also allow for a further exploration of the nature of the provider base in the city, as well as a deeper examination of the complex interactions between the delivery system and various components of the underlying population that relies on it.

i. CALCULATING NEED – OVERVIEW

The term 'need' itself is often quite different from what routine analyses end up assessing, and the terms need, demand, and utilization are often used interchangeably. Need can be thought of as the 'organic' care requirements of an individual or population based on current medical standards and technology. As such, need is driven primarily by intrinsic qualities of the population – principally age, sex, and health status. If an individual with a 'need' for care is able, willing, and empowered to seek services, the need will be expressed as 'demand' in the form of care seeking behavior. Much need is never expressed as demand for a variety of reasons discussed later. Even when care is sought or demanded, however, such demand is often thwarted and does not result in the services being rendered. When demand is met with available resources it results in services being rendered – commonly referred to as 'utilization.'

The factors preventing need from being expressed as demand, and demand from being met with services, consist of a variety of system deficits that are collectively referred to as 'barriers.' Many of these barriers are factors outside the realm of the medical system; however lack of adequate provider capacity within a reasonable distance is a primary barrier that is also a direct attribute of the medical system. As such, this will be explored in depth in the first section of the analysis.

> **Measure Definitions:**
>
> **Need**: the number of primary care visits (annual) an individual would have based on their age, sex, and health status after overcoming barriers
>
> **Demand**: the number of primary care visits (annual) an individual facing systemic barriers is expected to seek
>
> **Utilization**: the number of primary care visits (annual) an individual actually receives
>
> **Supply**: the number of primary care visits available, based on aggregated provider full-time equivalents (FTE)

Utilization is the observable and measurable aspect of primary care delivery, but can often be quite different from the underlying need. To address this, an analysis of the Agency for Health Care Quality and Research (AHRQ), 2013-2014 Medical Expenditure Panel Survey (MEPS) data to produce visit-based estimates of need and demand, or 'Barrier-Free' and 'Raw' (respectively) estimates for primary care visits. Barrier-Free visit estimates represent the best approximation of underlying need and are based on utilization of care by those that have traditionally had largely 'unfettered' access to medical services. Raw visit estimates are a better approximation of expressed demand in a system where barriers are typically present. The 'Raw' estimate of demand provides a useful reference point against which to measure current utilization.

Because age and sex are fundamental factors to consider when assessing individual and community need for care, adjusting the estimates based on age and sex were conducted. Generally, men tend to utilize less primary care services, have a shorter life expectancy, and more chronic illnesses than women; older individuals typically have more physical and mental health vulnerabilities compared to young people. Ultimately, demand and need primary care visit counts for 16 age and sex groups (eight age ranges by sex) were calculated.

Population-level variation in health status is another important factor in adjusting the estimated need for care by a population. Because the Barrier-Free population is found to be notably healthier than the general population, the age/sex estimates were then reweighted to reflect the average health status for each population group. 'Average' health status was calculated based on a single, encompassing measure – the percent of the population that rates their self-assessed health status as "Fair" or "Poor", which has been shown to be a reliable indicator of actual underlying physical health and outcomes.[5]

A key advantage of having an 'average health status' adjustment based on the percent (%) Fair/Poor health to correct for the bias toward good health among the Barrier-Free population is the ability to further vary the visit estimates to match the local population's average health status (measured on the same basis). This is important as health status varies sharply across the District's wards. Using the percent (%) Fair/Poor health status by ward, the measurement can be adjusted up or down to reflect the degree to which local health status is above or below the average – applying an aggregate adjustment based on how utilization varies with the percent (%) Fair/Poor health status overall. With this final adjustment, the primary care need of the population is approximated as visit counts, based on the three key drivers of organic need – age, sex, and health status. These estimates of demand (Raw) and need (Barrier-Free) could then be equated to calculated supply of primary care visits available to the population.

These results of the MEPS analysis above are visit-based estimates of primary care demand and need that could then be applied to the District population's specific age, sex, and health status attributes. This District-specific analysis was conducted by ward, and, separately, for the DC Medicaid-enrolled population by ward. However, it should be noted that this method assumes DC and its wards to be isolated service areas, and focuses on estimating a visit-based count of demand and need only for DC's residents. DC, however, is a highly porous area with a highly mobile population. Focusing solely on DC's population does not account for the in- and out-migration of individuals seeking care across state boundaries, or for tourism and other non-residents that may rely on DC providers for care – either routinely or episodically. While our analysis was unable to obtain data that would have allowed us to directly account for in/out migration of primary care utilization, we

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[5] DeSalvo, Karen B et al.; Mortality Prediction with a Single General Self-Rated Health Question - A Meta-Analysis. J General and Internal Medicine. 2005; 267-275.

will attempt to assess the potential for this phenomenon using other metrics that help to approximate the degree to which it may be a factor.

In order to make comparisons to the need for primary care services in DC's communities, comparable estimates of the supply/capacity of the provider resources available were derived. As noted in the initial discussion, a simple Population-to-Provider FTE ratio is often used to measure primary care capacity. Just as this ratio fails to take into account differing levels of need based on age, sex, and health of the population, it also fails to take into account differing levels of service delivery capacity for the providers. By measuring capacity in visits instead, it more accurately determines the volume of care that is available from a given provider-base and more directly compares that to the visit-based estimated need.

There are two approaches that are commonly used to derive visit-based capacity calculations and both were employed for different components of this study. First, one can measure capacity in terms of quantifying the providers themselves – typically expressed as Full-Time Equivalents or FTE - based on the number of hours that relevant providers are engaged in direct patient services. Alternatively, one can measure capacity in terms of the care 'outputs' that the providers generate. This is typically done by quantifying office-based visits to primary care providers through analysis of billing claims data.

To quantify the total care available to the community, the FTE-based approach was used, based on an analysis of state licensing board survey data obtained across the relevant disciplines. The data used for the FTE calculation came from the licensing files maintained by the DC Board of Medicine - covering physicians and physician assistants (PAs) and the DC Board of Nursing - covering nurse practitioners (NPs) and certified nurse midwives (CNMs). The Board of Medicine files included detailed survey data collected on providers, which was analyzed to distill community accessible outpatient primary care FTE, while the Board of Nursing data provided basic licensing information to identify providers, to which an average FTE estimate was applied. FTE-based capacity was then translated into visit-based calculations by applying published productivity statistics showing mean annual visits per provider FTE.

The Table 1 shows two versions of the annual visit productivity for the types of providers included in the medical capacity analysis. The Medical Group Management Association (MGMA)[6] numbers are gleaned largely from private practices, while the Uniform Data System (UDS) numbers come from Community Health Centers. Note that physicians show somewhat higher productivity in the MGMA data, while non-physician providers show higher productivity in the UDS data. For the purposes of these analyses, the MGMA statistics will be used to estimate visit capacity, as the FTE counts include all providers, including many in private practice.

Table 1: Physician Productivity by Provider Type

Provider Type	MGMA	UDS
Family Physicians	3,519	3,156
General Practitioners	3,686	3,304
Internists	3,379	2,998
Obstetrician/Gynecologists	2,966	2,881
Pediatricians	3,752	3,316
Nurse Practitioners	2,478	2,570
Physician Assistants	2,411	2,886
Certified Nurse Midwives	1,396	2,231

For the Medicaid provider capacity, a direct count of 'office visit' claims derived from the administrative billing data was used. As providers vary greatly in their acceptance of Medicaid as a payer overall, and also in the

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[6] MGMA 2015 Physician Compensation and Production report

volume of Medicaid patients they see, submitted claims is the most accurate method of calculating Medicaid FTE. Claims also naturally equate differing levels of productivity, making it unnecessary to distinguish between different types of providers delivering the care. However, this method only measures actual Medicaid provider participation and does not attempt to assess potential provider capacity; this was examined qualitatively.

iii.   COMPARING NEED TO CAPACITY – OVERVIEW

As mentioned previously, the most basic method of equating need to capacity is the Population-to-Full-Time Equivalent Provider-Ratio (P-to-P). This is the method long used by the federal government in the assessment of Health Professional Shortage Areas (HPSA) and is widely accepted as a basic metric. It is, however, insensitive to variations in different populations' need for care and to the characteristics of the provider base; that is: it assumes that all individuals have the same need for care and that all providers have the same capacity to provide it. Furthermore, there is no objective metric of what would be 'adequate' or 'optimal.' The most commonly cited threshold is the 3,000:1 ratio used in the HPSA designation rules, but this defines a relatively severe level of shortage and is based on county medians set decades ago.

The more sensitive visit-based comparison (percent (%) of needed visits available by FTE) used for the PCNA produces ratios and percentages that show the degree to which a given area has more or less capacity than surrounding areas, or as compared to a 'standard' such as a target P-to-P ratio or the level of care at the demand and need levels. This is a useful approach, but it also relies on the creation of 'service areas' that are not insular communities in an area as small and densely populated as DC.

The population that relies on Medicaid for coverage is frequently identified as having a narrower range of providers that accept their coverage, so Medicaid was given its own treatment in the analysis. The claims-based approach to calculating capacity allowed for a deeper look into the actual utilization patterns of the population. Within the Medicaid claims data, we were able to glean information such as the Origin-Destination, by zip code, of where residents of different communities of DC actually go for care – even if outside of their ward or home area. In addition, we can compare visits for care to both the Medicaid enrolled population and the 'patients' that actually made primary care visits – regardless of where those visits were made. This reveals rates of primary care utilization per enrollee and per patient, as well as the portion of enrollees making at least one primary care visit. We are also able to segment the utilization to look at access within different distinct life cycles represented in the Medicaid enrolled population, as well as examining utilization patterns for chronic disease care, such as visits for diabetes.

Another key source of data for assessing capacity relative to need comes from the Federal Uniform Data System (UDS) that uses data reported by the Federally Qualified Health Centers (FQHCs) and Census data, to compare the patients served by health centers as a proportion of the resident population as well as the change in the program's reach over time. UDS provides these penetration rates for the total resident population as well as population segments, including low-income, Medicaid-eligible, and the uninsured.

Finally, in addition to our 'direct' analysis of need compared to capacity, a handful of 'indirect' measures of adequate or inadequate primary care capacity were also examined. Taken together these results present a comprehensive view of the performance of the city's primary care delivery network.

II. QUANTITATIVE RESULTS

Section Highlights

- While there is an abundant overall supply of primary care providers practicing in the District – relative to the District's resident population, the supply is not evenly distributed throughout the city, with Wards 4 and 7 having relatively low FTE-to-population ratios.

- Physicians provide the majority of primary care in DC – well above the national average, with particularly low numbers of Nurse Practitioners (NPs) and Certified Nurse Midwives (CNMs) identified as practicing in Wards 7 or 8.

- Regardless of whether services were available locally, Medicaid patients generally traveled for their primary care, with approximately 83% of patients receiving all of their care outside of their zip codes of residence and 76% receiving all of their care outside their wards of residence. Local availability of services (i.e. in zip codes and wards of patient residence) did not appear to predict Medicaid patients' utilization of care.

- According to claims data, in the 12-month period studied (Jun 1, 2015 – May 31, 2016), fewer than 60% of Medicaid enrollees had a primary care visit. However, those enrollees who did access primary care had higher numbers of per-person visits than JSI's model predicted.

- With regards to medical homes, approximately 45% of Medicaid patients received their primary care from two or more sites. Children were the most likely to receive their care at only one site while women aged 18 to 34 were the least likely to receive their care at only one site.

- There is currently excess capacity at existing federally qualified health center (FQHC) sites, including at two (located in Ward 7 and Ward 8, respectively) of the six FQHC sites constructed using the District's Tobacco Settlement Funds.

QUESTION A: Is there an unmet need for primary care services among DC residents? If so, where in the city (geographic areas) and/or among what populations does the unmet need exist?

As discussed in the methodological overview section, the answer to this question relies on a series of calculations in which need and capacity are first calculated separately and then compared to determine the degree to which DC, or areas within the District, have a deficit of available care. Similar calculations are performed for the Medicaid population and subsets within the enrolled population. Additional analyses, made possible by the detailed claims data, allow further analysis of Medicaid patient primary care access patterns, as well as non-utilizers of care. The role of federal safety net providers and workforce recruitment programs are also examined, and finally, indirect measures of unmet need or sub-optimal access are discussed.

A. Need and Demand for Primary Care

The following results reflect the analyses of primary care need and demand. Data is presented for the District overall as well as at the ward level.

i. CALCULATING PRIMARY CARE NEED

As described in the Methodology section, the age and sex of the population are the dominant factors influencing the 'organic' need for care in the PCNA analysis. Table 2 shows the ACS 2011-2015 population estimates by age and sex for each ward used for the population-based calculations. Data were also derived at the Zip Code Tabulation Area (ZCTA) level to provide estimates at a finer level of geography; however ZCTAs are not congruent with Ward boundaries.

Table 2: DC Population by Age and Sex (2011 – 2015)

Female									
Geography	Total	0 to <5	5 to <15	15 to <30	30 to <40	40 to <50	50 to <65	65 to <75	75+
Ward 1	40,331	2,182	2,016	15,215	9,024	4,016	4,554	1,955	1,369
Ward 2	39,035	1,216	919	18,475	8,298	2,884	3,963	1,964	1,316
Ward 3	46,064	2,016	3,461	11,803	7,455	5,760	7,829	4,285	3,455
Ward 4	43,476	2,812	4,211	7,314	6,993	5,767	8,931	3,234	4,214
Ward 5	43,482	2,700	3,329	10,651	6,831	5,383	7,607	2,998	3,983
Ward 6	43,484	2,150	2,313	11,970	10,426	4,561	6,958	3,001	2,105
Ward 7	39,329	2,646	4,406	7,795	5,010	5,195	8,252	3,303	2,722
Ward 8	45,609	4,126	6,854	11,143	6,438	5,503	7,793	2,396	1,356
DC Total	340,810	19,848	27,509	94,366	60,475	39,069	55,887	23,136	20,520
Male									
Geography	Total	0 to <5	5 to <15	15 to <30	30 to <40	40 to <50	50 to <65	65 to <75	75+
Ward 1	40,124	2,400	2,393	12,074	10,007	5,617	5,310	1,628	695
Ward 2	39,757	1,050	831	14,330	9,243	4,907	5,942	2,347	1,107
Ward 3	37,432	2,054	3,588	9,254	5,772	4,815	6,493	3,232	2,224
Ward 4	41,016	3,009	4,428	8,147	6,417	6,502	7,780	2,592	2,141
Ward 5	38,729	3,109	3,413	9,872	6,577	4,668	6,772	2,140	2,178
Ward 6	40,127	2,626	2,487	9,736	10,091	5,364	6,360	2,291	1,172
Ward 7	33,890	2,584	4,412	7,958	4,169	4,765	6,572	2,001	1,429
Ward 8	35,599	3,753	6,170	9,339	4,188	3,799	5,884	1,730	736
DC Total	306,674	20,585	27,722	80,710	56,464	40,437	51,113	17,961	11,682

As explained in the Methodology section, data from the Medical Expenditure Panel Survey (MEPS) was used to produce visit-based estimates of demand and need. Table 3 shows the demand and need visit rates (i.e. number of primary care visits per year) that were applied to the District's age/sex population counts to ultimately produce the estimated visits needed by the District's population.

Table 3: Demand and Need of Annual Primary Care Visit Rates

MEPS Demand and Need (Average Health Adjusted) Primary Care Visit Rates									
		0 TO <5 YRS	5 TO <15 YRS	15 TO <30 YRS	30 TO <40 YRS	40 TO <50 YRS	50 TO <65 YRS	65 TO 75 YRS	75+ YRS
Demand	Male	2.82	1.31	0.91	1.01	1.11	1.88	2.91	3.37
	Female	2.65	1.37	1.90	2.61	1.96	2.57	3.42	3.67
Need (Adjusted)	Male	3.64	1.49	0.99	1.61	1.54	2.07	3.25	3.71
	Female	3.07	1.54	3.06	3.24	2.34	3.00	3.86	3.88

Figure 1: Demand and Need Visit Rates by Age and Sex
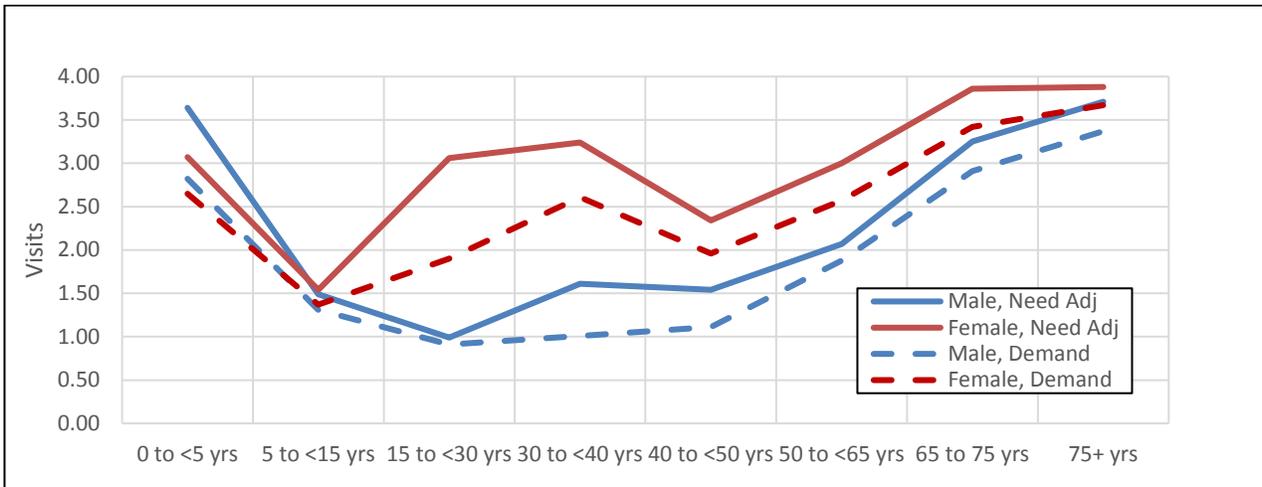
Note that the differences between male and female utilization rates, and between demand and need utilization rates, vary notably across the age spectrum (Figure 1). The utilization rates for children are quite similar, but begin to diverge after the mid-teenage years. Men exhibit notably lower utilization across the adult age ranges, which keeps the disparity between the demand and need rates smaller for men than for women. Women, between the ages of 15 to 40, see the largest disparity between demand and need visit rates (i.e. the impact of barriers on utilization), while men experience the greatest impact of barriers from age 30 to 50 years, again likely due to low overall utilization during younger years. The disparities in utilization between men and women narrow notably in later years of life and largely converge by the age of 75+, albeit at a higher level. Note that, while the elderly show the highest utilization of primary care, their total numbers diminish quickly, producing a smaller net impact on overall demand.

Adjustment for Health Status

Looking at the percentage of the population reporting "Fair" or "Poor" health status in Table 4, there are wide variations among the DC population by ward, ranging from only 2.7% in Ward 3 to 25.9% in Ward 8. While DC has a mean of 12.9% of the population reporting "Fair" or "Poor" health, it ranks DC amongst the states with the lowest rates nationally. The percentages in Wards 7 & 8 rank these communities alongside states with some of the worst health status nationally.

Table 4: Percent Fair or Poor Health Status

BRFSS 2014	Fair/Poor Health (%)
Ward 1	9.4%
Ward 2	8.7%
Ward 3	2.7%
Ward 4	12.1%
Ward 5	14.2%
Ward 6	15.0%
Ward 7	21.7%
Ward 8	25.9%
DC Total	**12.9%**

Figure 2 shows the formula for the slope of the linear trend line used to estimate the impact of DC's rates of reporting Fair or Poor health status on the MEPS visit-based need/demand estimates (i.e. adjustment for health status). Note that the result reflects an increase of 0.1 visits per person for each 5% increase in the population reporting Fair/Poor health status.

Figure 2: Impact Of Health Status Variation
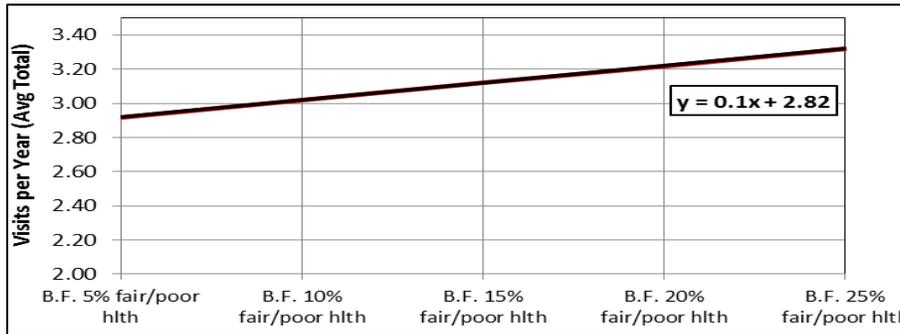
The net result of the calculations discussed thus far is shown in Table 5 with the demand and need visit rates adjusted for age, sex, and health status of the population in each of the District's wards. The "Health-Adjusted Demand Visits" and "Health-Adjusted Need Visits" columns in the table provide the estimated demand for primary care and the estimated need for primary care, respectively – measured in number of annual visits. Using Ward 1 as an example, Table 5 indicates that – given the age/sex/health status characteristics of the residents of Ward 1 – the demand for primary care services would total 142,742 primary care visits per year, and the need for primary care services would total 184,429 visits per year.

Table 5: Age/Sex/Health Status Adjusted Demand and Need Visit Totals

Geography	Age-Sex Adjusted			Health Status Adjustments			
	Population	Demand Visits	Need Visits	Fair or Poor Health (%)	Health Status Adjustment (%)	Health Adjusted Demand Visits	Health Adjusted Need Visits
Ward 1	80,455	146,585	189,394	9.4%	-2.62%	142,742	184,429
Ward 2	78,792	142,229	185,612	8.7%	-3.15%	137,755	179,772
Ward 3	83,496	169,907	209,589	2.7%	-7.64%	156,925	193,576
Ward 4	84,492	170,933	207,709	12.1%	-0.60%	169,909	206,465
Ward 5	82,211	165,098	203,590	14.2%	0.97%	166,705	205,573
Ward 6	83,611	161,874	204,238	15.0%	1.57%	164,420	207,451
Ward 7	73,219	146,413	178,534	21.7%	6.59%	156,064	190,302
Ward 8	81,208	156,471	194,170	25.9%	9.74%	171,708	213,078
DC Total	**647,484**	**1,259,511**	**1,572,837**	**12.9%**		**1,266,229**	**1,580,645**

Impact of In-/Out-Migration

It should be noted that the need and demand calculations discussed above rely exclusively on the populations residing within the borders of Washington DC. While most primary care capacity analyses assess population needs and provider resources located within a given 'service area', given that DC has such highly porous

borders, a mobile population, and a constant influx of tourists, calculating need/demand based solely on DC's resident population does not account for the potentially significant impact of the regular/recurrent migration of individuals in and out of the District. According to 2010 Census data, the "day-time" population in DC grows by nearly 80% compared to the resident population, to a population of well over 1 million residents – an increase that is more than double the commuter percent seen in other large cities such as Boston and Houston.[7] Attempts were made to calculate the additional demand non-residents put on the primary care system; however, effort to obtain cross-border private claims data was not successful.

In addition to daily commuters, tourists also swell the District's population. Destination DC, a non-profit membership organization focused on promoting tourism in the District, publishes annual reports on visitors to the District. It estimated that, in 2016, the District hosted 22 million tourists – a record that represents a nearly 50% increase over the 14.9 million tourists a decade earlier, with forecasts for tourism growth to continue.[8] While the tourist number is much larger than the commuter number, each tourist is present for far fewer days than would be a commuter. The report did not provide average days for a visit, but even assuming they stay for just one day each, tourists would represent over 60,000 additional person-years in the District. With regards to impact on primary care services, for HPSA designations, a fourth of the average daily tourist population for a given period in time is estimated to utilize medical services. If one combines the net 285,000 inbound commuters plus the 60,000 minimum tourist years, the result would be 345,000 extra individuals present nearly full time. Using the 25% HPSA standard, this equates to an additional 86,000 or 13% increase in the primary care needs of the District's resident population alone. This should be noted when considering all possible needs that the primary care system should cover; however, the PCNAs analysis will be limited to the resident population of the District.

ii. PRIMARY CARE CAPACITY

As described in detail in the methodology section, calculating provider as Full-Time Equivalents (FTE) were based on the number of hours that relevant providers are engaged in direct patient services in DC – with one FTE representing 40 hours per week of primary care provider availability to serve patients. Table 6 shows these FTE calculations for primary care providers by ward and provider type, including the percentage of physician FTE out of the total FTE. In general, DC relies heavily on physician capacity, which comprises 81% of total primary care (PC) FTE across the city, ranging from 67% in Ward 4 to 90% in Wards 7 & 8. By comparison, a similar calculation on the most recent national Primary Care Service Area data (2010) shows 72% of capacity represented by physicians nationally.[9] Total primary care FTE, across all provider types, was approximately 970, with considerable variation across the wards in spite of relatively similar population counts. Ward 2 had the largest PC provider capacity at approximately 300 FTEs, or nearly one third of all capacity in DC. At the other end of the range, Ward 7 had fewer than 20 FTEs – below 2% of total PC capacity in the District.

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[7] http://wamu.org/story/13/05/31/dcs_population_grows_79_percent_every_workday_outpacing_other_cities/

[8] https://washington-org.s3.amazonaws.com/s3fs-public/2016_visitor_statistics1.pdf

[9] https://datawarehouse.hrsa.gov/data/datadownload/pcsa2010Download.aspx

Table 6: Primary Care Provider FTE by Provider Type and Ward (2016)

Geography	Total PC FTE	Physician (%)	Physician	Certified Nurse Midwife	Nurse Practitioner	Physician Assistant
Ward 1	91.0	77%	70.4	1.3	16.3	3.0
Ward 2	300.9	79%	239.0	1.3	44.8	15.8
Ward 3	101.6	76%	77.4	0.7	22.1	1.5
Ward 4	25.8	67%	17.2	1.3	5.9	1.5
Ward 5	217.3	80%	173.9	3.9	35.8	3.8
Ward 6	166.3	89%	147.4	0.7	14.3	4.0
Ward 7	16.8	90%	15.1			1.8
Ward 8	50.5	90%	45.5		3.3	1.8
DC Total	**970.2**	**81%**	**785.8**	**9.1**	**142.4**	**33.0**

Figure 3 Representation of Primary Care Staff within Each Ward
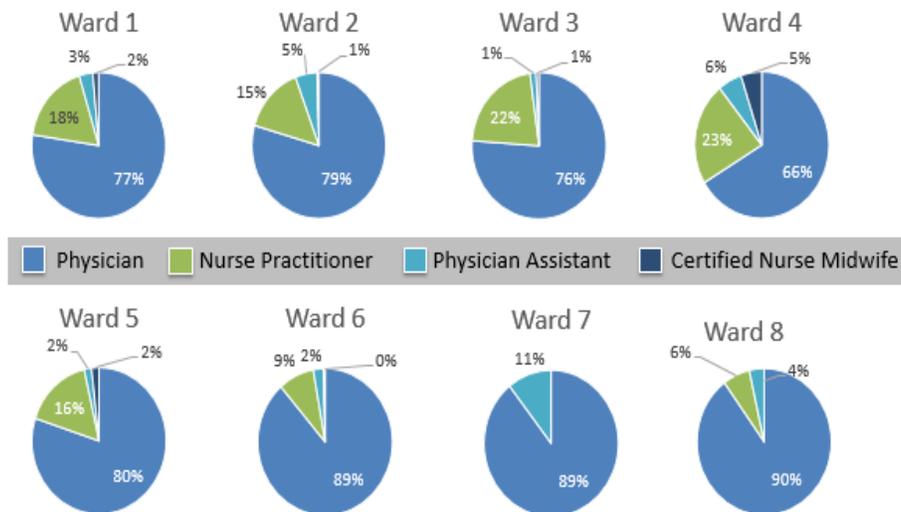
As noted in the methodology, but deserving of revisiting here, the FTE calculation is an aggregate measure of availability of care that is based on the total number of hours that primary care providers are engaged in direct patient services in DC; it is not a count of individual providers. As a point of comparison, the total number of primary care physicians engaged in direct patient services (according to the licensure data) is 1,147 while the total FTE calculation for primary care physicians is 785.8 – this results in an average of providers serving patients 27.4 hours of every 40 hour week.

Figure 4 shows the size of provider clusters, with notable concentrations of primary care provider resources seen clustered around major hospital locations and large delivery sites, such as George Washington University and MedStar Georgetown in Ward 2, MedStar Washington Hospital Center and Children's National Health System in Ward 5, and Kaiser Permanente's medical center in Ward 6. Wards 1 and 3 are comprised of more moderately-sized concentrations of providers clustered around Howard University and Unity Health Care's Upper Cardozo Health Center site (Ward 1) and Sibley Hospital (Ward 3), while other areas of the District are served by a mix of sites with generally smaller provider concentrations.

Figure 4: DC Primary Care Provider FTE by Location (2016)
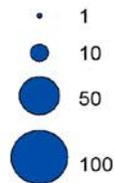
Based on these FTE estimates and the MGMA productivity estimates cited in Methodology, primary care providers in DC should have the capacity to produce just over 3 million primary care office visits per year. As a point of comparison, if the UDS productivity measure was used, this total would be 3,054,140 (a difference of approximately 1.7%). For the detailed breakdown by ward and provider type (Table 7).

Table 7: Primary Care Provider Visit Capacity by Provider Type and Ward (2016)

Geography	Total FTE	Total PC Visits	Physician (%)	Physician	Certified Nurse Midwife	Nurse Practitioner	Physician Assistant
Ward 1	91.0	295,962	83%	246,646	1,815	40,268	7,233
Ward 2	300.9	940,967	84%	790,041	1,815	111,138	37,973
Ward 3	101.6	319,557	81%	260,270	907	54,764	3,617
Ward 4	25.8	80,035	75%	60,107	1,815	14,496	3,617
Ward 5	217.3	694,165	85%	591,091	5,444	88,588	9,041
Ward 6	166.3	546,812	92%	500,825	907	35,435	9,644
Ward 7	16.8	57,158	93%	52,939			4,219
Ward 8	50.5	173,462	93%	161,189		8,054	4,219
DC Total	970.2	3,108,118	86%	2,663,108	12,704	352,743	79,563

Note that according to this visit-based metric, physicians represent a higher proportion of primary care capacity (86%) than they did in the FTE-based calculations (81%). This is due to higher physician productivity estimates.

iii. COMPARING NEED TO CAPACITY

With need, demand, and supply all calculated as visit-based measures, comparing the District's residents' need and demand for primary care services to the capacity of the primary care delivery system helped showcase if the providers could meet the populations needs. Table 8 shows the results of the comparisons of the calculated supply in each ward (Table 6), and the demand and need for primary care (Table 5). Results are presented as a Population-to-Provider ratio and as percentages of visit capacity over demand and need, respectively. The results show a high level of overall primary care capacity in DC and patterns of disparity among the wards.

Table 8: Comparison of Capacity, Demand, and Need for Primary Care

Geography	Population per PC Provider FTE	Capacity of Demand Visits (%)	Capacity of Need Visits (%)
Ward 1	884	207%	160%
Ward 2	262	683%	523%
Ward 3	822	204%	165%
Ward 4	3,271	47%	39%
Ward 5	378	416%	338%
Ward 6	503	333%	264%
Ward 7	4,358	37%	30%
Ward 8	1,610	101%	81%
DC Total	667	245%	197%

The Population-to-Provider for the District overall is just 667 residents per primary care provider FTE. While there is no objective standard for this metric, the HPSA shortage threshold is a ratio of 3,000-to-1, and a ratio of 1,500-to-1 is considered more typical.

Figure 5 Primary Care Population to Provider Ratio Compared to HPSA Shortage Threshold
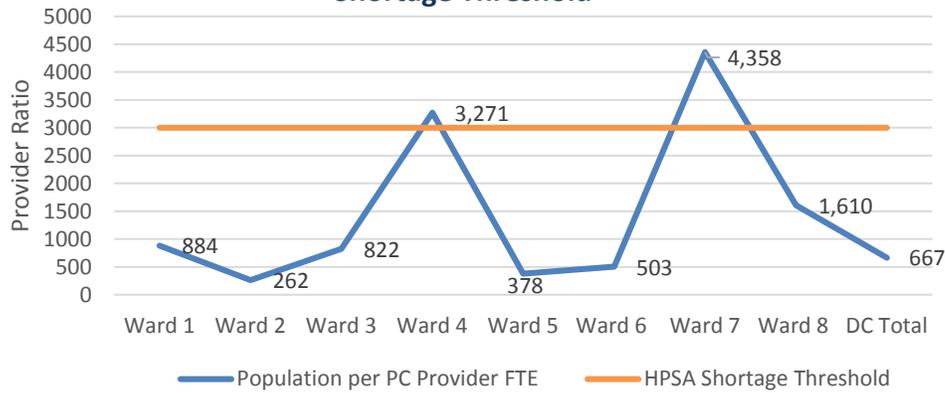
 Similarly, the overall visit-based calculation shows provider resources overall that could produce nearly 2.5 times the level of visits required to meet demand (Raw), and twice the level of visits required to meet the calculated need (Barrier-Free) of DC residents.

Figure 6 Primary Care Provider Capacity Estimates Compared to Minimum
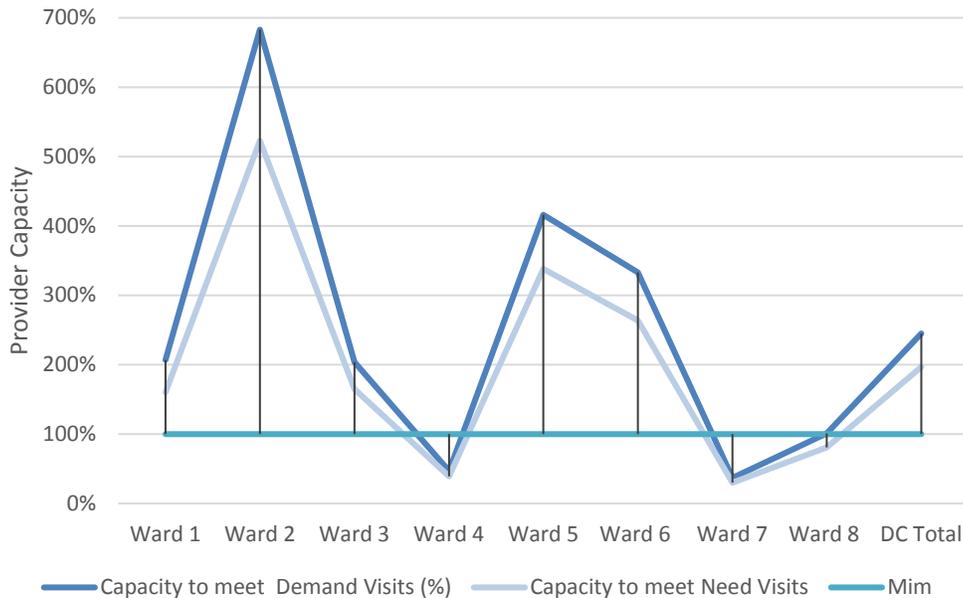
On a ward-by-ward basis, Table 8 shows that only three of the eight wards have capacity below the calculated need, and two of those have capacity levels below calculated demand for the ward. Ward 7 has the lowest relative capacity, with provider resources equating to less than 40% of estimated need and demand, and Ward 4 follows closely with capacity below 50% of need and demand. Ward 8 has approximately the level of capacity needed to meet demand, but 80% of resources necessary to meet need. The map Figure 7 represents the visit-based calculations of estimated need.

At the other end of the spectrum, five of the eight wards have capacity well in excess of what is needed to meet both need and demand of each ward's residents. The excess ranges from approximately double the capacity to meet the need in Ward 3 to nearly seven times the capacity to meet the populations' needs in Ward 2. The population-to-provider ratios reflect similar results – with Wards 7 and 4 showing ratios that would qualify as having a shortage of providers according to HRSA's standard. It should again be noted that wards are not necessarily designed as coherent units for primary care delivery, and the analysis only compares the needs of the resident population to the providers in each ward and does not account for the patients that may travel for care.

Figure 7: Primary Care Capacity as Percent of Estimated Need
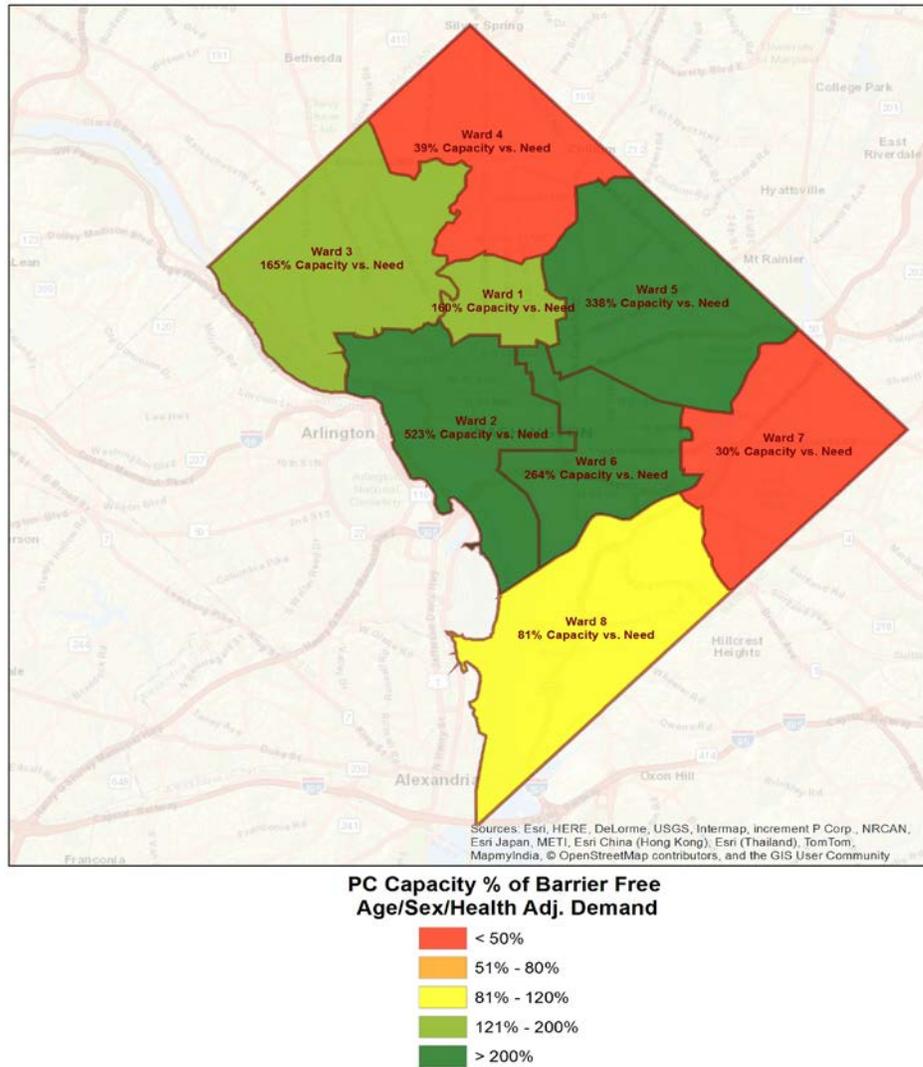
B. Medicaid[10] Need to Capacity Calculations

Similar methods were used to assess the unmet need for primary care among the District's Medicaid-insured population – using two additional data sources: Medicaid claims and Medicaid enrollee data from a 12-month period spanning 2015 and 2016. The following Medicaid claims analyses were done on the basis of 630,902 claims that were confirmed to be primary care and including all FQHC claims. The original claims file provided by the Department of Health Care Finance included over one million claims.

i. Medicaid Population Need and Demand

The availability of claims data allowed analysis of actual utilization among Medicaid enrollees during the claims period (Table 9). Together, the claims and enrollee data helped make the distinction between Medicaid 'Enrollees' and 'Patients' (i.e. Medicaid enrollees with one or more primary care visits during the year), providing a snapshot of the degree of Medicaid enrollees' engagement with the primary care system.

Table 9: Medicaid Primary Care Enrollees and Patients by Ward (2015 - 2016)

Geography	Total # of Residents	Total # of Medicaid Enrollees	Residents that are Enrollees (%)	Total # of Medicaid Primary Care Patients (1+ Visits)	Enrollees that are Primary Care Patients (%)
Ward 1	80,455	33,236	41%	19,424	58%
Ward 2	78,792	33,280	42%	16,397	49%
Ward 3	83,496	6,219	7%	2,500	40%
Ward 4	84,492	49,057	58%	28,238	58%
Ward 5	82,211	40,871	50%	22,183	54%
Ward 6	83,611	30,984	37%	16,648	54%
Ward 7	73,219	54,681	75%	31,452	58%
Ward 8	81,208	59,449	73%	34,482	58%
DC Total	**647,484**	**307,777**	**48%**	**171,324**	**56%**

Figure 8 Percentage of Medicaid Enrollees with 1 Or More Primary Care Visits
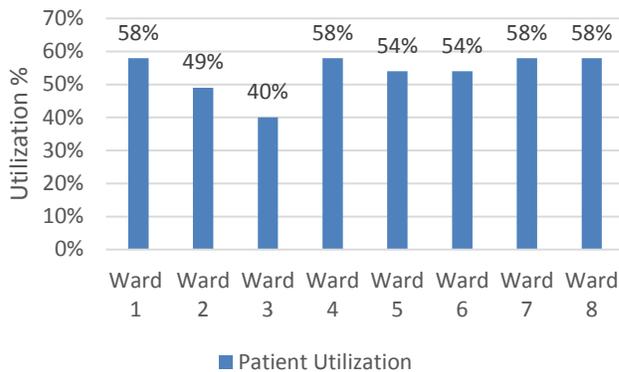
As can be seen in Table 9, analyses of the utilization data yielded a few key pieces of information. First, the level of primary care engagement is quite low – with only 56% of enrollees making a primary care visit within the year, and engagement as low as 40% in Ward 3, which also has the smallest number of enrollees among the wards.[11] Figure 9 shows the rate of engagement (i.e. percent of enrollees that had at least one primary care visit during the year) at the zip code level of detail. Overlaid with zip

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[10] (see Footnote 4)

[11] It should be noted that the scrubbing of the claims file to only include confirmed primary care visits resulted in the removal of 25,931 Medicaid patients from the PCNA analysis. While these individuals may not have engaged in primary care during the measurement year, they did engage with some component of the health care system.

codes, we see that the low engagement actually characterizes enrollees in many of the zip codes in Northwest DC, including all of Ward 3, and parts of Wards 2 and 4. The map also shows that there are few active Medicaid provider locations in these areas of Wards 3 and 4. However, location of providers in enrollee zip codes does not seem to be related to engagement; for example, the majority of Ward 4 (zip codes 20011 and 20012) has relatively high engagement despite low provider availability.

Figure 9: Medicaid Enrollees with 1+ Primary Care Visits by Zip Code (2016)
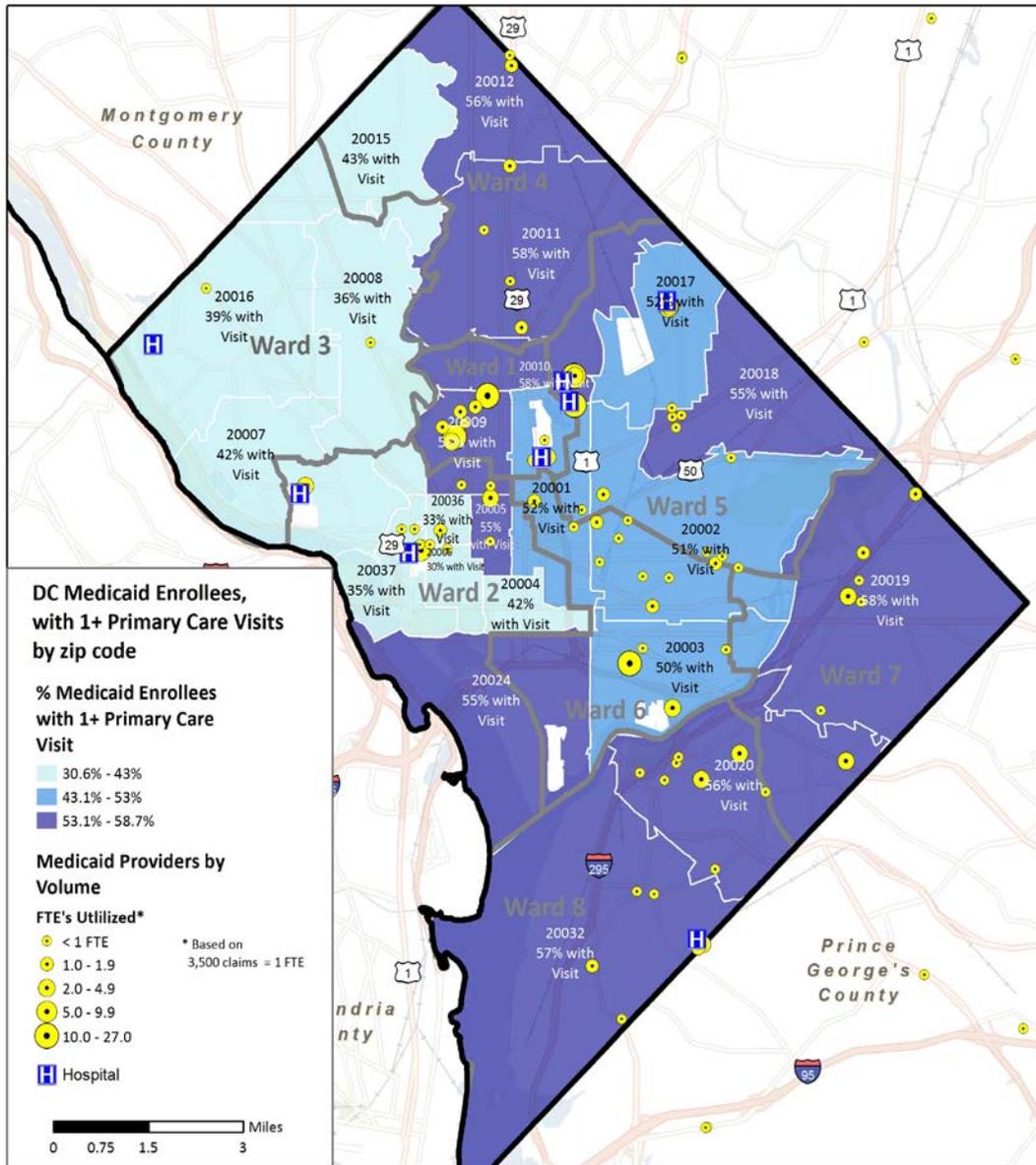
The PCNA also looked at engagement for three distinct sub-groups of Medicaid enrollees: children (<18 years of age), women (18-34 years of age), and adults (35-64 years of age). The breakdowns of these age groups are presented in Table 10. The sub-group analysis identifies women as having the lowest engagement rates – with only one-third having had a primary care visit during the 12-month period. This engagement rate does not take into account any potential engagement with providers for perinatal care; further analysis would be necessary

to determine whether the low engagement of women between the ages of 18 to 34 in primary care is correlated with higher engagement in postpartum care.

Figure 10 Medicaid Engagement by Sub-Group

Table 10: Medicaid Engagement by Sub-Group (2015 – 2016)

Sub-Group	Patient (1+ visit)	Enrollees	Utilization (%)
Children (<18)	59,800	91,810	65%
Women (18-34)	28,848	89,357	32%
Adults (35-64)	59,414	110,132	54%

The map in Figure 11 shows the per-patient utilization rates for the Medicaid population. Visit rates were reasonably consistent across the District, ranging from 3.4 visits (in northwest zip codes 20016 and 20007) to over four (4) visits per patient (in the central zip codes of Ward 2 (also NW DC). Ward 2 had the highest overall ward-level visit rate of 3.92 per patient. Notably, while Ward 2 had the highest ward-level visit rate, it had the second lowest engagement rate (49%) among the wards (i.e. a lower percentage of patients in Ward 2 are engaged in primary care, but those who are use more services). Areas in Southeast DC, showed utilization rates in the 3.6 visit range, lower than the NW rates but still higher than estimated. Taken together, the data suggest that Medicaid patients that are connected with providers appear to be making relatively higher use of primary care services.

Figure 11: Medicaid Visits per Patient by Zip Code (2016)
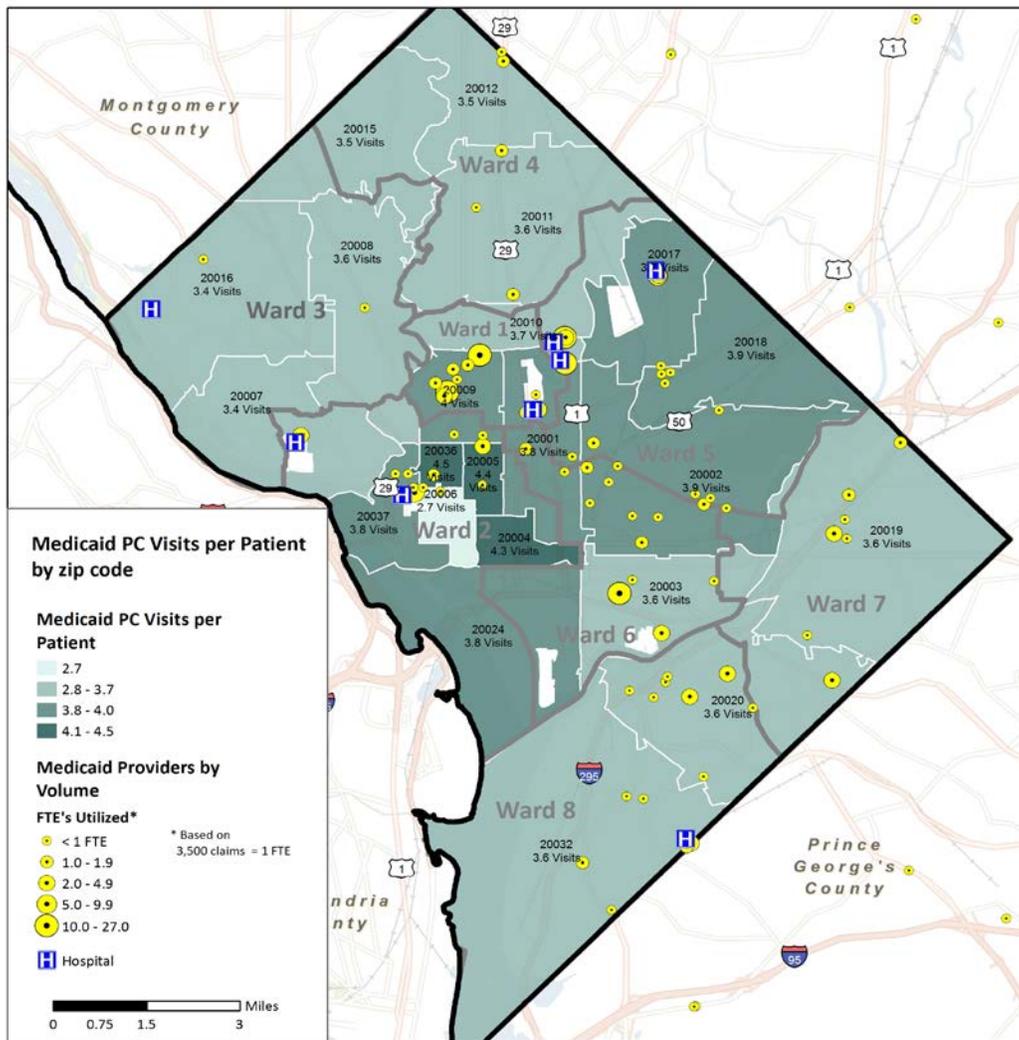
Table 11: Demand and Need Visit Estimates per Medicaid Enrollee

Geography	Medicaid Enrollees	Expected Demand Visits	Expected Need Visits	Expected Demand Visits per Enrollee	Expected Need Visits per Enrollee
Ward 1	33,236	65,235	80,594	1.96	2.42
Ward 2	33,280	63,611	78,018	1.91	2.34
Ward 3	6,219	13,241	16,125	2.13	2.59
Ward 4	49,057	95,372	118,106	1.94	2.41
Ward 5	40,871	81,194	99,939	1.99	2.45
Ward 6	30,984	59,613	73,904	1.92	2.39
Ward 7	54,681	104,552	130,334	1.91	2.38
Ward 8	59,449	111,115	139,676	1.87	2.35
DC Total	**307,777**	**593,933**	**736,698**	**1.93**	**2.39**

When compared to the MEPS-based visit estimates, it is evident that actual utilization far exceeds expected need and demand. According to these calculations, DC's Medicaid population is expected to make between 1.9 – 2.4 primary care visits per year depending whether the demand or need estimate is used. It must be noted here that the need and demand visit estimates in Table 11 were adjusted for age and sex only. The Medicaid visit estimates were not adjusted for health status as they were in Section A because health status data were not available for the Medicaid enrollee population. Subsequent analyses of BRFSS data have indicated that those who are publicly-insured are significantly more likely to rate their health as "fair or poor", so the need and demand visit counts below are likely underestimates of the population need and demand. As a point of reference, if 50% of Medicaid patients were to report themselves to be in "Fair" or "Poor" health, the expected need and demand estimates would increase by a full visit (1.0) each.

The data are striking when compared to the visit rate for just the Medicaid enrollees who accessed care (i.e. patients). The actual per-person visit rate in 2015-2016 for Medicaid patients was 3.68, which is 91% more than expected demand and 54% more than expected need. The relatively high utilization compared to average expected demand on the one hand is favorable in that it demonstrates high levels of access to primary care for those who are engaging in care. However, it may also be an indicator of a sicker patient population and/or excessive use of available care and/or available services not effectively meeting the needs of the patient population. Additional analysis of this phenomenon are needed to disentangle these issues.

Table 12: Comparison of Medicaid Patients Primary Care Actual Visits vs Expected Demand and Need (2015 - 2016)

Geography	Expected Demand Visits per Enrollee	Expected Need Visits per Enrollee	Actual Visits per Patient	Actual Visits of Expected Demand (%)	Actual Visits of Expected Need (%)
Ward 1	1.96	2.42	3.81	194%	157%
Ward 2	1.91	2.34	3.92	205%	168%
Ward 3	2.13	2.59	3.43	161%	132%
Ward 4	1.94	2.41	3.57	184%	148%
Ward 5	1.99	2.45	3.81	191%	156%
Ward 6	1.92	2.39	3.72	194%	156%
Ward 7	1.91	2.38	3.61	189%	152%
Ward 8	1.87	2.35	3.57	191%	152%
DC Total	**1.93**	**2.39**	**3.68**	**191%**	**154%**

Figure 12 Patients' Primary Care Utilization Compared To Estimates of Need and Demand
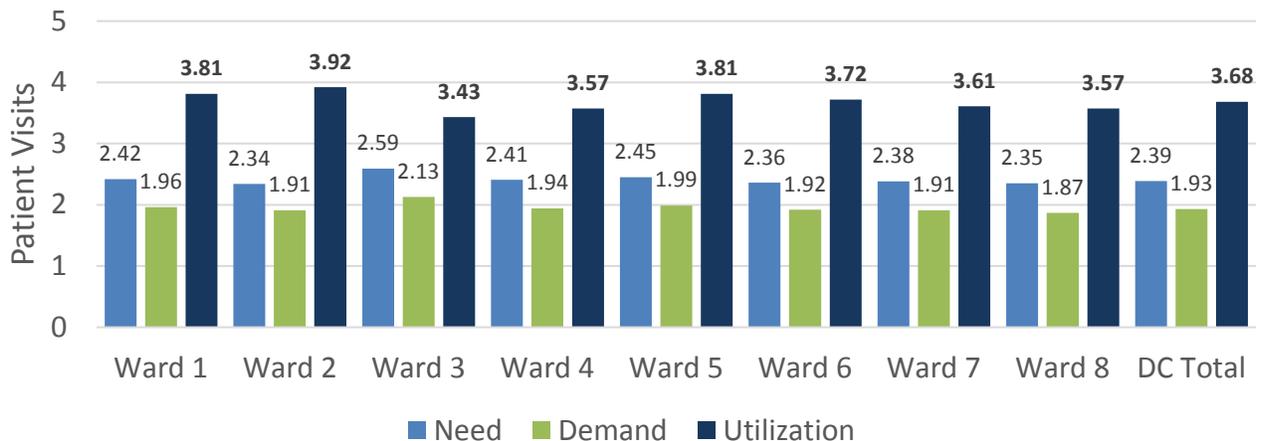
The PCNA also looked at the utilization rate for the three Medicaid sub-groups mentioned above: children (<18 years of age), women (18-34 years of age), and adults (35-64 years of age). The <18 years of age group overall had the least visits per patient relative to the other age groups, and children in Wards 5, 6, 7, and 8 had somewhat lower visit counts compared to children in the rest of the District – though the PCNA did not assess whether this disparity was statistically significant (Figure 13).

Figure 13: Medicaid Primary Care Visits per Patient, Children (Aged 18 or less)
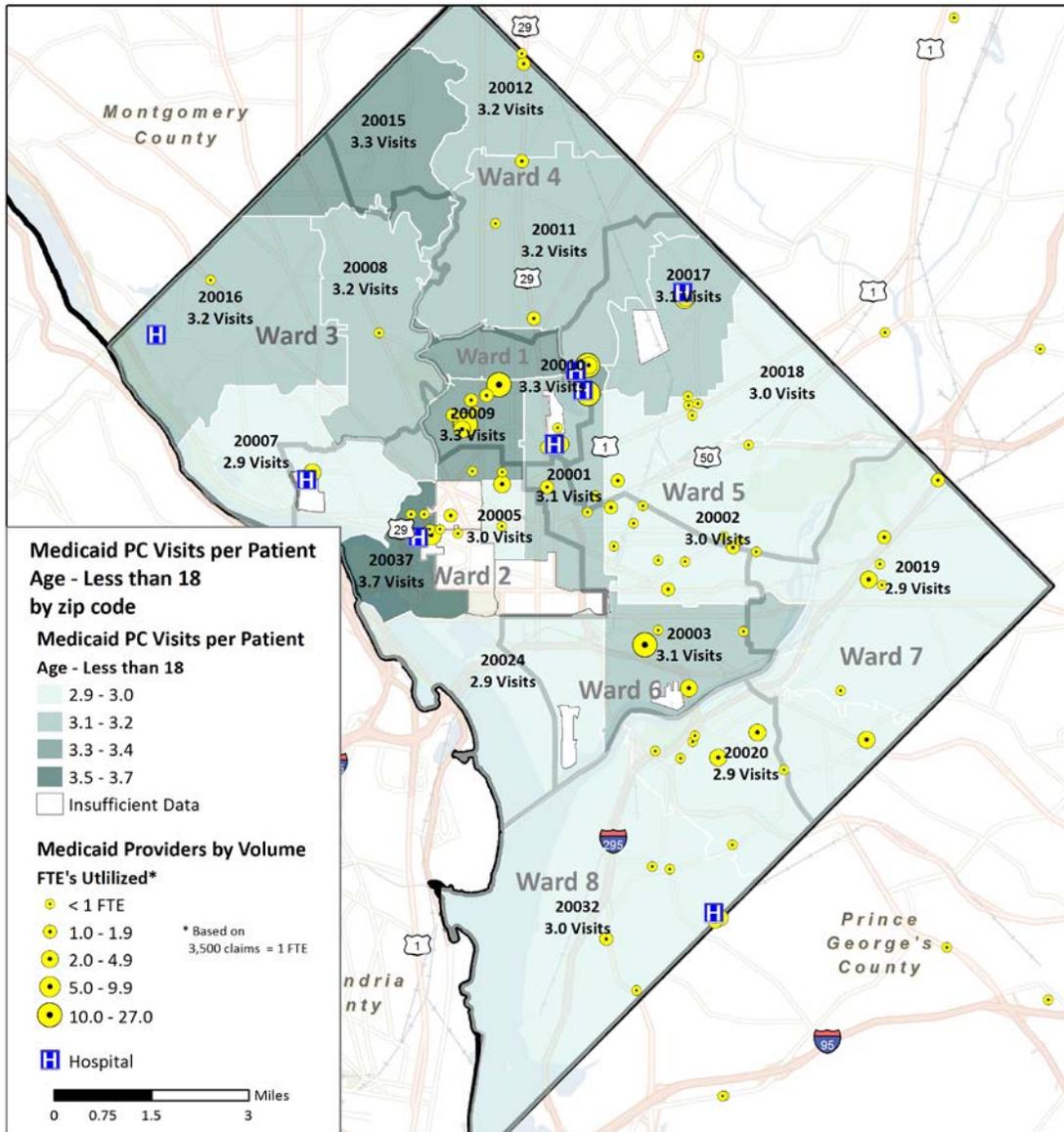
Similar to the overall pattern of Medicaid utilization, women aged 18 to 34 in Ward 3 used less care than those in other areas of the city.

Figure 14: Medicaid Primary Care Visits per Patient, Women (Aged 18-34)
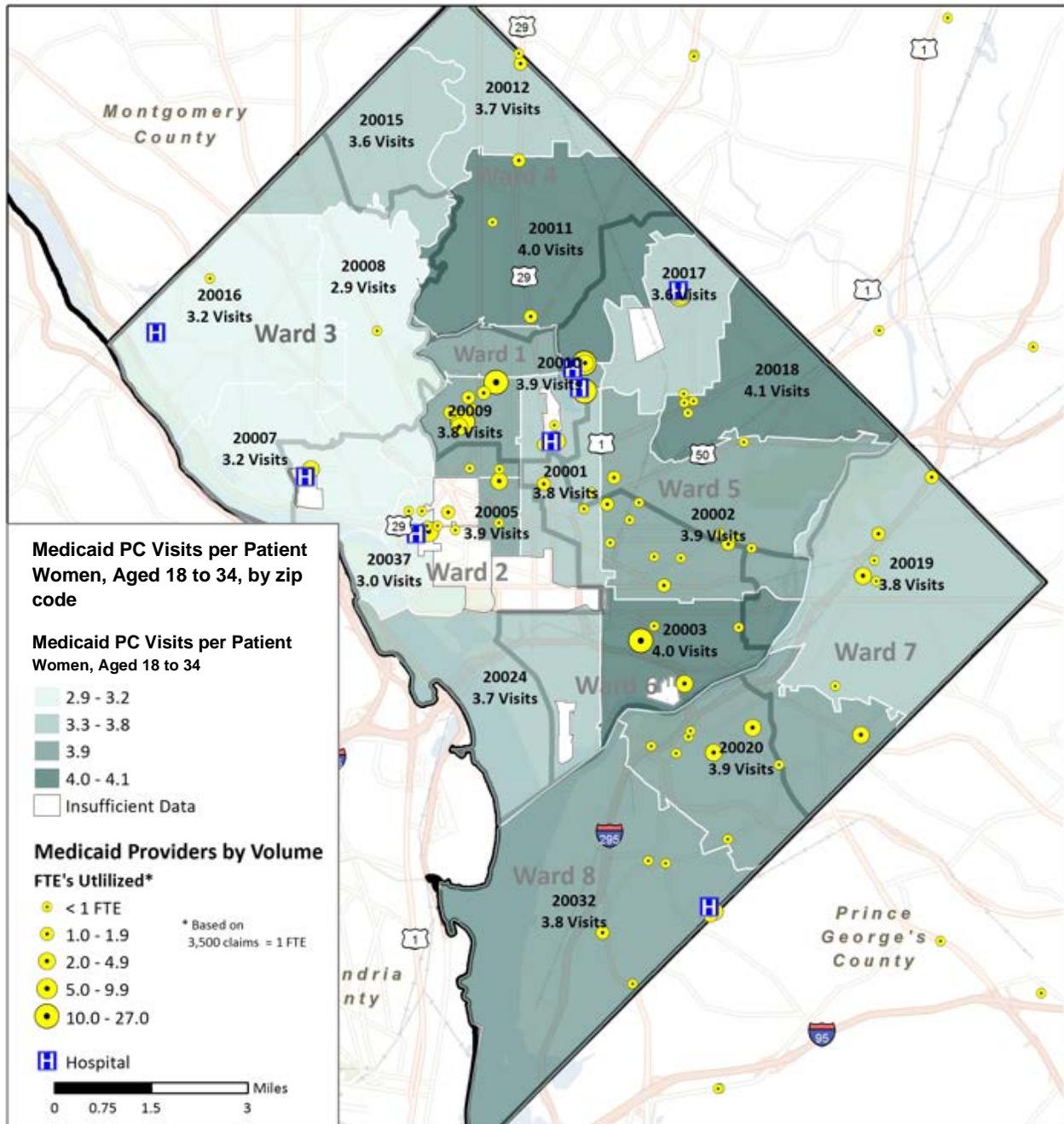
The adult enrollees used the most visits per person, exceeding five visits in some areas of Ward 2 and four visits in Wards 5, 6, 7, and 8 (Figure 15). This is much higher than the expected visit rates for adults of this age, for whom need visit rates range from an estimated two visits to just under four visits (at the older end of the age range). This is likely a reflection of the disproportionate disease burden among adults in these areas. When looking across all maps, it is notable that: the per-patient visit counts do not appear to be correlated to provider location for any population group, and that the pediatric and adult maps reflect opposite trends – with Medicaid-enrolled children in the far NW utilizing more care per patient than those in the other quadrants while Medicaid-enrolled adults in the far NW used less care per patient than in other quadrants of the city.

Figure 15: Medicaid Primary Care Visits per Patient, Adults (Aged 35-64)
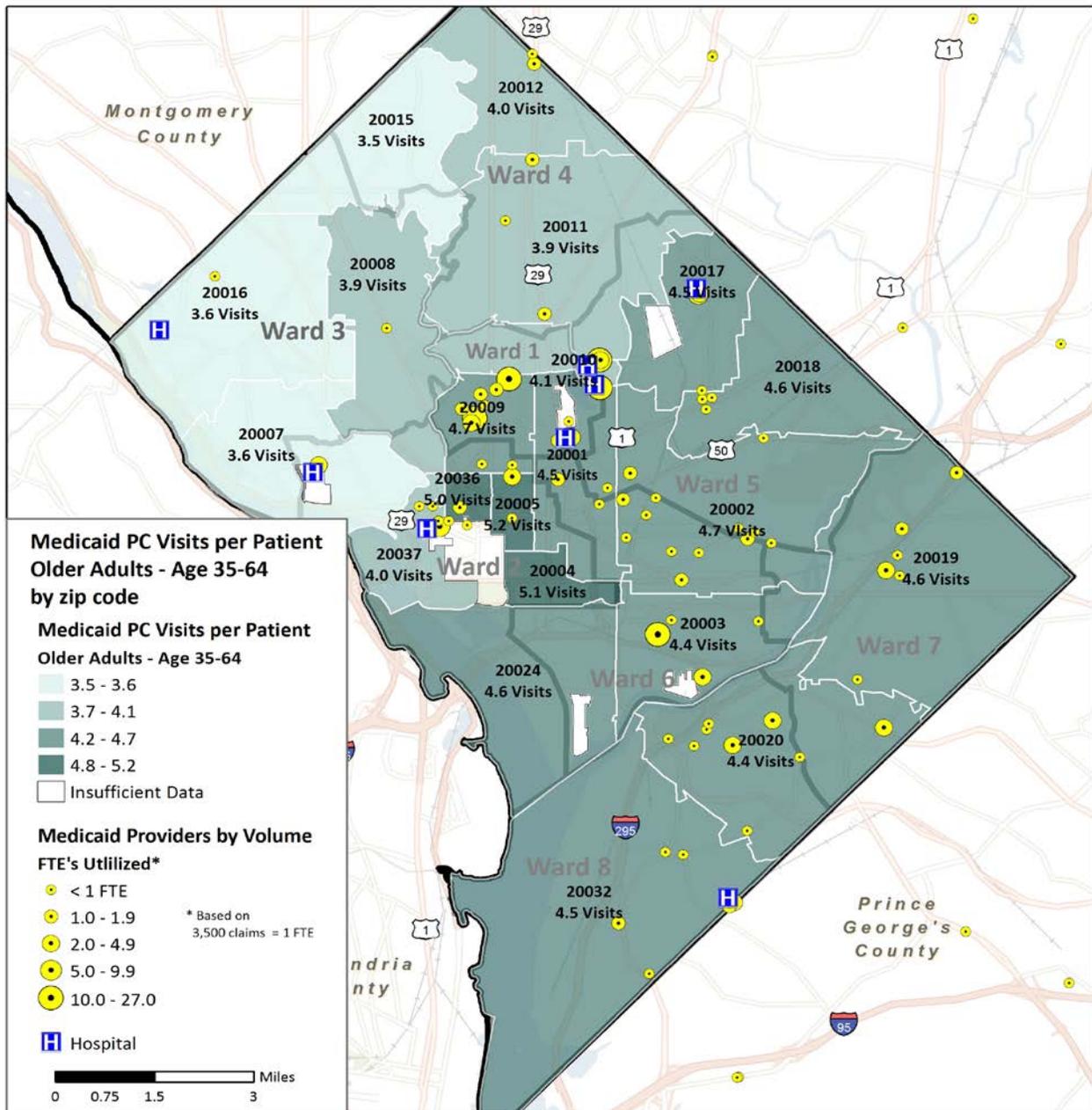
ii.   *M*EDICAID[12] *P*RIMARY *C*ARE *P*ROVIDER *C*APACITY

Medicaid provider capacity was calculated based on office visit claims from June 2015 to May 2016. Figure 16 shows the provider locations and their associated volume of Medicaid claims. It should be noted here that provider location was based on the billing addresses associated with the Medicaid claims, and some mapped destinations therefore inevitably include billing-only sites.

The map for Figure 16 shows that Ward 1 includes several large Medicaid provider sites, including the Unity Upper Cardozo location, Mary's Center, Community of Hope, and Howard University. Ward 5 has the MedStar Washington Hospital Center Physicians Group and the Children's National Health System Associates which are also major Medicaid providers, as well as the resources associated with Providence Hospital. Other notably sized sites include sites belonging to GW's Medical Faculty Associates and Whitman-Walker Clinic in Ward 2.

Figure 16: Primary Care Medicaid Visits by Location (2015 – 2016)

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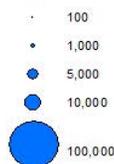
[12] (see Footnote 4)

Using the claims data and an average productivity measure, the PCNA yielded a Medicaid provider FTE. The average productivity measure used (3500 visits per FTE) is roughly equivalent to the median for a Family Practice physician. This calculation yielded a total of 180 PC Medicaid FTEs being utilized in the District overall. It should be noted here again that this number is not a count of the individual primary care providers that serve Medicaid beneficiaries, but rather an aggregate calculation of capacity that is equivalent to 180 providers working 40 hours per week and seeing 100% Medicaid patients.[13] Compared to the District's total primary care provider capacity (Table 6), 19% of the estimated total FTE in the District were dedicated to seeing 307,777 Medicaid patients (compared to the 48% of DC's 2015 population (647,484) who were enrolled in Medicaid, and very close to the 25% of DC's total population that actually used Medicaid services).

Applying the aforementioned MGMA productivity measure to the total number of primary care visits, based on the 2015-2016 claims, in each Ward calculates an estimated Medicaid FTE. Comparing each wards Medicaid FTE estimate to the total calculated primary care FTE gives a view as to how much of the current FTE capacity would be needed to cover the wards resident's utilization of primary care services (Table 13). It should be noted that 27,434 visits did not have map-able addresses or were from providers located in Maryland or Virginia. These are included below as "MD/VA/NA".[14] These claims represent an additional 7.84 Medicaid FTEs currently serving the District's Medicaid population.

Table 13: Estimated Medicaid FTE of Primary Care Providers FTE by Ward

Geography	# of Visits	Medicaid FTE Equivalent (at 3500 per FTE)	Primary Care FTE	Medicaid Claims FTE (%)
Ward 1	108,618	31.03	91.0	34%
Ward 2	162,685	46.48	300.9	15%
Ward 3	23,460	6.70	101.6	7%
Ward 4	84,205	24.06	25.8	93%
Ward 5	66,945	19.13	217.3	9%
Ward 6	88,310	25.23	166.3	15%
Ward 7	23,754	6.79	16.8	40%
Ward 8	45,294	12.94	50.5	26%
MD/VA/NA	27,434	7.84	-	-
Total	**630,902**	**180.26**	**970.2**	**19%**

Note"-"indicates calculation not available for locations outside of the District.

iii.   *Comparing Medicaid[15] Need/Demand to Capacity*

Given that the Medicaid provider capacity for this analysis was calculated based on actual utilization, conducting the same analysis of estimated need/demand relative to capacity that was conducted above for primary care overall would not be illustrative. However, the PCNA did attempt to assess the number and percent of Medicaid FTEs that would be needed in each ward to meet the Medicaid demand of DC's residents.

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[13] The rendering provider information in the Medicaid claims data was not complete enough to be able to calculate the number of individual providers that served Medicaid patients during this time period. According to the data available (59% of claims had an attending or rendering provider identifier available), at least 1,321 distinct primary care providers in DC rendered services during this time period. Therefore, the number of providers that served or are needed to serve the Medicaid population established within the PCNA is an FTE estimate of providers that would only serve Medicaid patients, but is not intended to reflect the total amount of providers that should be enrolled within Medicaid.

[14] Approximately 4.2% of Medicaid primary care claims came from providers located outside the District.

[15] (see Footnote 4)

The PCNA first assessed how many providers would have been required in each ward to enable 2015-2016 Medicaid patients (with 1+ PC visits) to access primary care services without leaving their wards of residence. Given the variable enrollment, engagement, and utilization rates across the District, there were predictably large variations in the number and percent of needed Medicaid FTE in each ward – ranging from two (2) FTE needed for Ward 3 up to 35 FTE needed in Ward 8. Table 14 details these estimates and also calculates the portion of total ward PC FTE (Table 6) that would be needed to meet the ward residents' Medicaid visit levels. This analysis indicates that for Wards 2, 3, 5, and 6, only a fraction of the total FTEs in the ward would need to serve Medicaid in order to meet the in-ward demand. At the other end of the scale, the number of Medicaid FTEs that would be needed to meet Wards 4 and 7 demand exceed the actual FTE available for those wards. Not only would every one of the Ward 4 and 7 FTEs need to be fully dedicated to serving Medicaid patients, but they would need additional Medicaid FTEs to locate to the ward (a 98% increase in total FTEs over Ward 7's current total). It should be noted here again that Wards 4 and 7 had the lowest total FTE overall – with just 26 and 17 PC FTE, respectively - out of a District-wide total of 970 (Table 14).

There are notable differences, by ward, amongst the number of estimated Medicaid FTEs to accommodate Medicaid patients' visits, those accessing care, (Table 14) versus Medicaid enrollees' visits, for everyone accessing care (Table 15). For example, Ward 4 would need an additional three primary care physicians (Table 14) to cover all of their Medicaid patients' visits, and in addition to that 11 primary care physicians (Table 15) to cover all of their Medicaid enrollees' estimated demand visits. This represents a difference of nearly four-hundred times the current visit levels. Meanwhile, these calculations consistently showed that the primary care staff of Wards 2 and 3 are better able to meet in-ward visit levels, current and demand.

The analyses in Table 14 are based on actual utilization data and therefore do not account for the 44% of Medicaid enrollees that did not engage in primary care. To determine the additional Medicaid FTE that would be needed to meet the demand if all Medicaid enrollees were to have engaged in primary care, the PCNA further calculated the FTE needed if non-users began to use care – at the demand visit rate. These non-user visit numbers were then added to the patient visit numbers to get a total demand estimate for Medicaid enrollees, by their ward of residence. This total was then calculated as a primary care FTE for each ward. Table 15 provides the ward-by-ward calculations and shows that District-wide, an additional 76 FTEs – 26% of the District's overall primary care provider FTE - would be needed to be able to serve the entire Medicaid enrollee population – without reducing the visit levels for the existing patient population. Overall, this analysis provides yet more evidence that Medicaid patients, on the whole, require more FTEs than what was originally utilized to access Medicaid care.

Table 14: Estimated Local Medicaid Primary Care FTE for Current *Patient* Visits

Geography	Visits by Patient Residence	Medicaid Patient FTE Equivalent (at 3500 per FTE)	Primary Care FTE	Medicaid Patients FTE (%)
Ward 1	74,043	21.2	91	23%
Ward 2	64,268	18.4	300.9	6%
Ward 3	8,563	2.4	101.6	2%
Ward 4	100,946	28.8	25.8	112%
Ward 5	84,506	24.1	217.3	11%
Ward 6	61,920	17.7	166.3	11%
Ward 7	113,567	32.4	16.8	193%
Ward 8	123,089	35.2	50.5	70%
DC Total	**630,902**	**180.3**	**970.2**	**19%**

Table 15: Estimated Medicaid Primary Care FTE for *Enrollee* Visit Demands

Geography	Actual Visits	Non-User Visits Estimated Demand	Total Expected Medicaid Enrollee Visits (Actual + Non-User)	Medicaid Enrollee FTE Equivalent (at 3500 per FTE)	Primary Care FTE	Medicaid Enrollees Fully Utilized FTE (%)
Ward 1	74,043	27,072	101,115	28.89	91	32%
Ward 2	64,268	32,247	96,515	27.58	300.9	9%
Ward 3	8,563	7,921	16,484	4.71	101.6	5%
Ward 4	100,946	40,389	141,335	40.38	25.8	157%
Ward 5	84,506	37,189	121,695	34.77	217.3	16%
Ward 6	61,920	27,525	89,445	25.56	166.3	15%
Ward 7	113,567	44,367	157,934	45.12	16.8	269%
Ward 8	123,089	46,688	169,777	48.51	50.5	96%
DC Total	**630,902**	**266,595**	**897,497**	**256.43**	**970.2**	**26%**

Figure 17 Comparing Medicaid Provider Participation to Estimated FTE to Meet Patient Demand
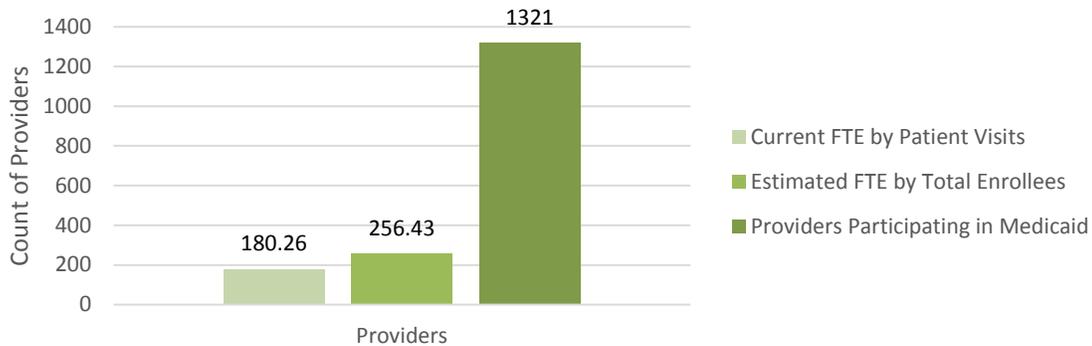
Origin-Destination Analysis

To explore the trend of Medicaid patients traveling outside their wards of residence for care, an Origin-Destination (O-D) analysis was conducted looking at the zip code in which the patient lives (Origin) and the location where the primary care visits they make are provided (Destination). By creating a matrix of origin and destination pairs by volume, the claims revealed underlying patient flows and the degree to which Medicaid primary care is provided locally, and in what proportions Medicaid patients travel to other areas of the District. It must be noted here that provider location was based on the billing addresses associated with the Medicaid claims, and some mapped destinations therefore inevitably include billing-only sites.

Figure 18 provides a map displaying the results of this analysis. The map shows the plurality destination (i.e. the most frequent destination zip code) for primary care visits for Medicaid residents from each zip code. The red star symbols indicate "kernel" zip codes, where the most frequent destination for Medicaid primary care visits is with providers in the residents' same zip code. For zip codes where the Medicaid-insured residents receive the plurality of PC visits in a zip code other than where they live, the arrowed lines indicate the most common destination zip code (centroid), with the thickness of the line representing the volume of visits following that pattern (the thicker the line, the more total visits following that pattern). The underlying shading of the zip code indicates the degree of 'preference' for that dominant pattern in terms of the percent of total visits from that zip code that follow that pattern.

The first notable observation from Figure 18 is that residents of the "outlying" areas of the District (i.e. not Wards 1 and 2) most commonly travel to providers located in the central areas of the District, such as, Wards 1, 2, and the most central corner of Ward 5 where MedStar Washington Hospital Center (WHC) and Children's National Health System services are located. There are only three 'kernel' zip codes in the District, one in 20009, and 20007 and 20037 in Ward 2 where MedStar Georgetown University and George Washington University Hospitals, respectively, are located. For all other zip codes Medicaid patients received between 0% and 19% - and an average of only 6% - of their primary care in their own zip codes. Table 16 details by zip code the percent of care provided to residents in their own zip codes compared to the percent of care provided in their primary preference zip codes.

Figure 18: Medicaid Primary Care Visits, Volume and Preference by Zip Code (2015 - 2016)

Table 16: Percent of Primary Care Provided in Patient Zip Code vs. Preferred Zip Code (2015 – 2016)
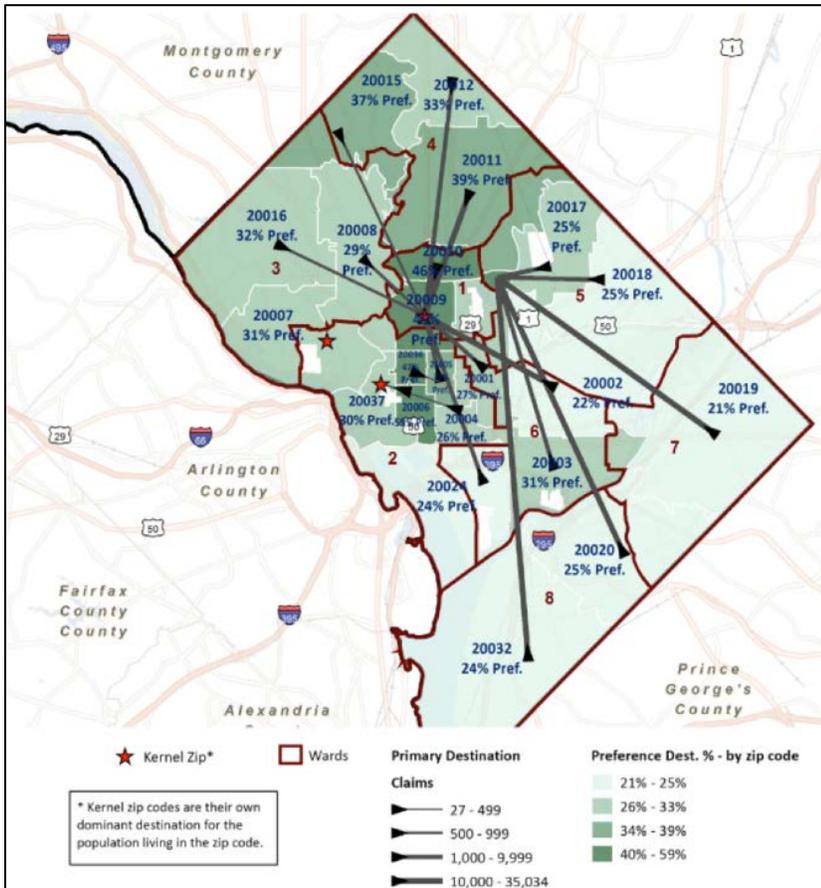
Resident Zip	Visits in Resident Zip (%)	Preferred Zip	Visits in Prevalent Zip (%)
20001	3%	20009	27%
20002	8%	20009	22%
20003	5%	20010	31%
20004	0%	20037	26%
20005	12%	20009	37%
20006	0%	20037	59%
20007	31%	20007	31%
20008	0%	20009	29%
20009	45%	20009	45%
20010	19%	20009	46%
20011	6%	20009	39%
20012	8%	20009	33%
20015	0%	20009	37%
20016	6%	20009	32%
20017	18%	20010	25%
20018	2%	20010	25%
20019	13%	20010	21%
20020	14%	20010	25%
20024	0%	20009	24%
20032	15%	20010	24%
20036	5%	20005	47%
20037	30%	20037	30%

Note: Kernel Zip Codes Highlighted

As displayed in Figure 18 and Table 16, Medicaid-insured residents of most zip codes exhibited a primary 'preference' for services in zip codes 20009 and 20010. The preference for care in 20009 is an interesting outlier in that in 20009 there are no major medical centers that traditionally explain a concentration of services/providers. While capital resources have been invested in health centers located in Southeast and Northeast DC in recent years, for the timeframe for which claims were examined (June 2015–May 2016), the pattern still reflected the majority of Medicaid care provided outside of patients' zip codes and the plurality in centrally-located zip codes (see detailed discussion below of the Capital Health Projects).

These travel patterns are of particular interest because traveling for care can make it more difficult to establish vertical care relationships necessary to manage the health of the local population collectively and to engage in activities targeting the social determinants of health. Traveling for care can also be a major barrier to individuals accessing care, as long commute times may be a major deterrent towards scheduling or attending a visit. However, given the high rates of utilization (per patient visit) outlined above, it is reasonable to conclude that traveling to care is not a major barrier among those who utilized PC services. The need (or perceived need) to travel may, on the other hand, be a major contributor amongst Medicaid enrollees not engaged in primary care, as identified by the low rates of engagement.

  The second – and maybe most notable - observation from the Origin-Destination data is the degree of variation in the care seeking patterns in the District, as seen in the map's preference destination % shading. The dominant preference patterns (representing a plurality of care) usually represent only 25% to 33% of services provided to residents. For example, in 20032, covering much of Ward 8, the dominant source of care is from zip 20010 where Children's National Health System and MedStar Washington Hospital Center are located. The preference for this pattern, however, is only 24%. The second most prevalent destination, at 17% of visits, is 20009 where many health center sites are located. Care provided within 20032 ranked third most utilized at 15% of total visits. A similar pattern is seen in zip 20020, covering the remainder of Ward 8, and in 20019 – covering much of Ward 7: only 25% and 21%, respectively, of claims follow the dominant pattern, and only 13-14% of the residents' primary care Medicaid visits were provided within their zip codes. Areas to the north of the District were more likely to gravitate to zip 20009, where a number of health centers are located.

To investigate the degree to which these diffuse preference patterns at the ward and zip levels represent diffuse care-seeking patterns at the individual level, the PCNA also analyzed the Medicaid claims data on the basis of the Medicaid patient. These analyses revealed that 83% (142,891) of Medicaid patients received all of their care outside of their zip codes of residence, while 9.7% (16,589) received all of their care within their zip codes of residence. The remaining 6.9% received care both within and outside of their zip codes. When analyzed on the basis of ward (vs. zip code), the numbers/percents of patients receiving care locally look moderately better, indicating that ward may be a more practical service area definition than zip code. Table 17 shows the individual-based care seeking patterns by the patients' wards or residence. Ward 3 and Ward 7 still show the majority of their residents seeking care outside of the local area - 91% and 94%, respectively.

Table 17: Individual-Level Travel to Care Patterns by Ward (2015 – 2016)

Geography	Patients Receiving All Care in Ward		Patients Receiving All Care Outside of Ward		Patients Receiving Care In & Outside Ward	
	N	%	N	%	N	%
Ward 1	4,674	24%	10,915	56%	3,835	20%
Ward 2	4,216	26%	9,875	60%	2,306	14%
Ward 3	111	4%	2,282	91%	107	4%
Ward 4	3,068	11%	22,332	79%	2,838	10%
Ward 5	2,481	11%	17,068	77%	2,634	12%
Ward 6	2,577	15%	12,239	74%	1,832	11%
Ward 7	1,149	4%	29,535	94%	768	2%
Ward 8	5,619	16%	25,075	73%	3,788	11%
DC Total	**23,895**	**14%**	**129,321**	**75%**	**18,108**	**11%**

Table 17 also introduces the phenomenon of individuals seeking primary care from multiple sources – in this case, approximately 11% received care in multiple wards. This practice will be discussed in greater detail below.

Figure 19 DC Medicaid Patients Comparison of Location of Received Primary Care

75% all *Outside* their ward

14% all *Inside* their ward

Origin-Destination Analysis of Specific Medicaid Sub-Populations

The PCNA also conducted origin-destination analyses for the sub-groups of Medicaid beneficiaries outlined above: the pediatric population (<18 years), women (18-34 years), and adults (35-64 years). Figures 20, 21, and 22 depict the origin-destination analyses for these sub-populations of Medicaid patients. There are distinct patterns of care delivery for Medicaid primary care visits for each age group.

The children's data, shown in Figure 20, exhibit a unique utilization preference in that there are two, rather than one, primary destinations. Those from Southeast tended to rely primarily on the services in 20010, while those from Northwest sought care from the health center-rich 20009 zip code. Also unique is the strength of preference for these destinations, with those following the dominant pattern exceeding 50% in most of Wards 5, 6, 7, and 8. Table 18 provides a breakdown of the percent of care provided to pediatric patients in their own zip codes compared to the percent of care provided in their primary preference zip codes.

Figure 20: Medicaid Primary Care Visits, Aged 18 or less, Volume and Preference by Zip Code (2015 – 2016)
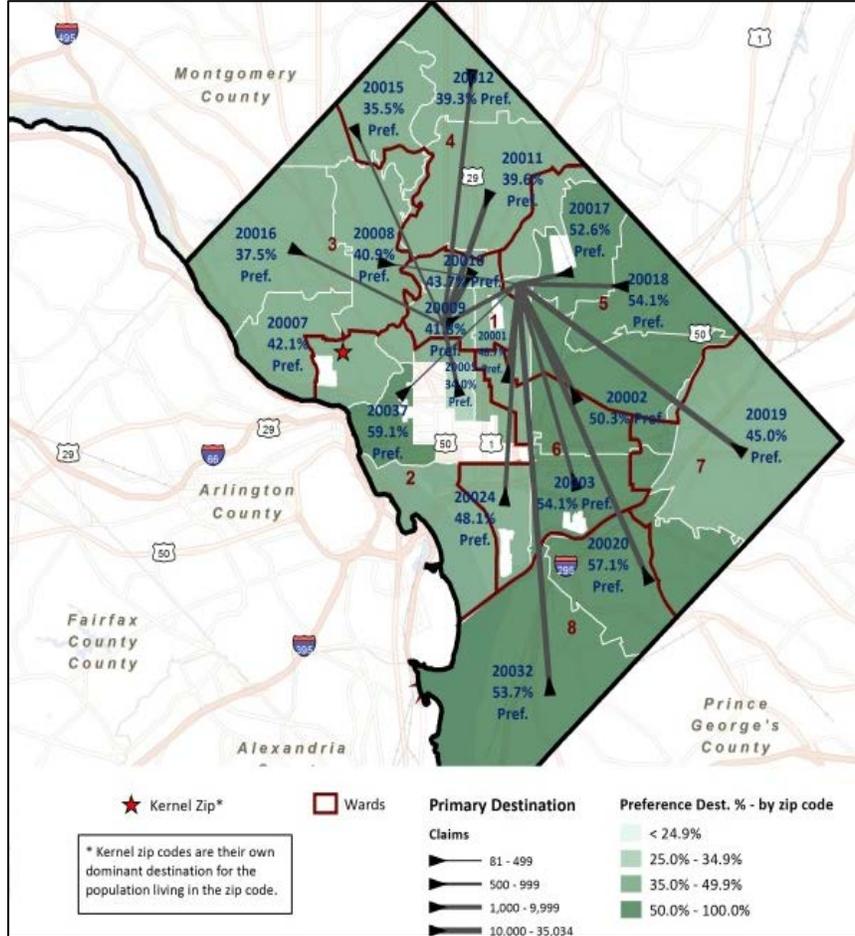
Table 18: Percent of Primary Care Provided in Pediatric Patient Zip Code vs. Preferred Zip Code (2015 – 2016)

Resident Zip	Visits in Resident Zip (%)	Preferred Zip	Visits in Prevalent Zip (%)
20001	2%	20010	49%
20002	4%	20010	50%
20003	3%	20010	54%
20005	0%	20009	34%
20006	0%	20020	100%
20007	42%	20007	42%
20008	0%	20010	41%
20009	37%	20010	42%
20010	33%	20009	44%
20011	7%	20009	40%
20012	0%	20009	39%
20015	0%	20009	36%
20016	2%	20009	38%
20017	8%	20010	53%
20018	1%	20010	54%
20019	12%	20010	45%
20020	12%	20010	57%
20024	0%	20010	48%
20032	15%	20010	54%
20036	0%	20020	100%
20037	0%	20010	59%

Note: Kernel Zip Codes Highlighted

As seen in Figure 21, women aged 18 to 34 were more consistent in their dominant pattern of care seeking, with 20009 emerging as the dominant destination for women residing in most zip codes. This group also showed weaker preference patterns overall (i.e. a smaller portion of claims following the dominant pattern), particularly in Southeast DC where 20% or less of women's claims went to the dominant 20009 destination. Table 19 provides a breakdown of the percent of care provided to these women in their own zip codes compared to the percent of care provided in their primary preference zip codes.

Figure 21: Medicaid Primary Care Visits, Women (Aged 18-34), Volume and Preference by Zip Code (2015 – 2016)

Table 19: Percent of Primary Care Provided in Female Patient Zip Code vs. Preferred Zip Code (2015 – 2016)
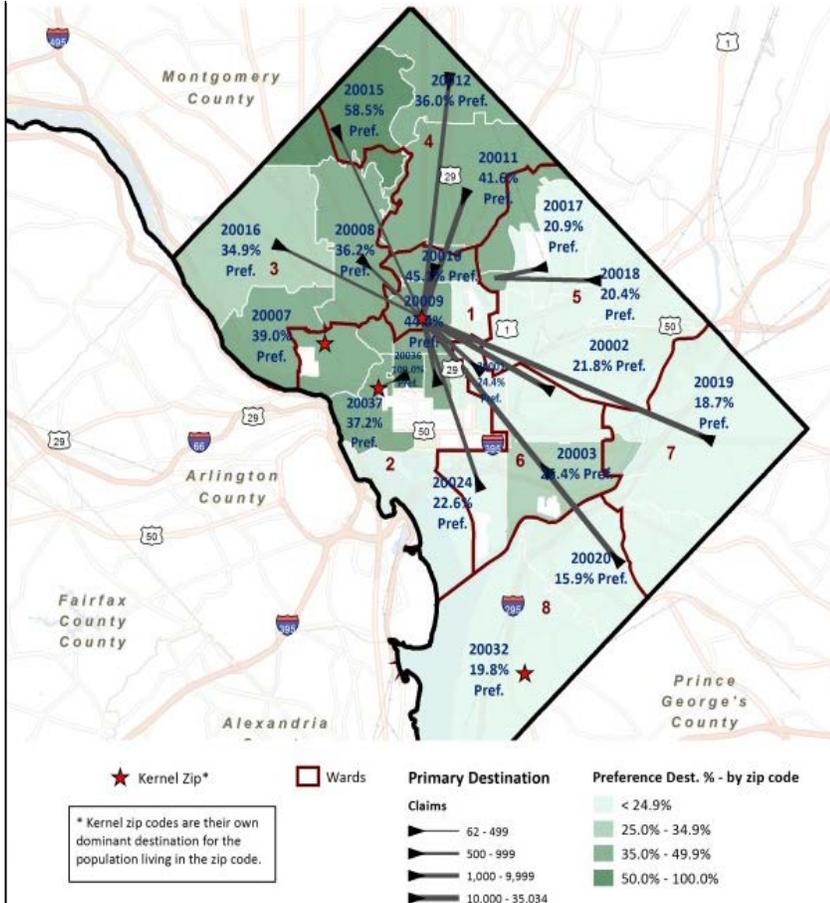
Resident Zip	Visits in Resident Zip (%)	Preferred Zip	Visits in Prevalent Zip (%)
20001	4%	20009	24%
20002	8%	20009	22%
20003	8%	20009	26%
20005	12%	20009	37%
20007	39%	20007	39%
20008	0%	20009	36%
20009	44%	20009	44%
20010	15%	20009	45%
20011	5%	20009	42%
20012	7%	20009	36%
20015	0%	20009	58%
20016	6%	20009	35%
20017	16%	20010	21%
20018	2%	20010	20%
20019	16%	20009	19%
20020	11%	20009	16%
20024	0%	20009	23%
20032	20%	20032	20%
20036	0%	20037	100%
20037	37%	20037	37%

Note: Kernel Zip Codes Highlighted

Finally, the adult enrollee category (35-64 years old) showed the most consistent pattern of Medicaid service delivery, with nearly every zip code seeking a plurality of care from 20009, with weaker preference patterns, however, among residents of zip codes in Southeast compared to other areas of the District (Figure 22). Table 20 provides a breakdown of the percent of care provided to adult patients in their own zip codes compared to the percent of care provided in their primary preference zip codes.

Figure 22: Medicaid Primary Care Visits, Adults (Age 35-64) Volume and Preference by Zip Code (2015 – 2016)
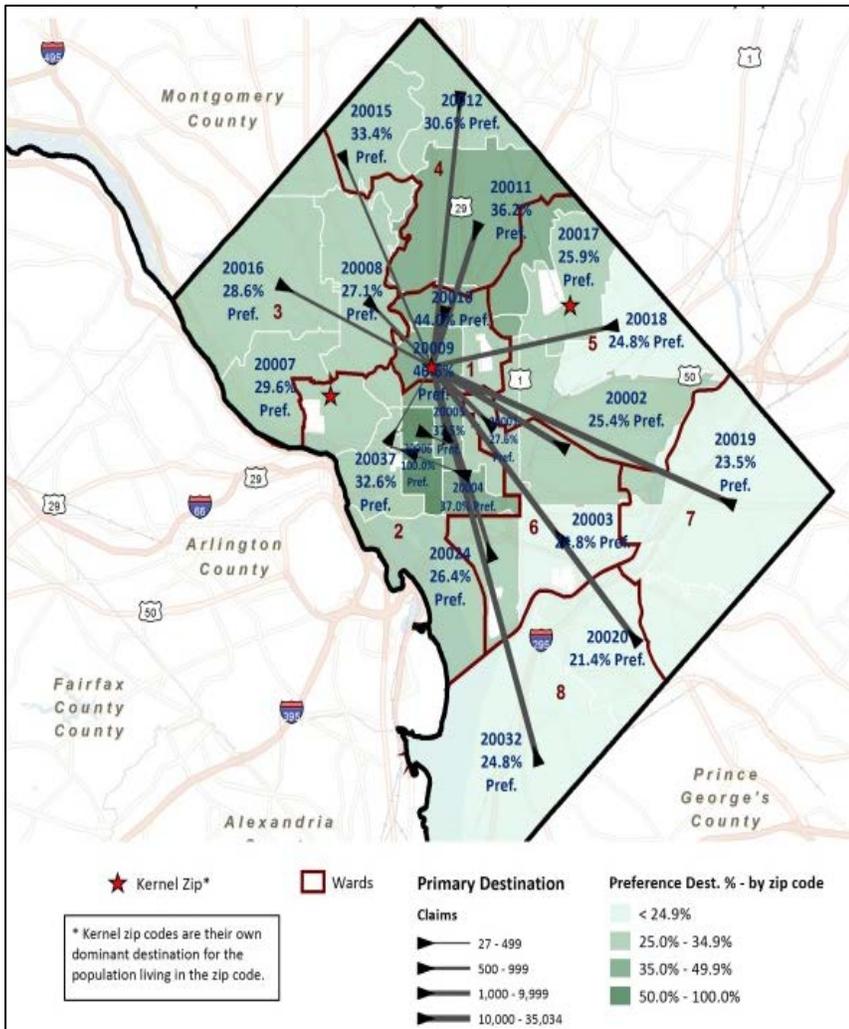
Table 20: Percent of Primary Care Provided in Adult Patient Zip Code vs. Preferred Zip Code (2015 -2016)

Resident Zip	Visits in Resident Zip (%)	Preferred Zip	Visits in Prevalent Zip (%)
20001	5%	20009	28%
20002	10%	20009	25%
20003	7%	20009	25%
20004	0%	20037	37%
20005	17%	20009	37%
20006	0%	20037	100%
20007	30%	20007	30%
20008	0%	20009	27%
20009	47%	20009	47%
20010	10%	20009	44%
20011	6%	20009	36%
20012	13%	20009	31%
20015	0%	20009	33%
20016	6%	20009	29%
20017	26%	20017	26%
20018	3%	20009	25%
20019	14%	20009	24%
20020	17%	20009	21%
20024	0%	20009	26%
20030	0%	20032	100%
20032	13%	20009	25%
20036	9%	20005	55%
20037	23%	20009	33%

Note: Kernel Zip Codes Highlighted

The data were also analyzed to assess the individual travel-to-care patterns for each patient sub-group. A summary of these data are presented in the following tables, by both zip code and ward. The main apparent finding of note is that children were more likely to receive either all of their care in their zip code/ward or all of their care outside of their zip code/ward, suggesting that children are less likely to receive their primary care from multiple providers.

Table 21: Individual-Level Travel to Care Patterns by Patient Sub-Group's *Zip Code* (2015 – 2016)

	Patients Receiving All Care *In* Zip		Patients Receiving All Care *Outside* of Zip		Patients Receiving Care *In & Outside* Zip	
	N	%	N	%	N	%
Overall	16,589	9.7%	142,891	83%	11,844	6.9%
Children	6,271	10.1%	52,365	84.5%	3,336	5.4%
Women	2,560	8.9%	23,112	80.2%	3,148	10.9%
Adults	5,423	9.2%	49,192	83.0%	4,676	7.9%

Table 22: Individual-Level Travel to Care Patterns by Patient Sub-Group's *Ward* (2015 – 2016)

	Patients Receiving All Care *In* Ward		Patients Receiving All Care *Outside* of Ward		Patients Receiving Care *In & Outside* Ward	
	N	%	N	%	N	%
Overall	23,895	14%	129,321	75.5%	18,108	10.6%
Children	8,975	14.5%	47,174	76.1%	5,823	9.4%
Women	3,519	12.2%	21,180	73.5%	4,121	14.3%
Adults	7,973	13.5%	44,405	74.9%	6,913	11.7%

This apparent finding is further bolstered by an analysis of patients' sources of care that shows that 44% of Medicaid patients received their primary care from at least two locations: 29% received their care at two sites, 11% at three sites, and 6% at four sites (Table 23). While the PCNA did not conduct any tests of statistical significance, the analysis indicated notable variation, by population sub-group, in this phenomenon. In particular, the percent of children that received care at a single site was near 70% while the corresponding percent of women between the ages of 18 to 34 was at 40% and adults were just below 50%. These women also had the smallest relative percentage of individuals receiving all their care at one site, and the largest percentages of individuals receiving care at 3-6 different sites. While the Medicaid claims were cleaned to only include those with primary care codes, it is conceivable that some pregnancy-related claims were kept in the final sample, which could explain this seeming transience in care-seeking among this sub-group of women. Future analyses should test whether engagement with multiple provider types (e.g. family medicine vs. obstetrics and gynecology) explains some of the pattern.

Table 23: Medicaid Patients Receiving Care from Multiple Sites by Sub-Group (2015- 2016)

	Received Care at 1 Site (%)	Received Care at 2 Sites (%)	Received Care at 3 Sites (%)	Received Care at 4 Sites (%)	Received Care at 5 Sites (%)	Received Care at 6 Sites (%)
Overall	55.5%	29.1%	10.5%	3.52%	.98%	.30%
Children	68.3%	24.6%	5.5%	1.2%	.31%	.09%
Women	39.7%	33.4%	17.0%	7.0%	2.0%	.63%
Adults	47.9%	32.7%	13.3%	4.4%	1.25%	.40%

Figure 23 Number of Sites Medicaid & Alliance Patients Accessed
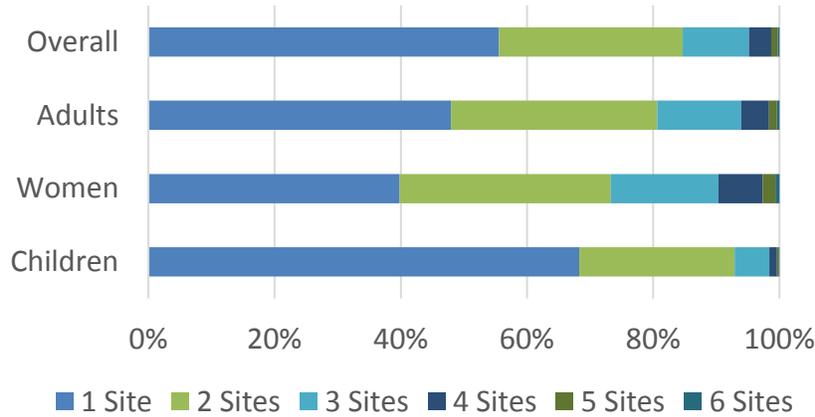
C. Need Compared to FQHC Capacity

Federally Qualified Health Centers (FQHCs) are at the core of the safety net system in any jurisdiction, and as noted, the District has invested heavily in its FQHCs over the decades. For these reasons, it's useful to look specifically at the care provided by DC's FQHCs when assessing overall primary care access and needs.

DC has a network of eight FQHC organizations that operate 32 primary care service delivery sites in DC. Figure 24 shows the location of FQHC service delivery locations. As shown in Figure 24, the FQHCs are well-distributed throughout the District, particularly in communities with high proportions of low income residents; there is a notable concentration of sites and resources in Ward 1. According to data reported to the Health Resources and Services Administration (HRSA) through the Uniform Data System (UDS), DC FQHCs collectively provided services to approximately 171,000 patients in calendar year 2015, of which 167,000 (97.6%) were DC residents.[16] This represents 26% of DC's population overall. Additionally, according to the analysis of DC's Medicaid[17] claims during this same time period, 42% of claims were submitted by FQHCs. As noted in the Data Sources section, FQHCs may be overrepresented in the claims data as all claims localized to a FQHC were included in the final claims data set regardless of whether they were confirmed to be primary care.

The majority of DC FQHC patients are low income, with most FQHCs reporting that 90-95% of their patients live in households earning less than 200% of the federal poverty level (FPL) and/or are insured through Medicaid, the DC Healthcare Alliance, or are uninsured. For a comprehensive breakdown of the FQHC patient profile, see Appendix F. FQHCs are required to provide a broad range of on-site preventive, acute, and care management services for medical, oral, or behavioral health or via referral arrangements. They are also required to provide case management services and coordinate care for individuals with chronic diseases. Many of DC's FQHC grantees also provide a broad range of social and community health services that address many of the underlying determinants of health that are at the heart of the disparities that exist in DC. Several of DC's

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[16] Of note regarding the UDS reporting system: First, UDS has no way of un-duplicating patients who are served by more than one FQHC, a resident could be counted multiple times in the numerator if they had been seen at more than one FQHC in a given year. Second, individuals experiencing homelessness are counted in the numerator but not in the denominator, and DC has a relatively high number of homeless individuals. Third, all UDS data is aggregated across the FQHC organization and is not available at the site level.

[17] (see Footnote 4)

FQHCs have tailored services and operations for particularly vulnerable groups including: Lesbian, Gay, Bisexual, Transgender, and Questioning/Queer (LGBTQ); immigrants; English language-limited; and undocumented residents.

Unity Health Care, Inc. is, by far, the largest FQHC organization serving the DC community, serving approximately 62% of all DC FQHC patients. Additionally, the data shows that Unity is serving the plurality of FQHC patients in all but one of the zip codes in the District (20036 is dominantly served by Whitman-Walker Health). Unity's dominance is greatest in the southern and eastern areas of the District where Unity sees up to 95% of all health center patients. Mary's Center is the dominant organization serving Maryland residents to the northeast of DC, which may partially explain why the organization has the highest rate of uninsured patients (approximately 40%) among all the FQHCs. UDS data for the period 2013-2015 shows that DC experienced little change in FQHC utilization over this period despite the enactment of the Affordable Care Act (ACA) during that time and the completion of several Capital Expansion Projects, with most ZCTAs showing modest growth.

Figure 24: FQHC Primary Care Service Delivery Sites

[18]

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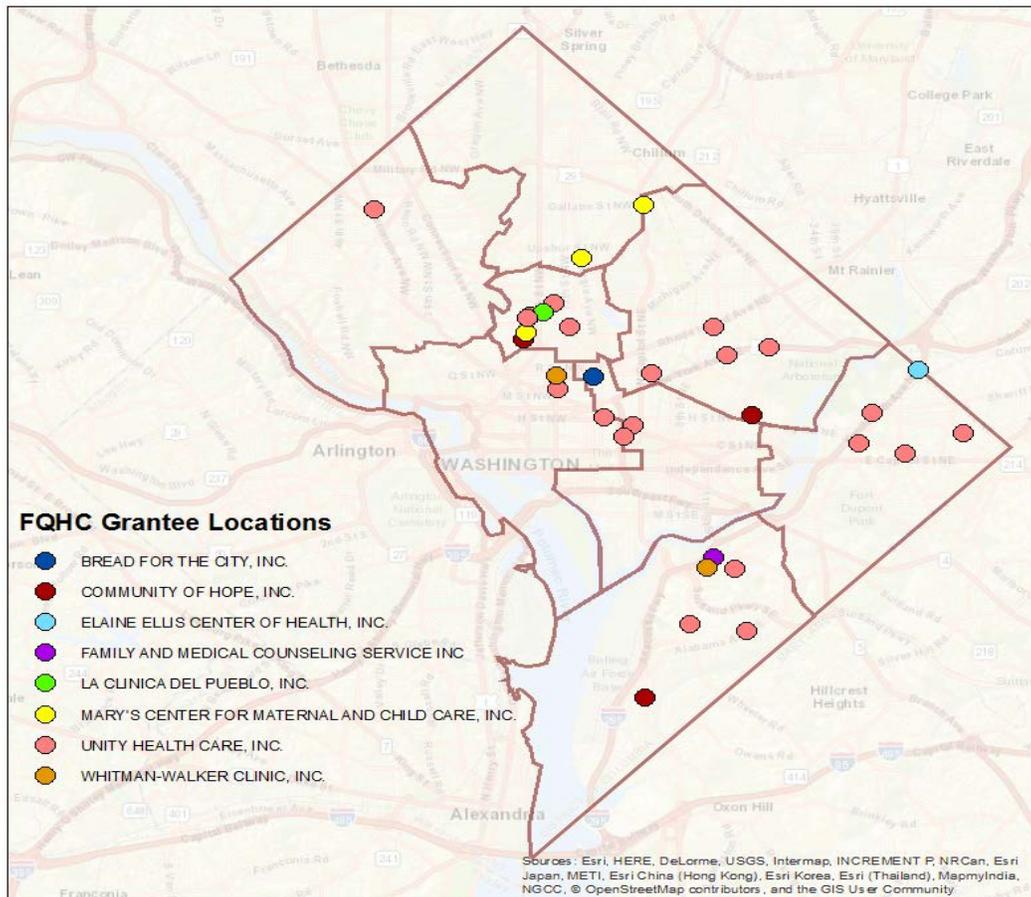
[18] *Source*: JSI mapping based on Health Resources and Services Administration (HRSA) Data Warehouse ArcCatalog data portal connection.

i.   FQHC PENETRATION

Most relevant to the PCNA is the degree to which the FQHCs collectively serve various segments of the population. Termed program 'penetration', HRSA calculates this as the total number of FQHC patients from each zip code (aggregated to Zip Code Tabulation Area (ZCTA)) compared to total residents of that ZCTA in the same population segment. Figure 25 shows the degree of FQHC service to the total population in the District, ranging from 3% (in the western end of Ward 3) to 44% residents (in the eastern end of Ward 7), and upwards of one third of residents in many of the other zip codes in Southeast DC (Ward 8) and in Ward 4.

FIGURE 25: FQHC Penetration - Total Population (2015)
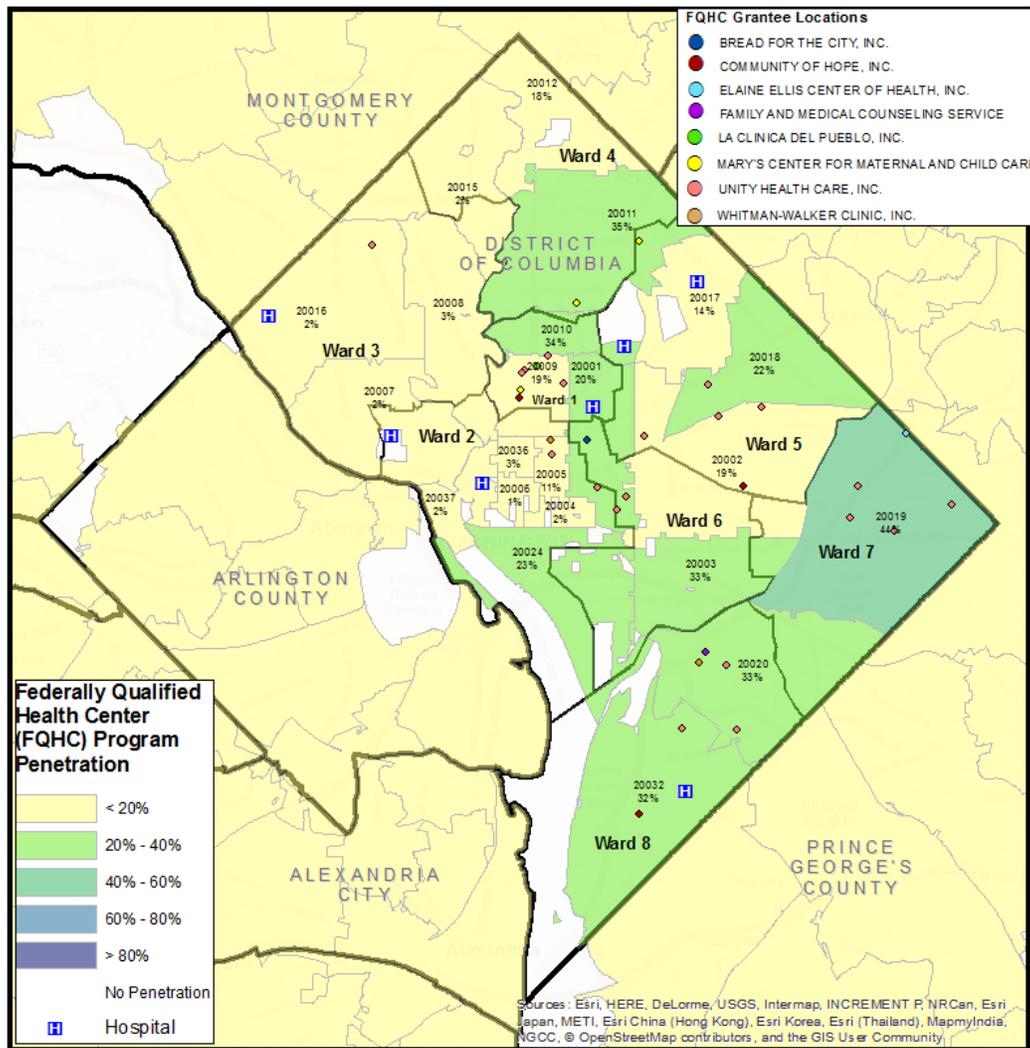
Because FQHCs generally focus primarily on the low-income, Medicaid-insured, or uninsured populations within their communities, it's instructive to assess the penetration rates for these sub-groups. When looking at

the low-income population in DC Figure 26, UDS data indicates that with the exception of Ward 3 and portions of Ward 2, the majority of the low-income population visits an FQHC within the year.[19]

FIGURE 26: FQHC PENETRATION - LOW-INCOME (2015)
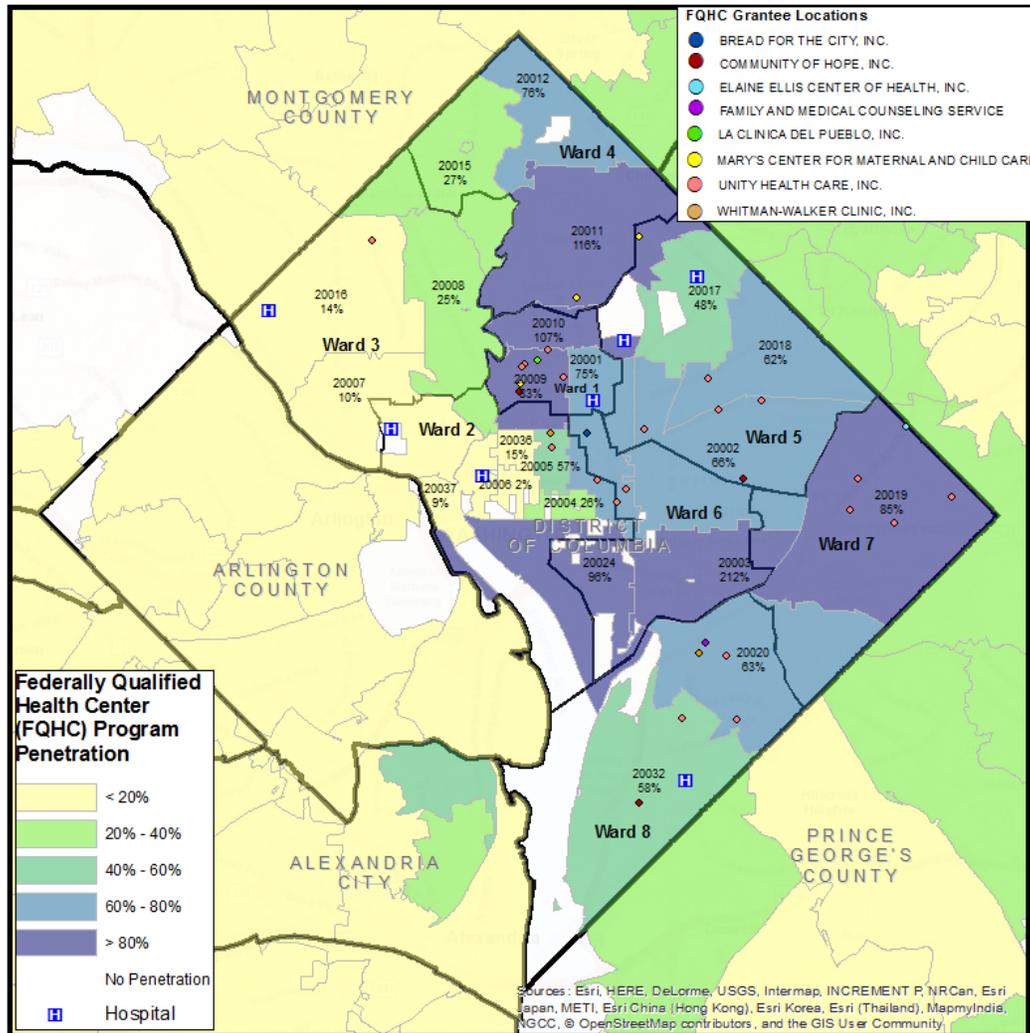
There is also significant penetration among those with public insurance such as Medicaid, Medicare, DC Alliance, and other similar public insurance programs (Figure 27). However, it is interesting to note that the health centers see proportionally less of the Medicaid population from Ward 8 where fewer than half of all Medicaid patients visit a health center within the year. Since the Census-based denominator for this calculation is likely an undercount of the actual enrollees, this level of service may even be overstated.

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[19] Note that some areas appear to exceed the total population – likely due to some duplication when an individual visits more than one Health Center grantee – which can't be unduplicated.

Figure 27: FQHC Penetration -Publicly-Insured (2015)
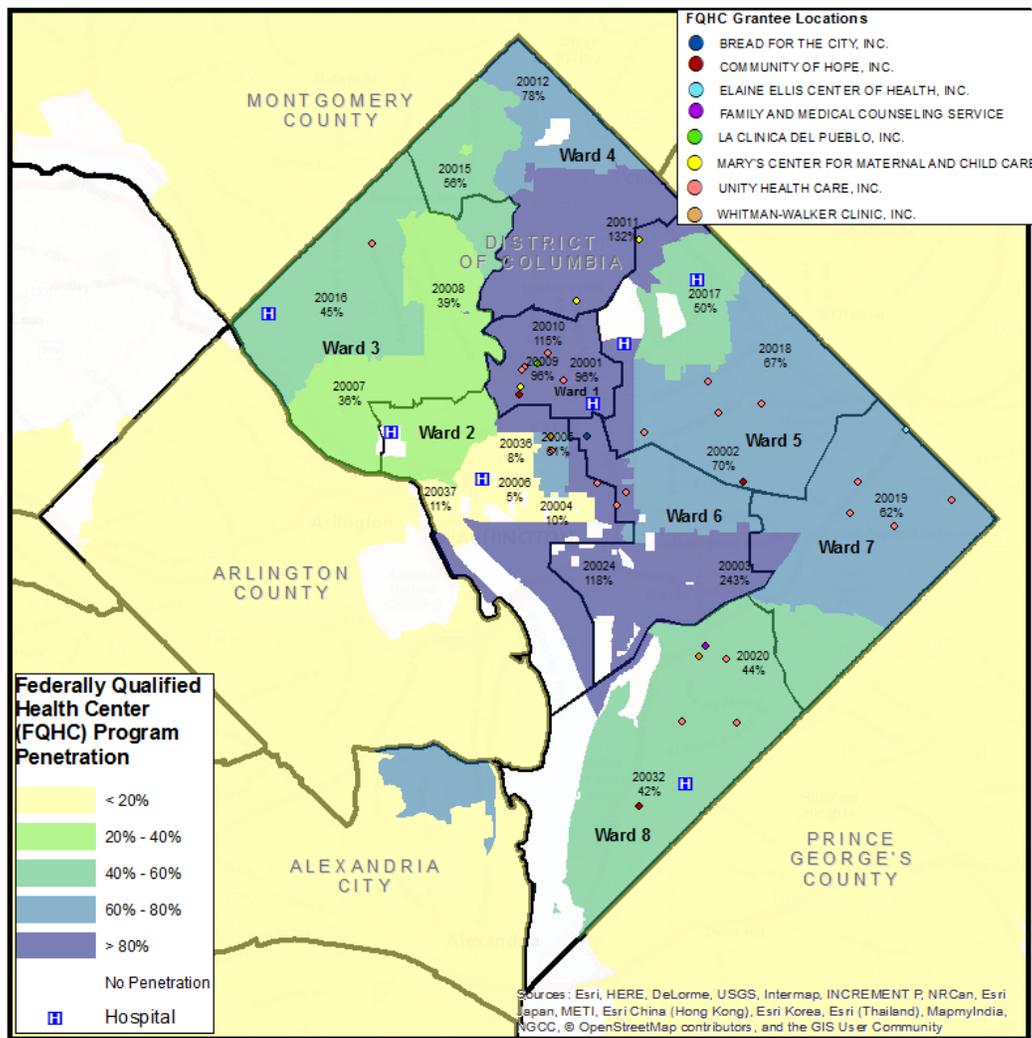
The final map (Figure 28) shows the penetration of the FQHCs among the uninsured population of DC. Though the level of uninsured in DC is low overall, there still remain populations that have no health insurance coverage. According to the UDS data, the health centers are serving the bulk of the uninsured population in most of Wards 7 and 8, with many areas appearing to exceed 100% service – likely due to patient overlap between organizations and potential undercounting of transiently uninsured populations in the Census. Regardless, this level of service would be considered full saturation for most of the District, though only 23-36% of the uninsured residents in Northwest are accessing care at FQHC locations. In addition to the UDS data limitations noted above, with regards to Medicaid penetration rates, there is likely an undercount of Medicaid enrollment since this data is derived from the US Census, Current Population Survey (CPS), which the literature has shown to be understated. In fact research indicates that the CPS estimates could be as much as 40% undercounted from the actual figures.[20]

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[20] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2699917/

Figure 28: FQHC Penetration – Uninsured (2015)
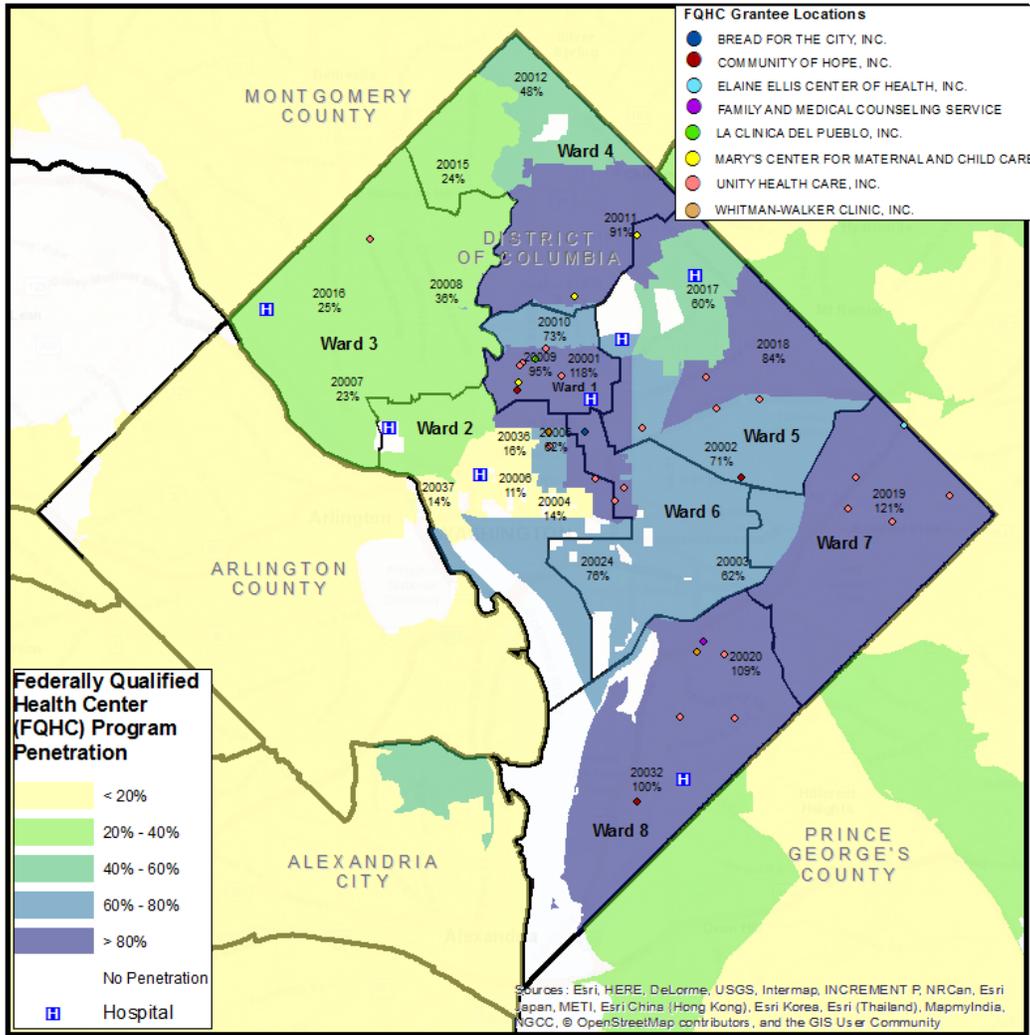
ii.   *SUMMARY AND IMPACT OF FQHC CAPITAL HEALTH PROJECTS*

As noted earlier, between 2009 and 2015, DC Health managed the investment of over $90 million of the District's Tobacco Settlement Funds to build new or expand existing health facilities throughout the District. A total of nine construction projects, termed the Capital Health Projects (CHP), were ultimately carried out under this initiative. The CHP projects built up resources in Wards 2, 4, 5, 7, and 8; and included seven DC community health centers and two hospital projects. Completed projects ranged from renovations within hospital emergency departments to construction of multi-floor multi-purpose stand-alone buildings.

The six FQHC capital projects generated a three-fold increase in clinical care space above what was available for care prior to the projects' completion, and taken together the projects generated 555,101 primary care visits by the end of 2016.

To measure the impact of the CHP projects on access to care, the PCNA analyzed annual site-reported data on patients and patient visits. One indicator assessed is the reported number of new patients seen at the CHP

sites (i.e. patients that had not been seen by the organization – at any location – prior to each reporting year). The total number of *new* patients served by the six CHP sites since the health center project sites opened (through fiscal year 2016) was 31,261. While not all of these new patients should be assumed to have lacked access to care prior to the opening of the project sites, the "new patient" numbers indicate, at a minimum, that the CHP sites presented individuals an alternative to the care they were or were not accessing before.

With regards to the impact of the CHP projects on making care available locally, one of the key objectives of DC's investment of Tobacco Settlement Funds, the data shows that the CHP sites are indeed serving their local populations. Figure 29 shows a 'dot density' map of the patient count by zip code for people seen at each of the Capital Health Project locations in fiscal year 2016. The locations are not actual residences but are meant to show the density of patients in the area – with each dot equal to 30 patients.

Figure 29: Capital Health Project Patients Served by Zip Code (2016)
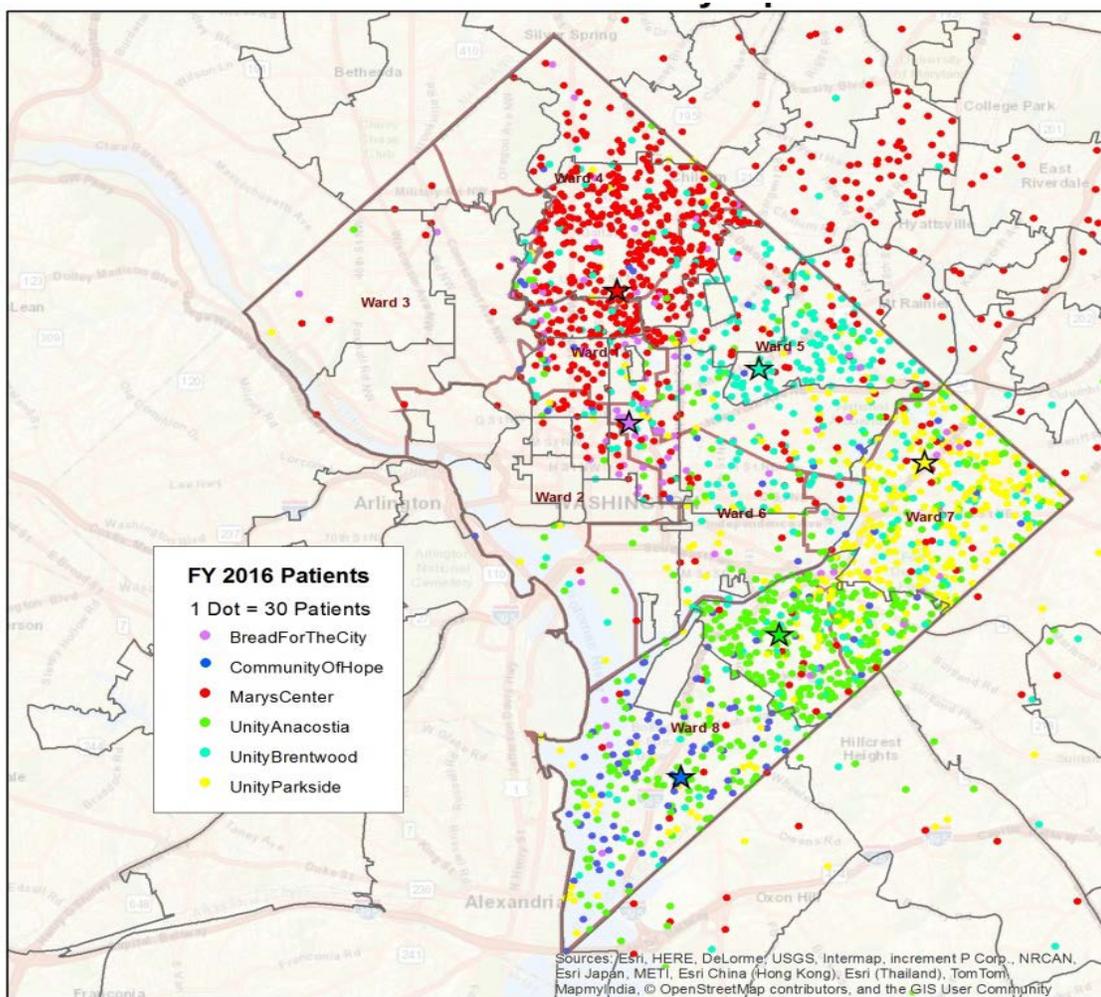
In general, the map shows the sites are primarily serving residents from the areas and wards in which the sites are located. However, two patterns of note with regards to local utilization include: the relatively diffuse penetration of the Capital Health Projects in the southern half of Ward 8, despite a CHP site (COH Conway Health and Resource Center) opening in the area in 2014; and the relatively high volume of Maryland residents being served by the CHP site in Ward 4 (Mary's Center – Georgia Avenue).

To measure the impact in terms of the total volume of care being provided to local populations, the PCNA calculated the total number of patient visits provided by the CHP sites to patients residing in each of the CHP zip codes from FY 2010 – 2016 (Table 24). For all sites, the largest percentage – by substantial amounts – of their patient populations have come from the zip codes in which the projects are located, and all together, patients in the CHP zip codes have received over 830,000 visits at the CHP sites.

Table 24: CHP Projects Total Patient Visits by Zip Codes (FY 2010 – 2016)

CHP Sites	20001	20011	20018	20019	20020	20032	Total
Bread for the City	17,868	14,508	2,843	6,426	4,270	2,615	48,530
Conway Health and Resource Center	409	1,019	279	1,433	4,056	19,890	27,086
Mary's Center - Georgia Ave	38,102	394,276	17,479	22,116	8,775	6,018	486,766
Unity: Anacostia Health Center	3,231	2,932	2,638	22,322	102,048	39,845	173,016
Unity: Brentwood Health Center	1,858	2,798	10,530	4,718	3,247	2,188	25,339
Unity: Parkside Health Center	1,224	1,481	1,664	52,063	8,709	5,880	71,021
Total	62,692	417,014	35,433	109,078	131,105	76,436	831,758

Note: Cells highlighted in yellow, are the CHP's home zip code.

Finally, in efforts to ascertain whether these sites helped increase the number of people that could access care, the PCNA compared the number of Medicaid claims submitted in June 2010 to May 2011 for the residents in these wards to those submitted in June 2015 to May 2016. The claims per enrollee rate for June 2010 to May 2011, which was 2.98, was used to calculate the expected June 2015 to May 2016 number of claims or visits based on the number of enrollees for that year (Table 25). Calculating the expected number of claims this way revealed these wards experienced on average an increase of 8% in the volume of Medicaid claims. Ward 4 experienced the highest increase at 10% which includes the Mary's Center, Georgia Avenue site.

Table 25: CHP Ward Residence Medicaid Claims Net Change from (FY 2011 – 2016)

		Medicaid Claims Per Ward			
Geography	Capital Project Sites	10-11 Actual	15-16 Expected	15-16 Actual	Increased (%)
Ward 2	Bread for the City	94,325	94,855	103,379	9%
Ward 4	Mary's Center - Georgia Ave	126,919	143,032	157,781	10%
Ward 5	Unity: Brentwood Health Center	113,953	132,475	139,445	5%
Ward 7	Unity: Parkside Health Center	133,370	164,985	178,733	8%
Ward 8	Conway Health and Resource Center & Unity: Anacostia Health Center	144,063	173,871	183,231	5%

While this cursory analysis indicates that there is indeed an increase in care being delivered to the populations in the CHP zip codes and certainly the CHP projects are delivering a portion of that care, CHP data also indicates that the new sites are not yet all at capacity with regards to the amount of care they could be providing to local residents. Capital Link, whose feasibility studies formed the basis of many of the CHP applications for funding, used a calculation of two patient visits per square foot of clinical space. Using the Capital Link estimate, the COH site in Ward 8 has the physical capacity to significantly ramp up services; and the relatively diffuse penetration of the CHP sites overall in the southern half of Ward 8 suggests that there is certainly a patient population not already being served by a CHP site. According to the UDS data, a significant proportion of the Medicaid-insured in this area are not accessing care at FQHCs at all. Using the Capital Link estimate, most of the CHP sites were not, as of 2016, at capacity. This excess capacity was confirmed by the sites' leadership in the key informant interviews, discussed below.

D. Indirect Indicators of Primary Care Adequacy

In addition to examining the direct availability and utilization of primary care resources in the District, there are other sources of information that indirectly point to issues with primary care access. These include qualitative sources, such as surveys and community meetings, as well as process and outcomes-related data that suggest underlying issues with the primary care system based on the way care is being utilized and whether adverse outcomes are being avoided.

Potentially Avoidable Hospital and ED Utilization

One of the more common indirect indicators of the accessibility and effectiveness of primary care resources is the degree to which patients with Ambulatory Care Sensitive (ACS) diagnoses are seen in emergency departments (ED) and/or admitted to the hospital. ACSs are conditions that researchers have determined to be partially avoidable or preventable with appropriate primary care services (e.g., hypertension, asthma, diabetes, etc.).

Nationally, studies have shown that upwards of 20% of all hospital emergency department visits in the nation are for non-emergent issues that could be more effectively and efficiently treated in primary care or specialty care outpatient settings.[21] In this regard, the data from DC's emergency room discharge records[22] shows that the District is at, or even slightly below, that average, with 19.3% of ED visits falling into the ACS diagnostic categories. As with many statistics for DC, however, these results are not consistent across the District. Figure 30 shows the percent of ED visits from each zip code that are ACS related.[23] Note that areas in the northwest part of the District show ACS rates notably below the District-wide average, while areas in the south and east ends of the District show rates that are several percent higher than the average. Multi-year data reported in DC Healthy People 2020 report indicated an increasing trend in non-emergency use of ED services. Between 2011 and 2014 the rate of non-emergent ED visits climbed steadily from 325.8 to 342.8, a 5% increase over four years.

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[21] Uscher-Pines, Lori; Pines, Jesse; Kellermann, Arthur; Gillen, Emily; Mehrotra, Ateev. Deciding to Visit the Emergency Department for Non-Urgent Conditions: A Systematic Review of the Literature. *(Am J Manag Care. 2013;19(1):47-59) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4156292/*

[22] DC Hospital Association. (2014) Hospital and ED Discharges.

[23] Emergency Department data for United Medical Center (UMC) was not available for this analysis.

Figure 30: Emergency Department Visits with ACS Primary Diagnosis by Zip Code (2014)
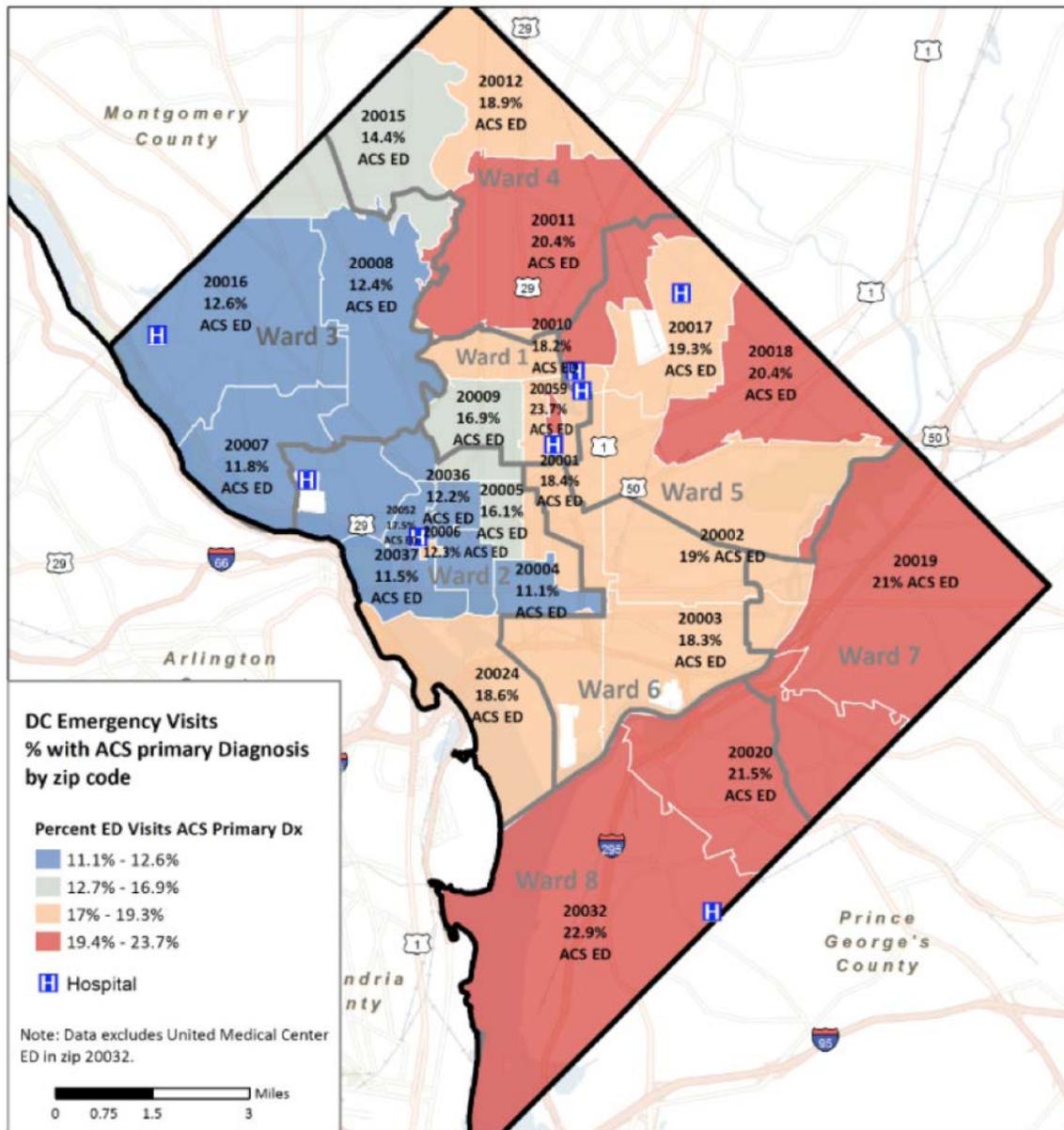
Figure 31 shows a similar pattern for inpatient ACS utilization. Overall, 17.2% of DC's hospital admissions were associated with ACS diagnoses, with a range of over 20% of all discharges in the zip code 20001, with rates nearly as high in all zip codes of Wards 7 and 8, and rates in the single digit and low tens for much of Northwest DC, but as low as 5% in central parts of Ward 2.

Figure 31: Inpatient Hospitalizations with ACS Primary Diagnosis by Zip Code (2014)
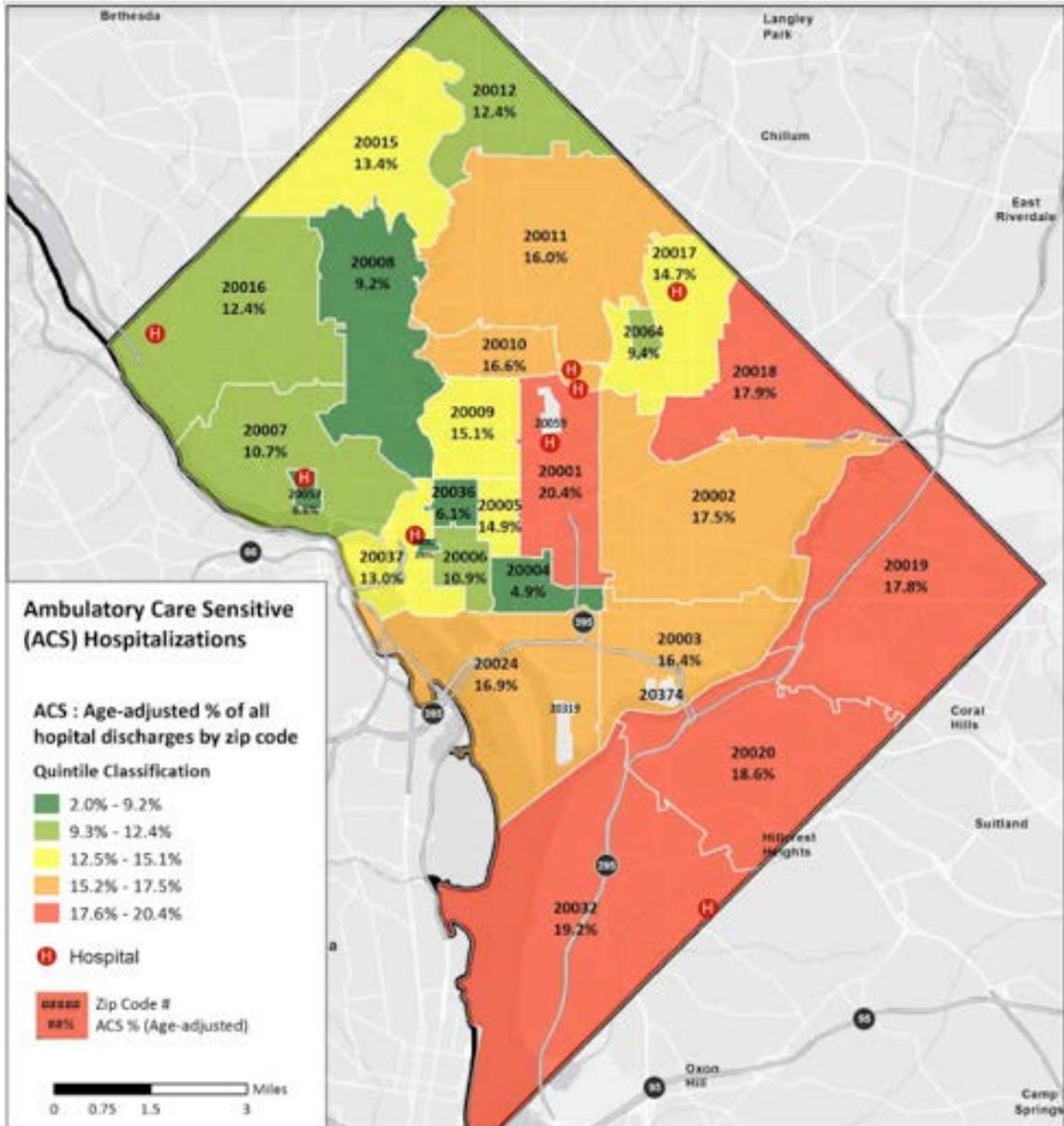
The inpatient hospital discharge data also highlighted variations in utilization patterns based on insurance type. Figure 32 shows the hospital destination for women, between the ages of 18 to 34, based on insurance coverage; the data shows that Medicaid-insured residents were more likely to receive care from hospitals that are typically considered "safety net" hospitals (e.g. Providence Hospital, Howard University Hospital, United Medical Center, etc.) and commercially-insured residents – regardless of where they lived - were more likely to access hospital services at Georgetown, George Washington, and Sibley. The yellow shaded areas of these maps highlight communities where the most common hospital destination was different based on insurance classification.

Figure 32: Hospital Patient Discharge: Zip Code Origin-Destination and Preference for Medicaid vs Private Insurance (2014)
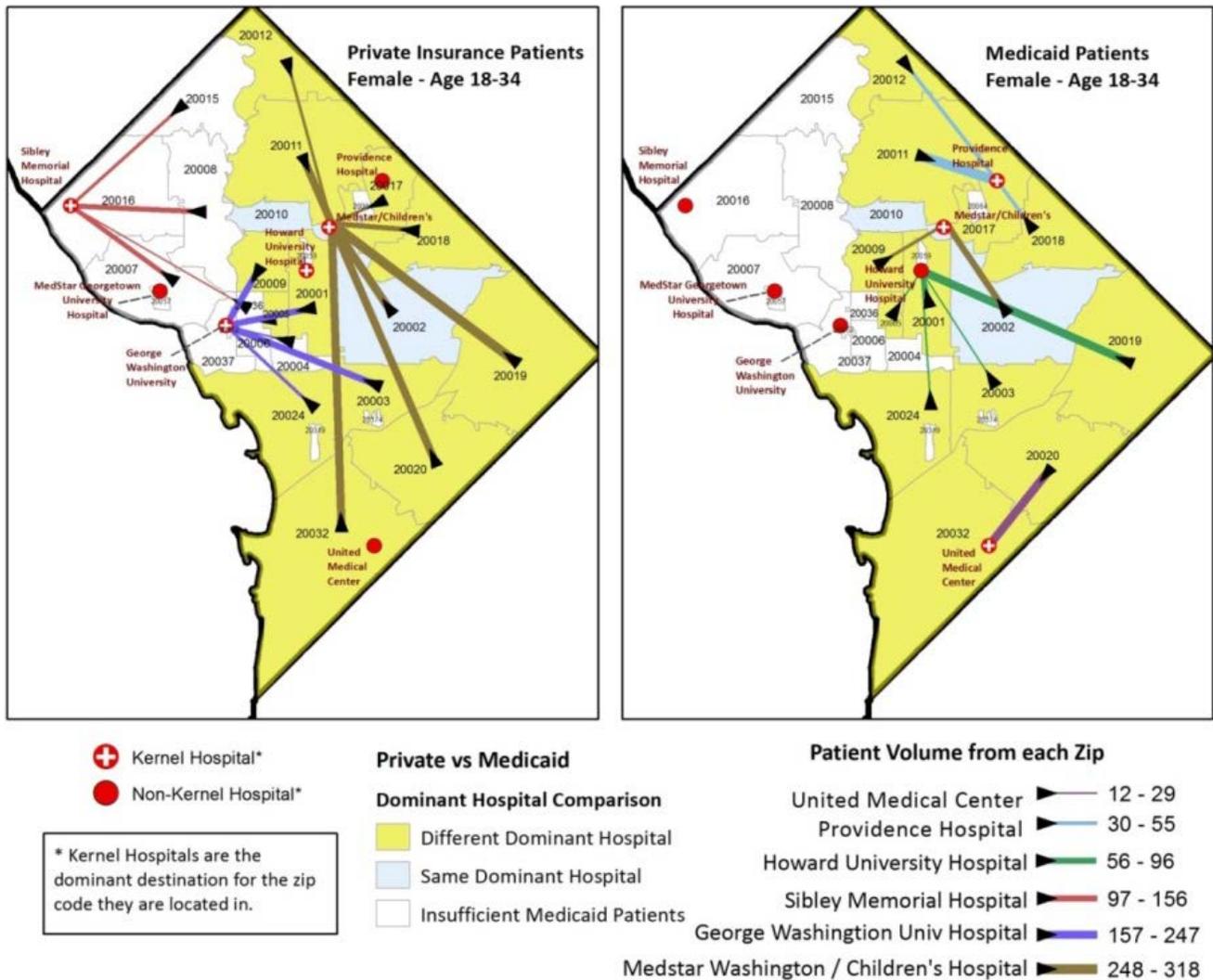
Taken together, these indirect measures indicate that while the Quantitative Results section has focused primarily on measuring the adequacy of primary care resources to meet need and demand, a more qualitative assessment of accessibility and patient experience of care is a critical area to explore.

III.   QUALITATIVE RESULTS

Section Highlights

- Scheduling and no-show rates were the leading operational challenges reported by provider practices.

- Service integration and care coordination, and in particular, primary care and behavioral health, was a barrier frequently cited by both patients and providers.

QUESTION B: What are the factors that inhibit or facilitate District residents' access to primary care services?

As described in the Methodology section, qualitative data was gathered through both the PCNA's Provider Survey and key informant interviews. The information for this section was also informed by the qualitative information gathered through the DC HSP, namely the HSP interviews and community forums, as well as quantitative data. It is not meant to provide an exhaustive framework of the barriers that inhibit access to primary care services, but rather the factors that, based on the synthesis of data, seem to have the greatest impact on access and engagement in primary care services.

This discussion has been segmented into four categories, including barriers related to: 1) primary care capacity distribution; 2) primary care operations; 3) administrative barriers pertaining to insurance coverage or MCO contracting; and 4) social determinants of health such as housing, poverty, and transportation.

A. Primary Care Capacity Distribution

Travel to Care

There is substantial data suggesting that aggregated primary care capacity across all of DC's wards is more than ample to meet the demand of DC's residents. However, capacity at the ward level, particularly in Wards 4, 7, and 8, is more constrained, and Medicaid travel patterns at least suggest that individuals are traveling relatively long distances for care. This was supported by detailed accounts from participants of the HSP's Community Forums, who reported that it is not uncommon for those living in outlying wards to travel for as much as 1 to 2 hours by public transportation to get to their appointments in downtown DC. Delays related to traffic congestion and public transportation were most often cited as the underlying cause of the long-travel times. According to information gathered, these travel times present a significant barrier to care and could be preventing engagement in appropriate, ongoing care. Approximately half of the PCNA provider interviewees cited transportation barriers as a major barrier for their patients. Travel to care - particularly for specialty care services and other hospital-based services - was also cited at the HSP community forums for Wards 6 and 8, as well as the Spanish-speakers' forum, as a major issue. There is

> *"People have access to care. There is enough capacity in the District. The question is whether care is the right fit. Sometimes people have several different clinics that they go to. It might be that there is actually tons of access, and the real problem is that we're not meeting people's needs. We need to listen more and ask the right questions."*
> *–Primary Care Practice Medical Director*

also a wealth of academic literature that cites the burdens related to transportation and excessive travel times.[24]

The PCNA did not yield enough detailed information to fully explore the factors that lead residents to access services outside of their local communities – particularly when resources are available more locally. However, information gathered from the PCNA interviews and the HSP's community forums suggested that historical patterns of use, linguistic/cultural matching, and perceptions of quality were major factors.

Provider Recruitment

Numerous PCNA interviewees (5 - 6 interviewees) discussed the challenges related to provider recruitment, although there was considerable variation in the sentiments depending on the type of primary care practice (e.g., FQHC vs. hospital-based practice) and the staff or provider type in question (e.g., primary care provider, nurse/RN, medical assistant). While the pool of informants was quite small, hospital-based practices reported having limited trouble recruiting primary care providers, as DC was a favorable place to live, and providers saw most of DC's hospitals as attractive places to work due to the cachet of working with a medical center and/or the exposure to research and a broader system of care and colleagues. FQHCs, on the other hand, reported struggling to be competitive with respect to salary; additionally, their settings were perceived as not as attractive as hospital-based or private practice settings. With respect to provider type, one interviewee said that it was very challenging finding experienced registered nurses and midwives, and at least two of the PCNA interviewees expressed that it was very challenging recruiting and retaining medical assistants, nurses, and front-desk staff, even though they had competitive salaries.

B. Primary Care Operations

Over the past decade or more, there have been strong, near universal, efforts in DC to promote patient centered medical home (PCMH) concepts across primary care practices of all types. These efforts have been geared to ensuring that primary care services are patient-centered, accessible, well-integrated/coordinated, and provided with an eye toward the patient's experience. Despite these efforts, practices still struggle to promote engagement in appropriate care and ensure that the right-care is provided at the right-time and in the right-place. The following is a discussion of the leading barriers related to primary care operations borne out of information gathered primarily from the PCNA interviews and the PCNA Provider Survey.

After-Hours and Weekend Care

The availability of after-hours care during weekday evenings or on weekends was addressed in the primary care survey and discussed at length in all of the PCNA interviews. [25,26] This issue also came up frequently during the HSP's interviews and community forums. Nearly all of DC's core primary care providers (i.e., those included in the PCNA survey) reported that they provide some-level of after-hours care, in the evening on certain days of the week or on the weekend, typically on Saturday particularly for working individuals and families. FQHC providers are required to have some level of after-hours care and, as a result, nearly all FQHC providers have

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[24] Traveling Towards Disease: Transportation Barriers to Health Care Access https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4265215/

[25] Quantitative data gathered from the PCNA also clearly supports the importance of offering care after-hours. Based on Medicaid claims data from DCHF, we know that upwards of 50% of Medicaid enrollees in some of DC's Wards are not accessing services. We also know that as many as 30% of hospital inpatient discharges and as many as 20% of hospital emergency department visits are for ambulatory care sensitive conditions that might have been prevented or avoided if patients were seen more regularly in the primary care setting.

[26] After-Hours Care and Its Coordination with Primary Care in the United States. http://www.commonwealthfund.org/~/media/Files/Publications/In%20the%20Literature/2012/Jul/1610OMalleyafterhourscareJGIM062012ITLv2.pdf

clinic hours on weekends, weekday evenings, or both. Community residents who participated in the HSP's community forums also voiced that access to care during the evenings and on weekends were critical to ensuring access, promoting appropriate engagement, and reducing inappropriate hospital emergency department use.

The private and hospital-based practices that were surveyed as part of the PCNA Provider Survey also reported that they provided some-level of after-hours care. Based on responses to the PCNA Provider Survey, there is a range of ways that practice sites provide that after-hours care. Most of the practices that responded to the survey provided Saturday morning services as well as at least one evening shift during the work week, most often on Thursdays. To address the need for after-hours care, some practices extended their hours of operations, ending at 7 pm, for most weekdays rather than extending hours for one or two days out of the week. Due to the extended hours of operations during the week, a number of practices did not provide weekend hours.

While there was universal support and appreciation for the importance of after-hours care, a number of the core practice sites interviewed and surveyed were not able to provide after-hours or weekend care because doing so was either challenging to manage, not of high-value, or not-cost effective. Other practices provided after-hours care but did so despite significant challenges. Of those who reported that after-hours or weekend care was challenging, some reported that the challenges were related to provider recruitment and retention. Others sites interviewed discussed the challenges of recruiting support staff (e.g. front desk, medical assistants, and nurses) willing to cover the evening or weekend shifts. Without a competent and experienced staff, achieving sufficient rates of productivity is difficult, hence limiting the value of incorporating after-hours care. Respondents also discussed that despite its value to the patients, maintaining an adequate volume during after-hours care was a challenge, resulting in diminished financial viability.

Scheduling Issues: Long Wait-times, Need for Urgent Care, Lack of Walk-ins or Open Access
Based on the literature[27] and information gathered from PCNA interviews, issues related to scheduling are at the heart of ensuring access to care. Drawing from information gathered from the PCNA interviews, scheduling is particularly critical with respect to: 1) ensuring appropriate access, 2) limiting wait-times, 3) addressing no-show rates, 4) reducing non-emergent hospital emergency department visits, and 5) promoting patient satisfaction and engagement in care. Nearly all of these issues were addressed at some level during all of our PCNA interviews.

> *"Every clinic and practice site in the District should focus on perfecting "Open Access" scheduling, particularly in low income communities, but really everywhere."*
>
> **–Primary Care Practice Medical Director**

Challenges related to scheduling and high no-show rates were identified as a leading barrier for patients and practices in nearly all of the PCNA interviews. Based on data collected from the PCNA Provider Survey and during interviews, the average no-show rate was between 25-30% with approximately 10% being the lowest reported rate and 40% being the highest. Not one person, across all of the PCNA interviews conducted, stated that they had identified a tried and true method of reducing no-show rates. Most practices said they had implemented a multi-pronged approach of reminders, call-backs, warm-hand-offs, and counseling for frequent no-showers as being the norm with nothing working much better than the other. Numerous interviewees said that no-show

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[27] Innovation and Best Practices in Health Care Scheduling. Institute of Medicine. https://nam.edu/wp-content/uploads/2015/06/SchedulingBestPractices.pdf

rates were highly correlated with poverty and whether you had a behavioral health issue. Most practice sites have no-show policies to address this issue and have policies that are non-punitive, as they do not want to limit access or drive people away. Some practice sites insist on seeing their patients only on an unscheduled basis if they miss too many appointments, others only book a limited number of days ahead.

Nearly all of the PCNA interviewees discussed the importance of walk-in hours or some form of open access scheduling and expressed this as one of the key strategies in addressing patient engagement, high no-show rates, and high inappropriate emergency department utilization rates. While not all practices responded to the survey, nearly all of the practices that did respond, reported accepting walk-ins for acute care services. One site relied almost exclusively on walk-ins. Others included a number of slots per day or identified one provider during each shift that was assigned to walk-ins. Only a few clinics, particularly the smaller ones, had limited-to-no walk-in policies.

Need to Ensure that Care is "Patient-Centered" and "Customer-Friendly"
As discussed above, at the heart of the question regarding effective care is the issue of "patient-centered care" and maximizing the patient experience. Is the "right-care" easily accessible and "user-friendly"? While this was not referenced often during the PCNA interviews, numerous participants in the HSP interviewees and community forums cited poor customer service as a barrier to care and engagement, particularly at DC's FQHCs . If patients do not feel welcomed in the primary care setting, then they may be less likely to engage in appropriate services and more likely to miss appointments. As in every other industry, training on providing high quality customer service should be a prerequisite for practice staff of all types.

Lack of Service Integration and Care Coordination and Fragmentation of Service System
There was limited reference to a lack of quality of care in the qualitative information collected in the interviews for the PCNA and HSP. Likewise, while there was limited quantitative data directly related to quality, none of it alluded to major issues. For example, amongst FQHCs, nearly all had better outcomes across the range of required CMS "meaningful use" measures than their national counterparts.

However, there were major concerns with respect to how primary care, specialty care, and other supportive services were integrated and coordinated. Numerous PCNA interviewees and HSP informants expressed the challenges that DC residents faced in navigating the system, accessing referral services, or coordinating follow-up care services after being discharged from the hospital inpatient or emergency department setting. Many noted that the absence of established referral agreements among providers resulted in referral decisions being guided by the preference of individual providers and that, as a result, even getting clinical details back from specialists or inpatient facilities was difficult. These issues came up frequently in the PCNA and HSP interviews when asked about barriers to care, as well as in discussions with community residents during the forums. Coordinating specialty care and behavioral health services was cited specifically in many instances. This was a particularly prevalent theme during our Spanish-speaking community forum.

Nearly all of the interview and community forum participants across the PCNA and HSP discussed the major impact that mental health and substance use issues are having on DC residents and health care service providers. Many of these informants went on to convey that the supply or capacity of mental health and substance use services was not the leading issue. However, the qualitative data cited the lack of service integration and care coordination as the leading issues in accessing mental health and substance abuse services. The siloed nature of physical health, mental health, and substance use services limit engagement and

presented barriers to access, particularly for some of DC's most vulnerable. More specifically, interviewees cited challenges were related to billing, primary care or specialty care referral, access to psychiatric services, sharing of patient information, and the integration and coordination of care. Significant efforts have been made to better integrate services and to braid funding streams. Most of the practices interviewed and surveyed for the PCNA reported that efforts were already underway to integrate behavioral health into their primary medical operations. Also, in 2013, the DC Department of Behavioral Health was created, combining DC's mental health and substance use programs into one entity. While the PCNA did not provide detailed, objective information on the impact of these efforts, anecdotal information gathered from the PCNA and HSP interviews seems to suggest that these efforts are having a positive impact and helping to address the issue. Nonetheless, numerous PCNA and HSP interviewees referenced the challenges that primary care providers in the District face in accessing behavioral health services for their patients and coordinating care with the DC Department of Behavioral Health's network of mental health and substance use clinics. Despite these efforts, the siloed nature and processes that are at the heart of these sub-systems of care are still deeply entrenched. Given how inter-related physical, behavioral, and emotional issues are, this is widely considered to be a barrier to access and to addressing the burden that behavioral health services are having on DC residents. A more detailed discussion of this issue is included in the DC HSP.

C. Administrative Barriers

There is both quantitative and qualitative data to suggest that some DC residents struggle to access care with the provider of their choice due to administrative and system barriers. The following is a discussion of these administrative and system barriers.

Insurance Coverage, Provider Panels, and Managed Care Organizations Contracting
A common, although not pervasive, theme throughout the PCNA's and the HSP's interviews as well as the HSP's community forums was the idea that access was limited for some DC residents by what insurance one has and/or by the provider panels that managed care organizations (MCOs) have created. These limitations reportedly forced some DC residents to access care from a less-preferable provider or location, often requiring that they travel considerable distances from where they lived or worked. As discussed at length above in the unmet need section, this anecdotal information was corroborated by hospital discharge data that showed considerable variation in utilization patterns for those who are commercially insured vs. those who are Medicaid insured.

Insurance Enrollment and Renewal Policies
Other PCNA and HSP interviewees and community forum participants spoke of insurance enrollment and renewal practices as a barrier to access, often costly, delays in getting the care needed. Numerous participants reflected on the annual, and in some cases bi-annual (every 6-month), renewal processes for Medicaid and the DC Health Care Alliance programs. According to the assessment's informants, not only can the renewal processes be confusing and time-consuming, but also in some instances patients are required to conduct the renewal activities in-person at specific locations and at specific times.

A smaller number of interviewees cited issues related to literacy and cultural sensitivity as barriers to the insurance enrollment and renewal processes. These informants also discussed the significance of operational and financial burdens on both patients and providers that resulted from these administrative barriers. From a patient perspective, these barriers prevented patients from accessing services entirely or required them to pay

out-of-pocket. From the provider perspective, these barriers also often required providers to provide uncompensated care that might have otherwise been billable. A specific example of this was provided by one of the District's safety net clinics who spoke of the challenges that they and their HIV-positive patients face with respect to re-enrolling in DC's AIDS Drug Assistance Program (ADAP). The annual recertification process can be very challenging and often leads to gaps in individual pharmaceutical benefits or alternatively may require that clinics have to pay for their patients' medication up-front and then seek reimbursement from their patients.

D. Social Determinants of Health

During both the PCNA and the HSP, when interviewees and community forum participants were asked what they thought were the leading barriers to care, nearly without exception they cited social determinants of health as being the leading barriers to access and engagement in care. Housing, poverty, transportation, food access, and language/culture were the top five issues identified in order of priority and impact, with health literacy/education and safety & violence also emerging as barriers. These issues are discussed at length in the HSP.

While critical to ensuring engagement in care, clinical providers have historically been constrained in their ability to address these factors.

IV.   ACCESS TO CARE: DISCUSSION AND RECOMMENDATIONS

Section Highlights

- Key findings related to supply indicate that there is sufficient primary care supply to meet estimated need and demand for primary care services; however, this supply is not distributed evenly across the city. The District's primary care capacity is highly dependent on physicians with lower use of advanced practice nurses and physician assistants compared to national estimates.

- Key findings related to Medicaid utilization indicate that access is not defined by the geographic availability of care relative to a patient's residence, primarily because Medicaid patients travel for their care. Despite traveling far distances, Medicaid patients used higher than anticipated levels of primary care; however, approximately 40% of Medicaid enrollees did not use any primary care in a given 12-month period.

- Key recommendations include increasing Medicaid enrollee engagement in care, strengthening community-based networks of care, expanding use of team-based care teams that include non-physician primary care providers, and implementing operational and scheduling changes at provider practices to make care easier to access for patients.

QUESTION C: How should the District improve access to primary care for its residents?

Taken all together, the PCNA identified a number of key findings, outlined below, that form the basis of JSI's recommendations, and of the Department's identified approaches, to ensuring access to primary care for its residents.

A. Discussion of Key Findings

The PCNA makes clear that while there are gains to be made to ensuring access to primary care in the District, achieving those gains will require complex approaches. At the surface, the PCNA confirms that the District has an ample provider supply overall to meet the primary care needs of its residents. However, the PCNA's synthesis of multiple sources of data reveals that the District's primary care system and how residents engage with it is complex. Key findings from the synthesis of the data are detailed below.

Sufficient primary care capacity to serve the District's residents

The PCNA's analysis of the District's licensure data revealed that there is an abundant overall supply of licensed primary care providers practicing with a ratio of one primary care provider to every 667 residents. Provider capacity, however, is not evenly distributed throughout the city. Based on the visit-based estimates of need, demand, and capacity, two of the District's eight wards, Wards 4 and 7, have provider capacity that is below half of what is needed to serve the resident population while other wards have capacity many times the level of estimated need for the wards' populations.

High representation of physicians in the District's primary care workforce

The District's primary care supply is substantially reliant on physicians compared to other provider types. Nationally, the physicians account for 71 percent of the primary care workforce capacity. In DC, physicians represent over 81% of the provider visit capacity in DC; in Wards 7 and 8, physicians represented over 90% of primary care capacity. It is noteworthy that licensing data indicated that there were no nurse practitioners or midwives practicing in Ward 7, though this is likely an underestimate. Nationally, non-physician providers, such as nurse practitioners, physician assistants, and midwives, are playing increasing roles in the health care delivery system as they are less expensive and often easier to recruit compared to physicians. Given the intractable disparities in health status, chronic disease, and social determinants of health in DC, increasing the availability of providers to spend more time with their patient, via physician or non-physician staff, to address underlying determinants of health will increase the effectiveness of the patients care and health literacy.

Use of primary care is not defined by geography nor travel time for Medicaid patients

First, despite being located in areas of insufficient capacity, some providers in these wards remain underutilized – despite their efforts to increase engagement and utilization. Second, and most critically, analysis of Medicaid utilization data indicate that there is not a clear relationship between availability of care in the ward and utilization of care by the ward's residents. For example, Medicaid enrollees residing in Ward 7 – where the local primary care capacity is 30% of the estimated need – were more likely to engage in care than enrollees residing in Ward 5 – where provider capacity is 338% of the estimated need (58% vs. 54% of enrollees with at least one primary care visit, respectively). Nor did residing in low-supply areas appear to impact the amount of care (i.e. # of visits per year) that Medicaid patients used: the Medicaid enrollees across all wards were utilizing care at a rate (3.61 visits per person) well above the estimated need (2.38 visits) and demand (1.91 visits). Taken together, the PCNA analyses suggest that in DC, engagement in and utilization of care is not necessarily determined by whether care is available near patients' areas of residence.

The PCNA's origin-destination analyses of the Medicaid claims data sheds some light on this seemingly surprising finding, indicating that Medicaid patients – regardless of residence - generally travel for their care, often bypassing closer care sources. Eighty-three percent (83%) of Medicaid patients received all of their care

outside of their zip codes of residence and 75% received all of their care outside of their wards of residence. Further analysis of the data at the zip code level indicate that not only are care sites located outside of the patients' zip code or ward, but are often located across town. For example, the most frequent primary care destination for Medicaid patients residing in zip code 20032 (southern Ward 8) was zip code 20010 (upper Ward 1). Only three of 20 zip codes were identified as "kernel" zip codes, indicating that sources of care within the zip code were the most frequent destinations utilized by its residents, and even in those zip codes, 55-70% of the residents' primary care was still being delivered outside the zip code. Analysis of the data submitted by the Capital Health Projects (CHP), indicated that patients were primarily drawn from the local resident populations which suggests that patients will use care locally if it is available and meets their needs. However, this indicator must be balanced with data indicating that some of the CHP sites – even those located in provider-deficient Ward 7 - were still underutilized relative to their physical capacity more than three (3) years after opening. Understanding what informs patient travel patterns - including patient perception of brand, quality, and convenience of more proximal sources of care – is critical to determining how to effectively leverage the provider supply in DC.

Low community-level preference for local health care resources

At the zip code level, analyses revealed that community travel patterns were diffuse - with relatively low community preference for even the most frequent provider destination zip code. For example, while 20010 was the most frequent destination for primary care for patients residing in 20032, that destination only represented 24% of primary care delivered to those patients. This means that seventy-six percent of the care was delivered at zip codes across the city. This lack of a community-level preference for care was also evident in destination hospitals for inpatient care. Analysis of hospital discharge data indicated that insurance status rather than zip code of residence predicted the hospitals where patients received their inpatient care. Most notable in this analysis: women residing in the same zip code went to different hospitals depending on whether they were privately or publicly insured.

Low engagement with a medical home for primary care

At the individual patient level, the data indicated that a large proportion of Medicaid patients (45%) received primary care at multiple locations during the 12-month period. Children were the most likely to receive all their care at one location (68%) while women aged 18 to 34 were least likely to receive their primary care at one location (40%). Nearly a third of these women received their primary care from three or more locations. Utilizing care at multiple locations presents a challenge to ensuring a patient's continuous engagement with a single provider and/or care team as part of a medical home. Another indicator that suggests there is more work to do to engage people – not just Medicaid patients - in a medical homes is the continued use of emergency departments for ambulatory care sensitive conditions. Here there was a geography-related effect with the bulk of these ED visits being made by residents in the outlying wards of the city.

While there is widespread agreement that medical homes must offer accommodations to make it convenient for patients to access care (evening/weekend hours, after-hours access, open access scheduling), one of the leading findings from the PCNA's key informant interviews was how challenged the primary care practices were to schedule visits and set hours of operation that would promote engagement without creating undue burdens and inefficiencies for the practice itself. Nearly every practice interviewed for the PCNA identified scheduling and no-show rates as challenges. In particular, key informants reported that many of the

accommodations offered (e.g. evening/weekend hours) – while appreciated by patients - were consistently under-utilized, and use was rarely sufficient to cover the operating costs.

Low utilization of primary care amongst all Medicaid enrollees

Another key finding from the analysis of the Medicaid primary care claims was the tremendous lack of engagement of nearly half of DC's Medicaid enrollees in primary care. Engagement in care was determined on the basis of an enrollee having at least one primary care coded visit claim during the 12-month period reviewed. As noted above, availability of providers did not appear to predict engagement rates – with some of the lowest rates of engagement in Wards 2 and 3 where there is a robust supply of providers. The sub-group analysis of the engagement rates revealed that women between the ages of 18 to 34 had the lowest rates of engagement among the sub-groups: only 32% had a primary care visit within the 12-month period, compared to children (65%) and adults (54%). Increasing engagement rates for all enrollees should be a priority, and given both the low engagement rate and higher than average use of multiple sources of care cited above, women should be a priority for engagement in medical homes. This could also help to increase women's early entrance into prenatal care.

Higher-than-expected utilization amongst Medicaid enrollees who accessed care

As noted above, the utilization rate (annual # of primary care visits) among Medicaid enrollees who were engaged in care, was well above the estimated need and demand calculations. The estimates did not take into account health status and are therefore likely underestimates of the actual expected need and demand; however, it is worth exploring whether the apparent overutilization of care indicates that the District's primary care system is not effectively meeting its patients' needs. This exploration is critical to discussions of how to strengthen the District's delivery system. For example, with regards to Medicaid provider capacity, the PCNA calculations indicate the supply of active Medicaid FTEs (180) is in fact more than sufficient to meet the estimated demand of the entire Medicaid enrollee population. However, if all Medicaid enrollees were to begin engaging in care – *and the current Medicaid patients maintained their higher-than-expected utilization rate* – the District would need to increase capacity by 76 Medicaid FTEs.

Untapped Medicaid provider capacity

As noted above, if all Medicaid enrollees were to start engaging in care, Medicaid provider capacity would have to increase by 76 FTEs. However, this does not necessarily mean that 76 FTEs would need to be added to the system. In fact, the 180 aggregate FTEs that did serve the Medicaid population during the billing period included at least 1,200 distinct providers, which would average out to Medicaid patients representing only 15% of the providers' overall visit capacity. This statistic indicates that many providers are actively participating in Medicaid but at a fraction of their total potential capacity. Increasing the Medicaid capacity by 76 FTEs just among this group of 1,200 active providers would mean increasing the active providers' Medicaid services to represent 21% of their total visit capacity, assuming they are practicing full time. It should be noted, however, that a substantial proportion of providers do not work full time. It should also be noted that there is substantial variation in the percent of visit capacity Medicaid represents among the active providers, ranging from 1 to 3500 visits. If the Medicaid utilization did sufficiently increase to warrant additional FTEs, maximizing the participation of providers that are already billing Medicaid – though at lower levels - would be a critical first step in expanding Medicaid provider capacity. Given the variation noted above, additional research would need to be done to identify the providers that would be best positioned to absorb additional Medicaid demand.

Gaps in systems of care

The PCNA also identifies a notable degree of care fragmentation and lack of structural avenues for care coordination in the District. In the quantitative data, the findings regarding traveling to care, diffuse community-level preference of care sites, and low engagement in medical homes indicate that this fragmentation certainly exists within the primary care system (i.e. in the use of primary care only). However, the qualitative data, including the interviews and community forums, establish that this fragmentation also exists vertically and horizontally. The vertical fragmentation was evidenced by the challenges related to transitioning patients between levels of care (e.g. from primary care to specialized or inpatient, and back again). Key informant interviewees reported that there were often no established referral and transition relationships in place between the primary care provider organizations and the hospitals or affiliated specialty groups. Many noted that referral decisions were often left to the preference of individual providers and that, as a result, even getting clinical details back from specialists or inpatient facilities was difficult. The horizontal fragmentation included both challenges coordinating services between care disciplines - and particularly between primary care and behavioral health – and in building community-clinical linkages that could comprehensively address patients' needs. Such approaches would be especially warranted in addressing the social determinants of health (e.g., housing, poverty, and food access), complex chronic diseases, and behavioral health issues cited by so many as major factors impacting health and access to care. To realize the true benefits of locally-available care - that the District has invested substantially in to-date - these sources of care must be part of local systems of care that are able to address threats to health at both the individual and community levels.

B. JSI Recommendations

Based on the information presented in the results sections and the work with the Health Systems Plan, a number of strategic recommendations regarding improving access to primary care in the District were drafted. These recommendations are detailed below.

1. *Promote continued redistribution of primary care resources from central DC into outlying communities in order to promote engagement, particularly with respect to behavioral health and chronic/complex disease management services.*

The population in each of the wards is more than sufficient to support a sizeable primary care capacity designed to meet the needs of residents locally, yet much of the city's provider capacity and utilization remains concentrated in Wards 1, 2, and the western portion of 5. It is noteworthy that the investments made through the Capital Health Projects and Medical Homes efforts targeted the outlying communities for expanded local provider resources, and the analysis of patient 'draw' to these new locations suggests that it had the desired effect; however, these sites were not all being used up to capacity. More study is needed in order to better understand the degree to which capacity is the motivating factor behind care seeking outside of the local community.

2. Develop outreach strategies to Medicaid enrollees not currently connected to care to promote engagement with the primary care system

Investments should be made to reach out to the near 50% of Medicaid enrollees not currently engaged in care. As discussed below in Question D of this section, one of the first tasks is to learn more about who is and who is not engaged in care and why. Armed with this information, strategies need to be developed to promote greater engagement in appropriate services.

3. Promote stronger community-based networks capable of managing population health through greater vertical integration and improved care coordination.

The various findings regarding travel for care reveal a notable degree of care fragmentation and lack of structural avenues for care coordination. The implication of this, in an area such as DC where there are many providers at all levels of the care spectrum, is a difficulty in establishing the types of organizational and community connections needed to engage in coordinated care management and population health.   This was echoed in the results of JSI's qualitative interviews with key provider stakeholders.

This analysis comes at a time of considerable realignment and potential change for the city's delivery system. The capital expansion efforts, noted above, have begun a process of localizing care at the community level to a greater degree. At the same time several of the city's outlying hospitals have been under considerable financial and organizational pressure, while some of the larger central inpatient and specialty facilities have begun to extend their services out into the traditionally underserved areas. This degree of reorganization and localization makes this a potentially ripe time to promote discussions around better aligning and defragmenting the service delivery networks. While there will always be a considerable degree of overlap between providers geographically in an area this dense, efforts towards identifying target populations at the community and demographic levels, and establishing organizational relationships that better align with the needs of these groups, would likely yield considerable benefits and put the city in a better position to take advantage of the evolving models of integrated and population-based care delivery.

4. Implement evidence-informed strategies to divert inappropriate emergency department utilization into primary care settings.

The higher use of ambulatory services at emergency departments (EDs) among residents in the outlying wards of the city, coupled with the observed patterns of primary care being delivered at a considerable distance from these same local communities, suggests the need to identify strategies that would better allow the primary care delivery system to intervene with these patients. While the ED results point to the presence of the phenomenon, they do not provide full information about the underlying causes. Further exploration of the ED discharge data is needed to examine the underlying conditions most responsible for ACS admission, perhaps coupled with qualitative information gathering to better understand the circumstances leading to these visits. Due to the high cost of inappropriate ED utilization and the potential impact on patient outcomes, addressing the drivers of this finding should be a priority. A range of effective evidence-base strategies have been developed to avoid primary care appropriate conditions from developing into the need for emergent treatment, and to assure that non-emergent care for these conditions is not sought at the ED.

5. *Facilitate/Improve scheduling practices to promote access to the "right-care", in the "right-place", at the "right-time".*

One of the leading concerns that emerged from the PCNA's key informant interviews was the challenges that primary care practices faced scheduling visits and setting hours of operation that would promote access and engagement, without creating undue burdens and inefficiencies for the practice organization. Scheduling of primary care services is extremely complex and requires the balancing of patient needs, care seeking behaviors, clinic operations/structures and organizational resources (e.g., staffing, financing, and space). Best practice with respect to scheduling, reducing wait-times and limiting no-show rates is still evolving. Current practice seems to be more dictated by staffing and resource availability than by patient needs and evidence-based ideas. Investments need to be made to enhance scheduling practices in ways that will reduce no-shows, travel burdens, and inappropriate hospital emergency department utilization as well as generally enhancing access and promoting clinical efficiency and practice's financial viability.

6. *Promote and incentivize team-based care, including the broader use of NPs/PAs/CNMs/psych-NPs to promote engagement and expand access.*

Non-physician providers play an increasingly greater role in the health care delivery system. Because they are less expensive and often easier to recruit compared to physicians, they also tend to be able to spend more time with each patient. Given the great disparities in health status, chronic disease, and social determinants of health in DC, such providers may have the ability to better connect with patients in the city's most underserved communities and address the underlying causes of their health issues. While hiring decisions are made at the organizational level, the state Primary Care Office can play a role in promoting the use of non-physician providers. As primary care organizations present plans for new site development, this can be part of the discussions regarding capacity; and the value of a 'team based' approach to care - with all providers working at the 'top' of their license - should be promoted across all primary care provider groups in the city.

7. *Promote operational changes that will work to improve the patient's primary care experience (cultural competence and improved patient satisfaction).*

At the heart of the question regarding the leading barriers to care is the issue of "patient-centered care" and whether care is being provided to reduce linguistic barriers, facilitate a "user-friendly" atmosphere, and promote cultural competence/sensitivity. While not referenced often during the PCNA interviews, numerous participants in the HSP interviewees and community forums cited poor customer service as a barrier to care and engagement, particularly among DC's FQHCs and safety net organizations. If patients are not made to feel welcomed and listened to in the primary care setting, then they may be less likely to engage in appropriate services and more likely to miss appointments. As in every other industry, training on providing high quality customer service should be a prerequisite for practice staff of all types. Efforts need to be made to ensure that operations across the patient flow are "patient-centered" and organized in a "user-friendly", culturally and linguistically competent manner.

8. *Address administrative barriers to patient participation and access (e.g., restrictive provider panels, renewal processes, and restrictive MCO contracting).*

A recurrent, although not pervasive, theme from the PCNA and HSP interviews, as well as the HSP's community forums, was the idea that access was limited for some DC residents by insurance status and/or by the

managed care organizations (MCO) provider panels. Anecdotal reports cited barriers including: having to access care from non-preferred providers or locations resulting in travel of considerable distances from where they lived or worked, and insurance enrollment and renewal practices that could be confusing and time-consuming and that result in unnecessary, often costly delays, in getting the care needed. Efforts need to be made to remove administrative barriers so as to ensure, to the extent possible, that residents of DC have access to their preferred providers as a way of promoting access and engagement and limiting barriers to care, caused by transportation.

V.   MONITORING ACCESS: DISCUSSION AND RECOMMENDATIONS

Section Highlights

> A comparison of the PCNA and DC Health's HPSA designations reveal similarities and differences in the findings yielded by the two assessment processes. The PCNA findings should be used to inform the Department's HPSA designations process.

- There are data sources that deserve more detailed analysis, including: in partnership with DHCF, a deeper dive of the Medicaid claims and enrollee data – including multi-year data, and hospital discharge data. Additional data sources that could be used in future analyses include: the DC Primary Care Association's Health EC platform and Fair Health for private insurance claims.

- Behavioral and dental health care, originally included in the scope of the PCNA but ultimately not given treatment, should have similar needs assessments carried out in the interim and as part of future PCNAs.

- Across all sources, data collection and extraction should be standardized and routinized and data partnerships should be formalized.

QUESTION D: How should the District continue to monitor access to primary care?

A. Shortage Area Designation and the Primary Care Needs Assessment

Of particular relevance to the ongoing assessment of access to care is the federal Health Professional Shortage Area (HPSA) designation process. HPSA designations can be for any of three disciplines – Primary (medical) Care, Dental, and Mental Health. These designations provide access to federal resources intended to assist with recruitment of providers into these communities – with the National Health Service Corps (NHSC) and J-1 visa waiver programs being the most prominent in DC. As mentioned in the discussions above, HPSAs are primarily based on the population-to-provider ratio of a given area, either covering the total population in the area (termed 'Geographic HPSAs') or a specific segment of the area's population, such as the low-income or homeless (termed 'Population HPSAs').

On December 26, 2017, HRSA published updated scores for eight of the District's HPSA designations based on applications submitted by HCAB in September 2017. Changes include: one (1) designation (Anacostia) with an

increased score, three (3) designations with decreased scores, and four (4) designations that saw no change in scores. The December scores were based on updated medical and dental provider licensure and National Provider Identifier (NPI) data, 2016 Medicaid claims data, 2014 American Communities Survey (ACS) data, and birth outcomes data from Centers for Disease Control and Prevention (CDC). The HPSA score changes are summarized in Table 26.

Table 26 Health Professional Shortage Area Score Changes (2016)

| | | | HPSA Scores | |
| | | | Previous (2012) | Updated (2017) |
HPSA Designation	Discipline	HPSA Type		
East Capitol Southeast	Primary Care	Geographic High Needs	18	18
Anacostia	Primary Care	Geographic High Needs	19	20
South Capitol	Primary Care	Geographic High Needs	17	13
Low Income - Brentwood	Primary Care	Population: Low-Income	21	18
Low Income - Columbia Heights/Ft. Totten/Takoma	Primary Care	Population: Low-Income	18	15
Low Income – Anacostia	Dental Health	Population: Low-Income	18	18
Anacostia	Mental Health	Geographic High Needs	19	19

The maps in Figure 33, shows the HPSA coverage in DC and surrounding areas for the three different disciplines and different HPSA types, including the location of facility-specific or Auto-HPSAs generally associated with FQHC sites. DC has five Primary Care HPSAs, including three High-Needs Geographic HPSAs covering primarily the communities east of the Anacostia River. The northeastern part of the District, including some areas of Northwest, is covered by three Population HPSAs, including two Low-Income HPSA designations: Brentwood and Columbia Heights/Ft. Totten/Takoma and one Homeless HPSA designation covering downtown DC. There are two Dental HPSAs in DC, including a Low-Income Anacostia designation that covers all areas east of the Anacostia River (most of Ward 7 and all of Ward 8) and a Homeless designation covering the downtown area. The District has one Mental Health HPSA covering all of Ward 8 and the portion of Ward 7 east of Kenilworth Ave.

FIGURE 33: DC HEALTH PROFESSIONAL SHORTAGE AREAS (2017)
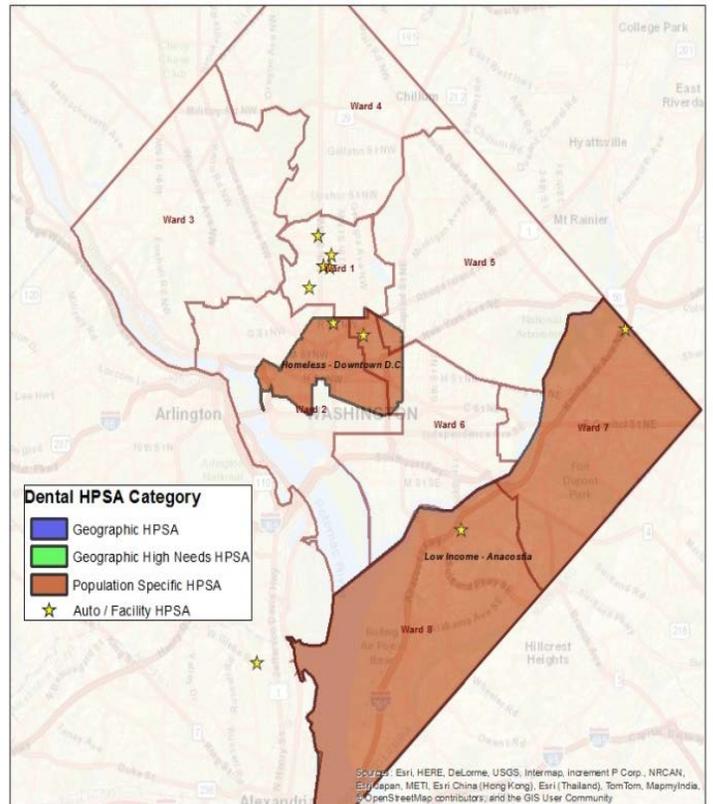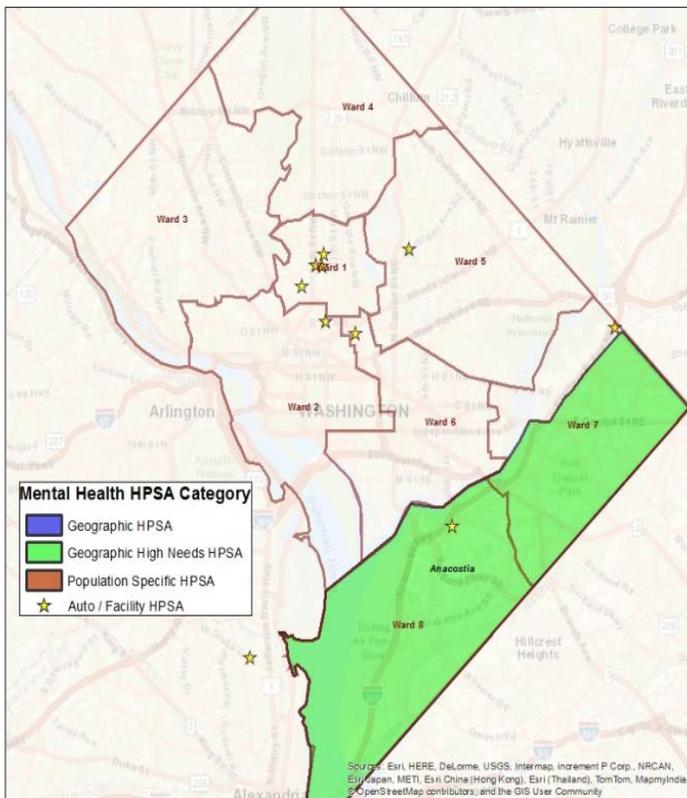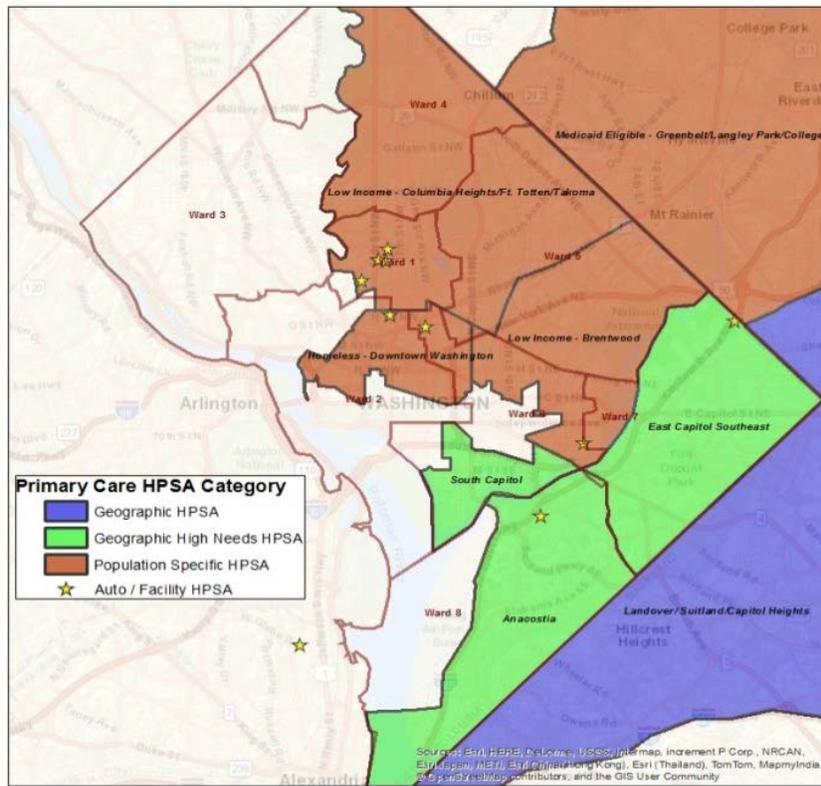
The 2017 HPSA designation update process was carried out simultaneously with the PCNA and used the same licensure and Medicaid claims data used for the PCNA. While the PCNA did not ultimately address dental and mental health care needs, there were some notable findings with regards to the PCNA and HPSA designation analyses. The PCNA findings align with the HPSA findings in that both identified Wards 4, 7, and parts of Ward 8 as having a shortage of primary care providers. In the updated HPSAs, Ward 4 is covered by the Low Income - Columbia Heights/Ft. Totten/Takoma designation and Wards 7 and 8 are covered by two geographic designations (Anacostia and East Capitol).

Despite this alignment, some of the findings from the two assessments differ notably. In particular, the HPSA updates indicated a shortage of primary care providers in more areas of DC than the PCNA identified but the HPSAs in instances underestimated the shortages for the population at-large (vs. specific sub-populations). For example, the PCNA identified Ward 1 as having provider capacity above the population's estimated need and at 92% of estimated Medicaid need; whereas Ward 1 is included in the Low Income - Columbia Heights/Ft. Totten/Takoma designation – which received a HPSA score of 15 (out of 25), On the other hand, the Low Income - Columbia Heights/Ft. Totten/Takoma designation also includes Ward 4, which the PCNA identified as having a shortage not just of providers serving low-income residents (i.e. Low-Income HPSA), but of providers to serve the population at-large (i.e. Geographic HPSA). There are a number of contributors to these apparent differences in findings that deserve brief mention here:

- The PCNA analyses were conducted on a ward-by-ward basis, whereas HPSA designations are based on aggregations of census tracts – and don't necessarily align with the ward boundaries. For example, there is one designation covering Wards 1 and 4 and some of Ward 5 and one designation covering Ward 7 (most) and Ward 8.

- The PCNA analyses included all primary care provider types, whereas HPSA designations only include physicians in FTE counts;

- The PCNA analyses included all practicing providers, whereas HPSA designations exclude NHSC and J-1 Visa Waiver providers from FTE counts;

- The PCNA analysis measured provider capacity; need; and demand on the basis of visits – with, in the case of the population visits, counts taking age, sex, and health status into consideration; whereas HPSA designations are based on straight population counts and provider hours.

Reviewing the two analyses in tandem is particularly useful to the District's Primary Care Office who is responsible for defining and designating areas of the District as HPSAs. While the PCO can't use the PCNA metrics in its HPSA designations – as the calculations required for HPSAs are defined by HRSA – the PCNA does provide critical guidance to the PCO with regards to defining HPSA boundaries – both for new designations and for redefining existing HPSA boundaries. The PCNA also provides information that will be useful for the PCO in prioritizing areas and populations of the District for HPSA designation or re-designation.

B. Overall Approach to Assessing Primary Care Access and Service System Strength

The primary care needs assessment process is just that – a process – as opposed to the static results captured in this report. While this needs assessment was intended to yield valuable insights into the drivers, structure,

strengths, and deficits of primary care access and delivery in the city, the process developed for collecting, analyzing, and integrating the qualitative and quantitative data inputs is valuable in its own right. It represents the beginning of a map for ongoing monitoring and a baseline against which to judge future changes in access, as well as exposing gaps and deficits to be filled. Many of the data sets that yielded the most valuable information for this analysis, and the broader Health System Plan, had either never been extracted before, or had existed but hadn't been fully or methodically analyzed. Even those that had been subjected to in-depth prior analyses often did not focus specifically on the primary care delivery system. Having just completed this process, now is a prime opportunity to use the knowledge gained by all parties involved to routinize some of the methods and approaches used, and to make a more purposeful plan for future updates and additional exploration.

The approach to monitoring and evaluating the effectiveness of primary care in the city should take a system-level perspective. As this report has emphasized, the process should go much deeper than simply equating supply to demand in a simple population-to-provider ratio. On that basis, access to primary care in DC should be more than adequate overall, yet there remain wide gaps in outcomes that should be mediated by the primary care delivery system. First, the approach taken must acknowledge that underlying need is different than observable service utilization, and underlying capacity is different than the observable supply of providers. The approach taken in this report has sought to minimize those differences to the degree possible, so that the deficits in current utilization patterns are not used as the basis for future planning. It has also sought to focus on the interaction of the population and the provider resources rather than simply quantifying them, as this is generally where the effectiveness of the system can be best measured and impacted.

There are a variety of 'barriers' that prevent underlying need for services from being expressed as demand and met by the supply of resources at the right place and time. These can be geographic, financial, cultural, linguistic, etc., or they can be based on structural components of the relationships between provider organizations. While their presence is obvious, it is often difficult to directly observe or measure them in available data. Instead, the approach must rely on a combination of indirect measures – such as observed disparities in demographics, utilization, and health outcomes for different groups within the city, as well as qualitative input from the resident and provider communities. A plan for monitoring and evaluating the functioning of the delivery system must integrate the information from the direct and indirect measures, and from the quantitative and qualitative resources available, to develop a picture of the complex interactions that must take place in a high functioning primary care delivery system.

The following topics in this section set forth additional data needs and opportunities for building on the process that has been started by the HSP and PCNA and assuring that it becomes an evolving platform for ongoing evaluation and improvement of the health care system in the city.

C. Current Data Limitations and Additional Analytic Needs and Opportunities

Washington DC has, by most measures, a relatively rich set of data and resources upon which to base a primary care monitoring plan. Data collection, both within DC Health and by outside organizations, such as the Primary Care Association and the Hospital Association, is robust and there was a general willingness to share information for community focused analysis. Also, even at the outset of this process, there were already dozens of health care oriented studies and analyses focused on the city's residents and delivery system. This is not to say, however, that the data available were comprehensive or ideally matched to the goals of the PCNA

or HSP in every regard. In many cases, notable gaps in data were observed, or the data available was not collected or organized in the best way to support this analysis. Furthermore, in some cases there were simply no analytic systems in place to make use of the data that was being collected. Data optimization is an ongoing process, and the wish list for data resources can be extensive. Finally, there were limitations imposed by the scope, timeline, and resources of this project that prevented all available information from being fully explored. This section of the report will focus on the key limitations encountered in each area and attempt to offer suggestions for improvements that could bring benefits to future analysis.

i.   DATA LIMITATIONS

Licensure and Survey Data
Provider licensure data was readily available for all key disciplines sought. Furthermore, the data for most disciplines was augmented by ongoing survey data collection. This provided a valuable resource for the project; however, the following issues and limitations were encountered:

- The Board of Nursing license list, from which NP and CNM data was drawn, was not augmented by survey data. As such, key factors including hours of practice, practice setting, provider specialty, and multiple practice locations were not available. NPI number was also not captured. Furthermore, while both a home and business address were listed, many providers had incomplete information or had listed their home address for both locations. Augmented data collection on these providers would improve the ability to include their contribution accurately.

- The Board of Medicine and Board of Dentistry license list and survey also presented several data challenges including:

    o   Inconsistency and overlap in reporting of practice hours: Providers could answer several different questions regarding their practice hours including one on total clinical hours and whether the majority were in or out of DC, another on primary practice setting, which didn't specify clinical vs. other hours, and then additional clinical practice locations. The responses to these questions were ambiguous and often seemingly inconsistent and key responses were not required. A process for optimizing these various inputs was developed but this was less than ideal. It is suggested that the survey should be modified to clearly delineate each site at which a provider works, and then iterate questions related to hours, setting, function, etc. at each. Also, if electronic surveying is being used, the use of dynamic consistency and completeness checks built in at the time of response would be beneficial.

    o   Hours collected in broad ranges: Rather than reporting average hours worked as a numeric value, the questions were asked in ranges. For 'additional sites' the ranges were more discrete, but the primary question asked hours only in ranges of "Under 20" and "Greater or equal to 20". These ranges are too broad for clear measurement, and the inclusion of 20 hours in the upper end of the range meant that both half time and full time providers would select the same response and could not be distinguished. Averages were applied but collection of actual average hours would be beneficial

o Questions of insurance/Medicaid participation and sliding fee were not linked to sites: This is another parameter that should be asked at the site level as acceptance and percentages vary notably between locations. This was a relatively minor issue for DC as we were able to obtain Medicaid claims data and un-insurance rates in DC or low overall.

o Discontinuation of the practice setting question: This had been collected up to 2015 but was not in the 2016 data. This can be a key attribute in quantifying capacity by setting – particularly in an area like DC where a great degree of teaching, research, program operation, government service, and other non-clinical or non-public functions take place.

o Organizational and Individual NPI #: The dental survey is the only component of the data that included both individual and organizational NPI. While this did not impact this analysis significantly, the use of the data for federal shortage designation is greatly enhanced by having both NPI values available as all data for the federal SDMS shortage designation system requires input of provider data at the individual NPI level.

Claims and Enrollment Data

Some of the most detailed and insightful information came from analysis of the Medicaid[28] primary care claims data. This data resource was able to provide insights into utilization-based capacity, but also the flow of patients residing in different areas of DC to the providers from which they sought care, and the degree of non-utilization of primary care resources. The data included several key parameters not always available in the claims. This included the identification of the attending and rendering provider NPI#, in addition to the billing provider NPI# that is often all that is available. Furthermore, the data included some information on provider specialty directly, allowing even better distinctions about the nature of the care to be made. Efforts had been made to tag the claims with the patient's Ward of residence and zip code and Ward level enrollment data was also provided. Limitations of the claims data included the following:

• The key limitation was in issues with the completeness of data from the Medicaid managed care organizations (MCOs). The details of this data are apparently not routinely reported to DHCF and had to be requested separately from the MCOs after it was identified that these records, accounting for 20% of total volume, were just empty placeholder claims in the initial file. This caused a significant delay and, once the updated data was received, it was found that most still had no NPI or specialty identification information needed to classify them directly as primary vs specialty care. This resulted in a lengthy and less precise process by which the known care at each delivery location in the non-MCO claims was classified as primary care vs specialist care, and the attributes of each location was then classified based on the fully identified care observed there. The unknown claims were then matched by address and attributed with the PC or specialist identification of that location. This consumed considerable resources and meant that the data on this segment of the claims was less precise. To the degree possible, MCOs should be required to include the full detail of the provider identification on their claims as they are submitted for activity in the future.

• The other key limitation of claims activity, though not the fault of the files themselves, was that it is only available for Medicaid/Alliance patients. While these program patients represent a substantial

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[28] (see Footnote 4)

proportion of residents of DC, the findings related to this group cannot be generalized to the District's population at-large. As such, the ability of this analysis to describe the primary care flow patterns, to quantify capacity in terms of directly measured volume, and to measure in and out migration of care directly was less complete for much of the population. DC has not implemented an all-payer claims dataset (APCD) as some states have. Efforts were expended under this project in an attempt to obtain private insurance claims, either from large insurers covering DC, or from FAIR Health, Inc.[29] – the latter being a non-profit that has voluntarily collected de-identified claims data from over 60 of the nation's largest insurers. While discussions with FAIR Health progressed well, and it was determined that over 700,000 records would exist for claims either originating from DC residents and/or terminating at a DC provider, it was discovered that key identifying information, such as the patient's zip code of residence – was missing from nearly all of these records. It is expected that this data will improve in coming years.

Inpatient Discharge Data

The study used the 2014 inpatient discharge data file compiled by the DC Hospital Association, and this file provided a wealth of valuable information. We also requested and received a 2015 file, but the structure of this file was somewhat different and the key record identifier field was not formatted in a useable layout. We were unable to reconcile these issues to include a second year of inpatient data. These issues may have been associated with the transition of DC inpatient data to the AHRQ/HCUP data reporting system from what we were able to determine.

- The only notable limitation with the inpatient data file is that data reciprocity had not been established with neighboring states, meaning that discharge data was limited to patients seen at facilities located in DC. While this included in-migrating patients from surrounding states, it did not include records for DC residents that were hospitalized at facilities outside of DC. This made development of population-based rates of hospitalization unreliable, particularly for portions of the city bordering surrounding areas with hospital resources. The study was able to use the data for many aspects of the HSP and, for the PCNA, the key measure was Ambulatory Care Sensitive admission. For this we relied on the portion of total admissions in the ACS category, rather than relying on population based ACS admission rates.

Data Collection on Primary Care Practice Details

To address questions that were raised about details regarding characteristics of primary care practices that could not be gleaned from available data sources, an in depth survey of primary care practices was developed and fielded to a list of key primary care provider organizations in DC. The survey was intended to blend qualitative and quantitative aspects of practice, and to provide details such as service mix by site, wait times for appointments, untapped capacity, expansion plan, hours of operation, policies regarding walk-ins, limitations on Medicaid, sliding fee policies, etc. While a number of practices did respond, the overall response rate was too low to directly quantify the results as representative of the DC primary care system overall. The findings did provide some qualitative assessment of the different approaches taken and were incorporated, along with the findings from interviews and public meetings.

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[29] http://www.fairhealth.org/

ii. ADDITIONAL ANALYTIC NEEDS/OPPORTUNITIES

While some of the limitations on the PCNA resulted from issues and constraints within the available data, as noted above, there were also many further opportunities for fruitful exploration and analysis of existing data that were not able to be conducted within the timeframe and resource constraints of this project. Some of these were clearly identifiable goals for future investigation, while others stem from the nearly limitless depth of information contained in certain data sets used for this analysis – where further investigation may be guided by emerging needs and ongoing exploration.

Emergency and Outpatient Department Data

The study relied on the 2014 Emergency Department discharge data set. In order to compile a complete set of discharge data, the ED discharges were extracted from the Emergency and Outpatient data file obtained from the DC Hospital Association. These records covered ED visits that did not result in an inpatient admission. This was then combined with records from the Inpatient Discharge data file where the source of the admission was the ED. Together these provided a complete set of discharges for 2014. Limitations with the ED and Outpatient data included:

- United Medical Center (UMC) – a key provider located in DC's Ward 8, did not participate in ED Discharge Data reporting in 2014 or prior years. Unfortunately, this meant that all ED related statistics could not reflect the role that UMC played in providing emergency care. As noted with inpatient data (for which UMC did contribute), ED data also did not have reciprocal data from surrounding states. Here again, our main interest for the PCNA was the rate of Ambulatory Care Sensitive visits to the ED, and we relied on the proportion of admissions we did have, rather than a population based rate of admissions to examine this parameter. This would also have helped mitigate the impact of missing UMC data, but the degree of impact on the findings from the southern area of the city is not known.

- The outpatient data records were examined in hopes of providing some degree of data on activity at outpatient private practice facilities associated with the hospitals, and a sense of in-migration for such services to these facilities from surrounding states. It was determined, however, that these files do not include office based outpatient activity, but rather just ambulatory surgery and observation records which did not relate to our inquiry.

Non-Medical Primary Care Needs Assessment

Perhaps the biggest need that is not addressed in this report is the exploration of the non-medical components of primary care – particularly the Dental and Mental/Behavioral health care domains. Primary care should be viewed holistically, considering systems are increasingly moving toward integrated models that incorporate these components more directly into the traditional medical model. This project did develop some basic information on these two domains, however they were not able to be given the full attention or in depth analysis that was originally planned. Preliminary analyses of the provider licensure and survey results for dental and behavioral health are presented in *Section V: Monitoring Access*. Perhaps the most significant component of additional analysis yet to be conducted for these services is in the exploration of the Medicaid data. As the medical analysis shows, a full exploration of this data set can reveal a great deal about access patterns and adequacy for some of DC's most vulnerable residents. Medicaid claims information for these services was separately requested and received from DHCF. The additional analysis needed to overcome deficits in the managed care reporting within the medical claims, however, required considerably more effort

that had not been anticipated, and did not leave sufficient time for similar efforts on the dental and mental health claims. As such, in addition to the findings presented in *Section V: Monitoring Access*, a full exploration of the related claims data would be a first priority.

Further Exploration of Findings in the Medicaid Claims Data

While the body of this report contains a wealth of information gleaned from analysis of the Medicaid medical claims data, there is a great deal more that could be done to explore additional areas and to dive deeper into some of the results seen.

Exploration of Non-Utilizers of Primary Care

One of the most notable results coming from the Medicaid claims analysis was the portion of enrollees not making a primary care visit within the year. It is never expected that all members of any community will visit a primary care provider within a single year, the level among the Medicaid population was notably low. It would be worth further investigating these individuals to determine what their demographic profile is and what other services they may be using. For example, is non-use concentrated within certain age or sex ranges? Are non-utilizers more or less likely to be found in the managed care or fee for service Medicaid plans? What is the rate of ED visits for these individuals, and is it possible that they are not found in the primary care claims because they are using the ED for primary care appropriate services? Are there diagnoses associated with any other care activity that might explain non-use, such as frequent visits to specialists? Answers to these questions can all be gleaned from greater exploration of claims data, and this would be a key first step in formulating an effective strategy to engage these individuals in appropriate primary care.

Further Exploration of Chronic Disease Treatment

The report shows how the claims data can be broken out to describe different sub-population groups in order to explore their access patterns and the level of services being sought. This was done for several age and sex groups, as well as for one chronic condition – diabetes – as an example (see Appendix G), yet there are many more conditions that could be explored and more that could be done within each. Even the diabetes analysis focused primarily on the Origin-Destination patterns for visits coded as Diabetes. A fuller exploration might seek to identify individuals that appear to have the condition, based on their overall diagnosis history in the claims, and then examine the range of services they are receiving more comprehensively. For example, are these individuals making routine visits for follow up, are there visits for eye and foot exams, or to an endocrinologist, and where are those services being received? Do they need dialysis and where is that care located? Are they visiting the ED for their diabetes? While claims do not give definitive diagnostic status, and not all claims are coded for all diagnoses addressed, there is a great deal that can be learned regarding access and adequacy for these populations. They are often the most complex and costly patients in the system, and those at the most risk for adverse outcomes that can be prevented through proper primary care.

Assessment of the Role of Different Organization Types and Additional Capacity

Due in part to the issue of incomplete information for some of the managed care claims, and in part to the community level focus of the PCNA in general, there was not a strong focus on the nature and capacity of individual provider organizations identified as providing the care. One of the key issues for the DC Department of Health and Human Services, however, is the degree to which various types of organizations are participating in providing services to this population, and – to some degree – whether they could do more. Hospital-associated practices, FQHCs, and private office-based practices have very different relationships with the program and the enrolled population. By further classifying the organization seen in the claims data and

connecting their activity to the total capacity of their providers, as gleaned from the licensure data, one can build a more complete picture of how these different groups are contributing to the total care for Medicaid patients in DC, and this can inform discussions around changes to this distribution that might better serve the population.

Health EC and Clinical Data Exploration

Early in the process of conducting this analysis, it was suggested that the data potential of a tool called Health EC[30] should be explored. This Affordable Care Organization-oriented data solution has been implemented by the DC Primary Care Association (DCPCA) to provide flexible in-depth analysis of the Medicaid Claims for DC health center patients, by diagnosis, procedure, destination, etc., along with integrated clinical data parameters. The platform was also being considered for use with all of DC's Medicaid records at the time. A demonstration of the implementation in place at DCPCA was conducted and it was agreed that, while the tool had powerful potential for in depth analysis, it would not be a primary resource as it only pertained to health center patients. Rather, it was considered a potentially valuable tool to explore clinically-related findings that might arise from other analyses, such as the Medicaid claims. Due to delays in obtaining that data and resource constraints overall, however, the analysis did not make use of this resource, however it remains a potentially valuable means of conducting follow up to the findings in this report going forward and the PCA expressed great willingness to make it available for use in that way.

Further Examination of the Role and Impact of the Capital Expansion Projects

The primary care capital expansion projects represent a major initiative designed to expand local access to primary care services in some of DCs most underserved areas. Using data from the routine reporting requirements put in place for these projects, this report was able to provide information on how these new sites have engaged patients thus far. Also, with respect to their role in Medicaid, we can see the degree to which these sites are serving enrolled patients, and what portion of the overall picture they are playing. However, the degree to which the PCNA was able to demonstrate a change in access to and/or utilization of care was very limited – focusing on a comparison of gross claims per enrollee in 2010-11 vs. 2015-16. The Department should continue to monitor data from the projects to periodically assess excess capacity at these sites and determine the evolving degree to which these resources can fulfill the needs of the local population. In addition, a continual review of Medicaid claims data will help show the utilization pattern of enrollees and demonstrate the proportion of visits at CEPs and surrounding sites. The reporting of this will help show their effect on the local community and provide an additional measure on their impact.

D. Data Collection and Analysis Plan

The process of conducting the HSP and PCNA analysis has provided a unique window on the range of data available to examine the primary care delivery system and access to services for DC's residents. It has also helped to identify gaps in information, and areas for data improvement to be addressed going forward. It also put in place new processes for obtaining, analyzing, and organizing the data resources available, as well as the qualitative data collection processes that could support an ongoing monitoring and improvement effort going forward. Rather than waiting until the next iteration of the PCNA is needed and starting the process again from scratch, it is worth considering ways in which the methods and processes developed through this effort can be

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[30] https://www.healthec.com/

used to establish a plan for ongoing monitoring and future analysis cycles. The following bullets highlight some of the potential steps that could promote that approach:

- *Establish an Analytic Framework for Hospitalization and ED Data*: At the outset of this project, the Inpatient data set, compiled by the DC Hospital Association, was being transmitted to the health department, but analysis that could benefit the work of the PCNA was not available. Furthermore, the ED and Outpatient data set was not part of the data transfer agreement. As part of this process, the data agreement with the Hospital Association was expanded and an initial analytic framework was established for the HSP and PCNA. The potential to routinize the transfer and analysis of this data is further enhanced by DC's decision to participate in the AHRQ/HCUP data reporting framework, which standardizes the reporting structure and allows comparisons with other participating states.[31] Establishing an analytic framework, which builds on the approaches used in the HSP and PCNA, would permit consecutive years of data to be rapidly incorporated and trended data analysis to be conducted. Given the key role that hospitals play in the delivery system of DC, this would greatly promote the process of delivery system monitoring.

- *Establish Routine Extraction and Analysis of Medicaid Outpatient Claims Data:* As with the inpatient and ED data noted above, there were no protocols or processes for the routine extraction and transfer of Medicaid outpatient care data to the Health Care Access Bureau within DC Health. Implementing a routine process for this data transfer and analysis would serve several purposes. First, as part of the role of the Primary Care Office in evaluating and updating federal HPSA designation, states are now being asked to upload comprehensive data on all providers. Assessing low income capacity for this process is one of the more difficult aspects of this, but can be greatly simplified through the use of Medicaid claims counts. Also, the high reliance on Medicaid among DC residents, and the ability to conduct detailed monitoring of access and capacity for the low income population who are most at risk of barriers to care and poor outcomes, makes routine Medicaid claims analysis a key tool in ongoing monitoring of the system. Again, this process has established a definition for the transfer of claims data, as well as data on enrollment by location and key demographics. It has also set forth an approach to analyzing that information for the study of access within DC. The staff at DCHF seemed very willing to assist in providing this information and this could be implemented as a standard practice going forward. Doing so on at least an annual basis would provide a great deal of insight into the underlying primary care access for DC's most vulnerable residents, and establish a baseline against which to judge any changes in federal or state policy regarding this important program.

- *Work with Boards of Medicine, Nursing, and Dentistry to Implement or Improve Provider Surveys:* As noted, it was valuable to this analysis that routine survey data was available for physicians, PAs, and dentists, and that licensure data could be obtained for NPs and CNMs. The section above highlights some of the issues that were encountered with using the available data in the ways needed, and survey data was not available for those licensed by the Board of Nursing. It is often the case that the Boards of licensure are not wed to a particular survey structure, and would be willing to alter the survey content to better meet the analytic uses of the data by the agencies that rely on it. A dialogue about the potential to improve the process would likely prove productive. Also, by producing a standardized analysis of the survey data from a capacity perspective, the content of the routine survey

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[31] https://www.hcup-us.ahrq.gov/db/PartnerParticipation_CD.pdf

reports could be improved as well. Currently the summaries are based on proportional response to the survey overall. By calculating capacity for different segments of providers – for example primary care hours/FTE vs specialist hours/FTE, it becomes possible to weight the survey according to that capacity and produce analyses that describe the provider capacity by segment, rather than describing providers equally at a head-count level.

- *Work With FAIR Health or Insurance Department To Obtain Private Claims Data*: Developing a resource that would allow the primary care utilization of DC's privately insured residents in the same way that we have leveraged the Medicaid claims data would be of great value to monitoring and improving primary care access for the bulk of DC's residents, as well as providing a basis for evaluating proposed changes in that capacity that might be the basis of CON applications. An added value for FAIR Health data – if underlying issues with data content are worked out – would be the ability to obtain data that directly shows the in and out migration of the population as it relates to care access, even for those insured in neighboring states. Further exploration of these options should be pursued.

- *Consider Extended Reporting for Primary Care Providers in DC or Integration with UDS Reporting Requirements:* As noted, the effort to obtain more detailed information on the primary care delivery system at the practice level yielded only partial results. This may have to do with the timing of the project and the lack of an underlying expectation of data collection and reporting capabilities. If such data is considered important, the effort to establish a reporting requirement for primary care practices should be implemented. This would involve the development and dissemination of a reporting template well in advance of the data being submitted, the establishment of a common deadline, and perhaps training on the definitions and submission process in advance. The UDS, collected nationally from all FQHC's, provides a good model for this and is already submitted annually by some of the key providers in DC's primary care system. In some states, the PCA has worked with their member centers to both obtain their UDS data and to request enhanced reporting that, for example, provides capacity at the individual site level as well as assessing factors such as vacancies, extended hour availability, etc. Such a tool could also be used with non-FQHC providers to develop the type of data that was clearly an underlying goal.

- *Integrate Results and Leverage GIS Capabilities:* Through DC GIS, a function of DC's Chief Technology Office[32], the DC government maintains a robust GIS capacity and both internal and external servers that allow easy dissemination to those able to use GIS information. A GIS-linked framework could provide a flexible and dynamic way to integrate and/or share needs assessment information with the various entities that might make use of it to improve the health care delivery system in the city.

VI. FROM ASSESSMENT TO ACTION

In response to the key findings and recommendations discussed above, DC Health has identified the following priorities that will be woven into its diverse efforts to strengthen the District's primary care system and maximize the system's role in improving the health of District residents. Many of DC Health's programs are already responding to these priorities to varying degrees and can be easily modified for targeted interventions.

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[32] https://octo.dc.gov/service/dc-gis-services

While DC Health explores new opportunities to address these priorities, the approach will reflect a recurring theme of the PCNA: first, leverage existing resources and strengthen partnerships before creating new resources and programs.

Address patient perception of brand, quality, and convenience

Given the wide-ranging travel patterns exemplified by the DC Medicaid population, it is clear that for many, proximity to services is not the most salient factor impacting patients' care destinations. While it would be short-sighted to frame all travel to care as a matter of patient preference, the diffuse nature of the travel patterns do indicate that patient preference is a key driver. As perceptions and experiences of brand, quality, and convenience are key determinants of patient preference, in its work with primary care providers, DC Health, through the PCO will focus resources on improving quality of care and customer service, with an emphasis on initiatives to measure and increase patient satisfaction and care accessibility. HCAB will also work to increase the public's awareness of where residents can access primary care and the benefits of doing so (i.e. primary care literacy). Finally, as will be discussed in greater detail below, HCAB programs will also conduct "deep dives" of available data to identify trends and significant determinants of patients' selection and utilization of a medical home.

Promote use and accessibility of the medical home, especially among women

The full benefits of primary care will be realized through patients' engagement in a patient-centered medical home (PCMH). HCAB will continue to incorporate the promotion and linkage to a medical home as a basic premise of the programs it funds. Between 2015 and 2018, DC Health provided funding through its Diffusion of Care and Innovations in Care grants to increase access to primary care, dental and mental health care. Beginning in Fiscal Year 2019, the Department will build on the expanded services established through the Diffusions and Innovations grants by providing funding, through the Care Transformation (CaT) grants to support team-based care coordination, patient engagement and clinical-community linkages - with a focus on increasing continuous engagement in care of women of childbearing age, those between the ages of 15 to 44. The benefits of medical home care for women accrue over the lifespan, but also critically, during the preconception period when engagement in care plays a key role in reducing potential risks associated with pregnancy and childbirth. In this manner, ensuring women of childbearing age are engaged in a medical home is directly in line with the District's plan to improve perinatal health as outlined in its 2018 Perinatal Health and Infant Mortality Report.

Engage residents who are not accessing care

In response to the finding that high percentages of patients are not engaging in care, DC Health will add an explicit focus on engaging populations that have not utilized care in two or more years. To date in FY19, HCAB has incorporated this focus in two of DC Health's grant programs: CaT (mentioned above) and the Senior Dental Services Program. Through these and other programs, DC Health aims to support innovative outreach methods to residents that include but are not limited to, city-wide marketing campaigns, targeted educational interventions, care coordination, patient navigation, and other health literacy initiatives.

Promote the development of systems of care that emphasize community-clinical linkages and care transitions, and ensure that residents across the District can access these systems locally

HCAB is also increasing its focus on ensuring greater vertical and horizontal integration among local sources of care. The PCO is in the process of expanding its collaboration internally with DC Health partners such as the Cancer and Chronic Disease Bureau to coordinate work on community-clinical linkages and SHPDA to assist with implementation of the HSP and Certificate of Need process. Strengthening connections across sources of care will also be a central facet of HCAB's direct work with medical and social service providers in the community, such as through the CaT grants, a joint initiative to provide oral health training to primary care providers, and expanding engagement with the District's daycare centers (LCDCs) to promote linkage to care. While the PCNA demonstrates that the majority of patients are accessing health care outside of their residential areas, ensuring that every resident has access to a well-developed local system of care will make comprehensive care accessible to the District's most vulnerable for whom traveling to care presents the greatest hardship and who have the greatest need for a full spectrum of services. A strong local system of care also offers promise to reduce excess demand on the primary care system by ensuring a range of resources to address the health issues that bring people back repeatedly to their health care providers. And finally, local systems of care are likely to draw in patients that currently travel far distances (e.g. to hospital systems) to ensure their primary care is linked to larger care systems.

Ensure a workforce that supports team-based care delivery

HCAB will continue to leverage existing workforce programs, such as its Health Professional Loan Repayment Program (HPLRP), to promote team-based care models of care delivery as well as provide direct support for team-based care and diversification of the primary care workforce through programs such as the CaT grants and various Oral Health Workforce grant initiatives. HCAB's PCO and Oral Health Program will continue to gather data and conduct analyses of the composition of the workforce through its partnerships with the Boards of Medicine, Nursing, and Dentistry and will engage with the Boards, DC's health professional schools and associations, and employers to implement policies and programs that respond to identified trends and gaps.

Encourage maximizing and strategically leveraging existing provider resources to address identified and perceived gaps

The PCNA findings indicate sufficient resources to meet estimated needs and demands of the population. While barriers to care remain, addressing those barriers must involve more than simply adding new sources of care. Solutions must address how to utilize existing capacity – whether it be increasing the utilization at a given practice or increasing the proportion of services a Medicaid-participating provider dedicates to serving Medicaid patients. HCAB will provide guidance to agency partners, such as the SHPDA, and to community partners to identify solutions to local and District-wide needs that emphasize adapting existing resources and building new partnerships before advocating for the creation of new care. This approach not only ensures more efficient use of resources, but also supports DC Health's efforts to weave together local systems of care.

Strengthen partnerships and systems to routinely collect, analyze, and disseminate data on access to care

Section V outlined in-depth the challenges related to availability of data that is critical to measuring and monitoring the health of the District's primary care system. The PCO has begun establishing key indicators to continuously measure primary care capacity and utilization, and the Oral Health Program is using the PCNA as a framework for assessing the District's dental care system. To ensure access to needed data, DC Health – at all levels - is engaging partners both within and external to DC Government to establish or enhance agreements to define and routinely share critical data. Examples of key data partners include DHCF, the DC Hospital Association, and within DC Health: Vital Records; Center for Policy, Planning and Epidemiology; and HRLA. DC Health programs are also exploring the best mechanisms for disseminating the data and findings reports. These mechanisms include both technology platforms for sharing data, such as Tableau, and written materials such as fact sheets, reports, and policy documents.

The PCO will also use the PCNA to inform the District's HPSA designation process. While the methodology used in the PCNA cannot be substituted for HRSA's methodology for HPSA designations, the PCNA findings do help the PCO in prioritizing areas for designation and evaluate options for geographic versus population-based HPSAs.

Identify and explore emerging issues through targeted quantitative and qualitative data collection and analysis

In addition to the highlighting the need to strengthen routine assessment activities, the PCNA identified trends that call for more in-depth exploration through targeted quantitative and qualitative data collection efforts. These in-depth explorations will involve collecting and analyzing additional data than what would be used for routine monitoring and will be carried out in the service of addressing key questions – such as assessing the use of primary care among women in the preconception and perinatal periods. Recognizing that many questions cannot be answered quantitatively, the programs will collect qualitative data from consumers and providers to understand key populations' experiences and decision-making processes related to accessing and providing care. Some of these key populations will include those not utilizing primary care, those who utilize care at great distances from their homes, seniors, and women of childbearing age. Qualitative data collection activities will include targeted focus groups and key informant interviews.

Collectively, the above activities will assist DC Health and stakeholders to appropriately target resources to strengthen the capacity of the primary care system to ensure that every resident has access to quality primary care at the right place and right time.

APPENDIX A: DETAILED OVERVIEW OF KEY DATA SOURCES

Census/American Community Survey (ACS) Demographics

Timeframe: 2011-2015

Source: U.S. Census / ACS

Purpose: Used to calculate age and sex level need for care for the overall population of DC, in combination with MEPS derived utilization and BRFSS derived health status data.

Content: Zip Code Tabulation Area (ZCTA) and Census Tract level population demographics by age and sex.

Processing: Tables used directly.

Medical Expenditure Panel Survey

Timeframe: 2013-2014

Source: Agency for Health Care Quality and Research (AHRQ)

Purpose: Calculation of the age and sex specific primary care visit utilization rates for a 'Raw' and 'Barrier-Free' population. Applied to both the overall DC population and the Medicaid enrolled population. Also, used as the basis to make health status adjustments to need.

Content: Household Component and Office Based Visit survey files

Processing: Analysis of 2 years of this large-scale survey of families and individuals, which includes detailed questions on the respondents' use of health care services as well as underlying demographic and health factors. The basic approach involved developing a matrix of primary care utilization rates, stratified by key age and sex groupings, based on observed primary care utilization patterns. In addition to a 'Raw' analysis of utilization by all respondents, a "Barrier-Free" subset of the sample was selected order to produce estimates that best reflect 'organic' need, and avoid biases in utilization resulting from a range of potential barriers to care. This subset was comprised of those individuals most likely to have unfettered access to the health care system as follows:

- Race/ethnicity: Non-Hispanic White
- Poverty level: Income >200% of FPL
- Education: HS+ education (or younger than 18 years)
- Usual source of care: Has a usual provider
- Insurance: Full year insured under Medicare or Private insurance
- Language: Language spoken at home = English

To select the visits that best reflect primary care utilization, the following parameters were used to select visit records from MEPS for this analysis:

- Office based, in-person visit with a provider type of:
  - Physicians: Family Practice, General Practice, Ob./Gyn., Internal Medicine, or Pediatrics

- o   Non-Physician provider: Midwife, NP, or PA
- • Purpose of visit (best category for care received):
    - o   General check-up
    - o   Diagnosis or treatment
    - o   Follow-up or post-operative visit
    - o   Immunizations or shots
    - o   Maternity care (pre or post-natal)
    - o   Well child exam

Note that individuals with no visit records in the data set were also retained in order to produce community level rates that incorporate those individuals that do not utilize primary care in any given year.

One byproduct of focusing on those with 'Barrier-Free' access to health care is that the resulting sample is considerably healthier than the general population, based on the percent reporting "Fair/Poor" health status. Without correcting for this, the actual utilization of services would be notably reduced and not applicable to a general population. To correct for this, the sample of "Barrier-Free" individuals was re-weighted, such that the resulting group in each age/sex cell has the same percent reporting "Fair/Poor" health as was found in the original sample for that group (i.e. reflective of average health status).

Finally, the analysis of the MEPS data included varying the "Fair/Poor" health status percentage to examine the net impact on primary care utilization, such that these rates can be applied to the ward-level rate of "Fair/Poor" health to factor in local variations in health status.

This approach was developed by JSI as part of the Negotiated Rulemaking Committee (NRMC) process for revising the federal Health Professional Shortage Area (HPSA) and Medically Underserved Area/Population (MUA/P) regulations and incorporated in its final report on recommendations to the Secretary of the Department of Health and Human Services.[33] JSI's approach is a modified version of the initial Barrier-Free concept, developed by Dr. Tom Ricketts et.al, as part of an earlier effort to modify the HPSA/MUA/P regulations in 2008.[34]

Primary Care Licensure and Survey Data

Timeframe: 2016

Source: DC Boards of Medicine, Nursing, and Dentistry

Purpose: Calculation of community accessible outpatient primary care FTE by location within the key Medical licensed categories (MD, DO, PA, NP, CNM). Similar calculations performed on dental file.

Content: Board of Medicine files (MD, DO, PA) included license related data and detailed provider and practice site level data gleaned from provider surveys associated with the licensure process. The Physician data was also the source of data on Psychiatrists – one of the listed specialties. Board of

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[33] http://www.hrsa.gov/advisorycommittees/shortage/nrmcfinalreport.pdf

[34] Ricketts TC, Goldsmith LJ, Holmes GM, Randolph RM, Lee R, Taylor DH, Ostermann J. Designating places and populations as medically underserved: a proposal for a new approach; J Health Care Poor Underserved. 2007 Aug; 18(3):567-89.

Nursing files included the license status and address data for each licensed provider along with a single Business Address. Board of Dentistry data included license related information as well as detailed practice site level information.

Processing: Each data set had somewhat different parameters from which to glean the key information necessary to assess primary care capacity. In general, the goals were to separate out the capacity dedicated to the delivery of direct patient care at outpatient/office based sites accessible to the general population. Inpatient/ED, long term care, military, and government service settings, for example were excluded where they could be identified. For medical care, specialties were focused on those engaged in general practice, general internal medicine, geriatric medicine, family practice, pediatrics, and Obstetrics/Gynecology related care. Similarly dentists were limited to those in general or pediatric practice and psychiatrists were limited to general psychiatry.

Once the relevant providers and locations were identified, the data was further restricted by professional activity, with the goal of removing time dedicated to research, teaching, administration, corporate medicine, etc. With the exception of the Board of Nursing data, providers were able to identify hours separately for different service delivery sites in most cases. It should be noted that the physician and PA surveys, in particular, offered several different responses where hours could be documented in different ways, meaning that the responses to these questions needed to be 'optimized' to obtain the best data available for each provider in cases where responses were incomplete or ambiguous. Also, hours were often asked in relatively wide ranges that needed to be converted to numerical values. Many asked if hours were under 20 per week or equal-to/greater-than 20 hours, which were averaged to 10 hours and 30 hours respectively. Others asked more discrete ranges and these were set at the higher value of the range. As noted, practice hours were not included in the Board of Nursing data, so each provider from that resource was assigned the average time worked for each qualifying PA – which equated to 65% of full time per provider.

Medicaid Claims Data

Timeframe: June 2015 – May 2016 and June 2010 – May 2011

Source: DC Department of Health Care Finance (DHCF)

Purpose: Analyze Medicaid primary care office visits based on administrative claims data, including volume by provider location, origin-destination patterns by zip code, portion of enrollees seeking primary care, volume of services per patient and per enrollee, and sub-population analyses by life cycle and chronic disease category.

Content: Detailed de-identified Medicaid (including DC Alliance) claims for office visits, including provider identification for Billing, Servicing, and Attending provider (individual or organization) by service address, and including patient zip code and key patient demographic characteristics, as well as the diagnostic codes associated with the visit. Separately, Medicaid enrollment data was obtained by age, sex, and ward/zip.

Processing: Claims data was obtained based on a detailed request made to DHCF. The request specified the fields of data needed, and the 1 year time period to cover. The request was limited to claims counts representing 'Office Visits' including the following categories:

- Evaluation & Management
  - New Patient: 99201-99205
  - Established Patient; 99211-99215
- Preventive Medicine
  - New Patient: 99381-99387
  - Established Patient: 99391-99397
- HCPCS T1015: FQHC all-inclusive

The resulting file contained just over one million claims. The claims were further analyzed to remove claims for patients: whose residence was not identified to be within Wards 1 -8, and services billed were not by a primary care physician. In order to deduce services rendered from primary care physicians the use of both internally provided specialty coding and the National Provider Identifier (NPI) taxonomies, gleaned by linking to the CMS national NPI file, helped to make determinations as to which visits were made to primary care providers as opposed to specialists. The table of taxonomy codes, listed below, shows those codes included in the primary care definition.   After initial review, it was determined that many of those claims provided by the managed care organizations, as opposed to paid on a fee-for-service basis, lacked the detail regarding the provider NPI and the specialty coding needed to determine whether the claim was for primary care or specialty care. As these represented nearly 20% of claims, the file was reprocessed to first determine the type of care provided at each service address based on the complete claims, and then attributing the specialty of the incomplete claims found at those addresses based on that classification. As a result of attributing specialty at the address level for incomplete claims, it yielded a total of 630,902 claims for DC residents seen by primary care physicians.

TAXONOMY CODES

Type	Code	Specialty Description
Physician	207Q00000X	Family Medicine
Physician	208D00000X	General Practice
Physician	207R00000X	Internal Medicine
Physician	207RA0000X	Adolescent Medicine
Physician	207RG0300X	Geriatric Medicine
Physician	207V00000X	Obstetrics & Gynecology
Physician	207VG0400X	Gynecology
Physician	208000000X	Pediatrics
Physician	2080A0000X	Adolescent Medicine
Physician	207QG0300X	Geriatric Medicine
Physician	207QA0000X	Adolescent Medicine
Physician	207QA0505X	Adult Medicine
Non-Physician	363L00000X	Nurse Practitioner
Non-Physician	363LA2200X	Adult Health

Type	Code	Specialty Description
Non-Physician	363LC1500X	Community Health
Non-Physician	363LF0000X	Family
Non-Physician	363LG0600X	Gerontology
Non-Physician	363LP0200X	Pediatrics
Non-Physician	363LP2300X	Primary Care
Non-Physician	363LW0102X	Women's Health
Non-Physician	363LX0001X	Obstetrics & Gynecology
Non-Physician	363A00000X	Physician Assistant
Non-Physician	363AM0700X	Medical
Non-Physician	367A00000X	Advanced Practice Midwife
Organization	251K00000X	Public Health or Welfare
Organization	261Q00000X	Clinic/Center
Organization	261QC1500X	Community Health
Organization	261QF0400X	Federally Qualified Health Center (FQHC)
Organization	261QM1000X	Migrant Health
Organization	261QM1300X	Multi-Specialty
Organization	261QP0904X	Public Health, Federal
Organization	261QP0905X	Public Health, State or Local
Organization	261QP2300X	Primary Care
Organization	261QR1300X	Rural Health

Medicaid Enrollee Data:

Timeframe: June 2015 - May 2016 and June 2010 – May 2011

Source: Department of Health Care Finance

Purpose: Identify population and demographics of those enrolled in Medicaid.

Content: De-identified list of enrollees sex, zip code, ward, date of birth, and certificate of eligibility and dates

Processing: The enrollment dates for the participants were combined to identify the first and last date of enrollment. Thus yielding one record per enrollee. Afterwards, the age of the enrollee were categorized to identify their sub-group for PCNA calculation purposes.

FQHC Uniform Data System (UDS)

Timeframe: 2015

Source: Bureau of Primary Health Care, JSI UDS Mapper

Purpose: Descriptive data concerning FQHC size and population served. Clinical quality results for DC FQHCs. Staffing and visit rates for UDS productivity comparison. Service Area Analysis data showing penetration rates, grantee dominance, and change over time.

Content: Organization level characteristics and ZCTA level patient origin by insurance. One-year ZCTA level insurance coverage is derived from one year Public Use Microdata Area (PUMA) level insurance allocated to the ZCTA level by 5-year age and income splits.[35]

Processing: Mapping and aggregate calculations

Hospital and ED Discharges

Timeframe: 2014

Source: DC Hospital Association

Purpose: Examination of proportion of discharges attributable to Ambulatory Care Sensitive (ACS) conditions

Content: Comprehensive de-identified files containing all hospital discharges and all ED discharges (including those that resulted in hospitalization extracted from the inpatient discharge file) – including patient zip code, facility of service, and diagnosis codes.

Processing: Extraction of discharges for DC residents by zip code of residence, from short-term medical hospitals and EDs located within DC. Classification of each discharge according to the presence of ACS diagnostic codes.[36]

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[35] https://www.udsmapper.org/data-sources-and-definitions.cfm#method

[36] https://archive.ahrq.gov/data/safetynet/billappb.htm John Billings, J.D., Using Administrative Data To Monitor Access, Identify Disparities, and Assess Performance of the Safety Net, Appendix B

APPENDIX B: HEALTH SYSTEMS PLAN KEY INFORMANT INTERVIEWEES

Dr. Anneta Arno, Director, Office of Health Equity, DC Department of Health

Jacqueline Bowens, President/CEO, DC Hospital Association (SHCC Member)

Robert Brandon, President, Robert M. Brandon and Associates (SHCC Member)

Clarence Brewton, Vice President of Regulatory Compliance, MedStar Health

Pierre Cartier, former Program Manager, Oral Health Program, DC Department of Health

Karen Dale, Executive Director, AmeriHealth

Vanessa Damesyn-Sharpe, Executive Director, DC Health Care Association

Suzanne Fenzel, former Deputy Director, DC Department of Behavioral Health

Michael Ferrell, Executive Director, DC Coalition for the Homeless

Joshua Ghaffari, Program Manager, DC Office of Planning

Bob Gilbert, President, MedStar Ambulatory Services

Stephen Glaude, President/CEO, Coalition for Non Profit Housing

George Jones, CEO, Bread for the City

Michael Kharfen, Senior Deputy Director, HIV/AIDS, Hepatitis, STD, and TB Administration, DC Department of Health

Christopher King, Program Director, Master's in Health Systems Administrations, Georgetown University

Tonya Kinlow, Vice President of Community Engagement, Advocacy & Government Affairs, Children's National

Sharon Lewis, Deputy Director, Health Regulations and Licensing Administration, DC Department of Health

Howard Liebers, Health Care Policy Analyst, DC Department of Insurance Securities & Banking

Dr. Yavar Moghimi, Behavioral Health Medical Director, AmeriHealth

Steve Nash, President and CEO, Stoddard Baptist Home Foundation, Inc. (SHCC Member)

Chioma Nwachukwu, Registered Nurse Member, DC Board of Nursing

Dr. Lavdena Orr, Medical Director, AmeriHealth

Ruth Pollard, Assistant Vice President of Community and Government Relations, Providence Hospital

Nancy Roman, CEO, Capitol Area Food Bank

Jacqueline Reuben, Chief Epidemiologist, DC Hospital Association

Sara Roque, Public Health Analyst, DC Fire and EMD Department

Dr. Tanya Royster, Director, DC Department of Behavioral Health

Claudia Schlosberg, former Senior Deputy Director, Health Care Policy and Research, DC Department of Health Care Finance

Dr. Sanjay Seth, Executive Vice President, Health EC

Tonya Stern, Deputy Director, DC Office of Planning

Aarti Subramanian, Vice President and CFO, Psychiatric Institute of DC

John Sumner, Statistician, DC Department of Health Care Finance

Dr. Raymond Tu, GWUH/Medical Society

Charletta Washington, COO, United Medical Center

Dr. Jacqueline Watson, Chief of Staff, DC Department of Health

Jim Wotring, Deputy Director, DC Department of Behavioral Health

APPENDIX C: KEY INFORMANT INTERVIEWEES AND SURVEY RESPONDENTS

Organization	Name	Survey	Interview
Bread for the City	Randi Abramson, *Chief Medical Officer*	X	X
Children's Health Center - Adams Morgan	Nasima Hossain, *Executive Director of Center for Community Pediatric Health*	X	X
Community Mental Health Agencies	Dr.Tanya Royster, *Director of Department of Behavioral Health* Jim Wotring, *Department Director of Behavioral Health* Laura Heavens, *Chief of Data & Perf. Management, Department of Behavioral Health*	X	X
Community of Hope - Conway Health and Resource Center	Kelly Sweeney McShane, *Chief Executive Officer* Victoria Roberts, *Vice President of Health Services*	X	X
CORE Health and Wellness	Dr. Gloria Wilder		X
George Washington University - Medical Faculty Associates	Dr. Robert Kelly Rachel Mazotta, *Practice Group Admin*		X
Georgetown Hospital's Physicians Group	Dr. Michael Donnelly	X	X
Howard University Hospital Family Health Center	Dr. Terrance Fullum, *Chief of Division of General Surgery*		X
Mary's Center - Georgia Ave.	Maria Gomez, *Chief Executive Officer* David Tatro, *Chief Operating Officer*	X	
MedStar – Georgetown University Hospital and Washington Hospital Center - Primary Care/Prompt Care	Dr. James Welsh, *President of Operations* Lauren Jarebski, Data Analyst		X
MetroHealth	Khalil Hassam, *Deputy Chief Operating Officer*		X
Planned Parenthood of Metro Washington	Takina Wilson, *Vice President of Patient Services*		X
S.O.M.E (So Others Might Eat)	Jamaal Campbell, *Senior Director of Health Services*	X	X
Unity Health Care	Karen Werner, *Vice President for Strategic Development*	X	X
Whitman Walker	Naseema Shafi, *Deputy Executive Director* Meghan Davies, *Chief of Operations and Program Integration*	X	X

APPENDIX D: KEY INFORMANT INTERVIEW GUIDE

DC Primary Care Needs Assessment
Key Informant Interview Guide for External Interviews

Person(s) Interviewed:

Organization/Position/Background:

Interviewer(s):

Date:

Characteristics of Your Organization's Primary Care Network

- What are the core characteristics of your organization's primary care network?

- Are you operating at capacity with regards to your current complement of staff at your practice sites?

    o If no, how much excess capacity do you have? Where does the excess exist (i.e. locations, times during day/week, provider type, discipline, service type)?

    o If no, what steps are you taking to fill this capacity? What is your marketing and outreach strategy?

    o If yes, meaning you are operating at capacity or have long wait-times, or have closed practice panels, to what extent is provider recruitment/retention preventing you from expanding?

        ▪ Do you have provider vacancies?

        ▪ How long does it take on average to fill a PCP vacancy? By discipline?

- If yes, meaning you are operating at capacity or have long wait-times, or have closed practice panels, could you, are you planning to, or are you in the process of expanding?

    o By adding providers to activate currently available unused space?

    o By adding providers to extend hours of operation?

    o By acquiring/upgrading property to create more usable space?

- What if any barriers have you experienced or do you anticipate with regards to expanding capacity?

- What do you see as the primary barriers to expanding access for those who are Medicaid insured? What steps could DOH or other stakeholders take to encourage private and hospital-based providers to serve a greater number of Medicaid patients?

Scheduling and Other Operation Issues

- What are the most popular time slots with respect to scheduling?

  o Days during week? Times during day?

- What are the primary reasons for missed appointments?

  o Are there any procedures or processes you've put in place that have worked to reduce no-shows?

- What is the wait time to get an appointment for:

  o New patient visit and established patients

- Are you accepting new patients?

  o If yes, how many new patients do you get on average per week? Month?

- Do you have an Open Access/Walk-Ins Policy?

- Do you offer non-traditional (i.e. extended) hours of service (e.g. weeknights, weekends)?

- Do you have a 24 hour after all call line?

  o If so, how many calls per week are received on average?

Utilization and Access

- In general, are patients receiving more than one type of service on-site with the facility?

- Do you do any population health management work to track those who need follow-up or may be in need of care management services?

- Do you provide specialized services for individuals with intellectual/developmental disabilities? Physical disabilities?

Budget

- To what extent is your organization losing money on Medicaid, DC Alliance, etc.

- Do you have a sliding fee policy? If so, what percent of your patients pay reduced fees? What are major burdens and challenges to implementing this policy?

Services

- What types of primary care medical or behavioral health specialty services does your organization provide?

  o What types? What frequency?

  o Most requested services (that are either currently offered or not)?

  o Do you have formal referral relationships with any specialty providers? Who? For what services?

- What services have you had the most trouble referring for?

- What, if any, formal relationships do you have with any area hospitals that allows you to receive referrals to provide follow-up care post-discharge?

- What enabling services (e.g. transportation, childcare, insurance enrollment, etc.) do you offer? And to what extent are these services utilized?

- What, if any, formal relationships do you have with any community resources that enables you to refer patients for non-medical services?

Other Areas of Inquiry

- Do you think there are major service gaps in the District? If so, what types of gaps? Are these gaps geographic? For certain demographic/socio-economic segments of the population?

- What are the most significant challenges and opportunities facing your organization when it comes to operating primary care?

    - Operations: billing, workforce, etc.?

    - Patient attitudes/behaviors/perceptions?

    - Specific conditions or disease burdens?

- Quality improvement: How do you measure performance with regards to patient access to and utilization of services? What quality improvement activities have you carried out to improve access to and utilization of services?

- What should DOH do with respect to infrastructure, systems, and interventions to improve population health in the District?

APPENDIX E: PRELIMINARY ANALYSES OF NON-MEDICAL PRIMARY CARE SUPPLY AND NEED
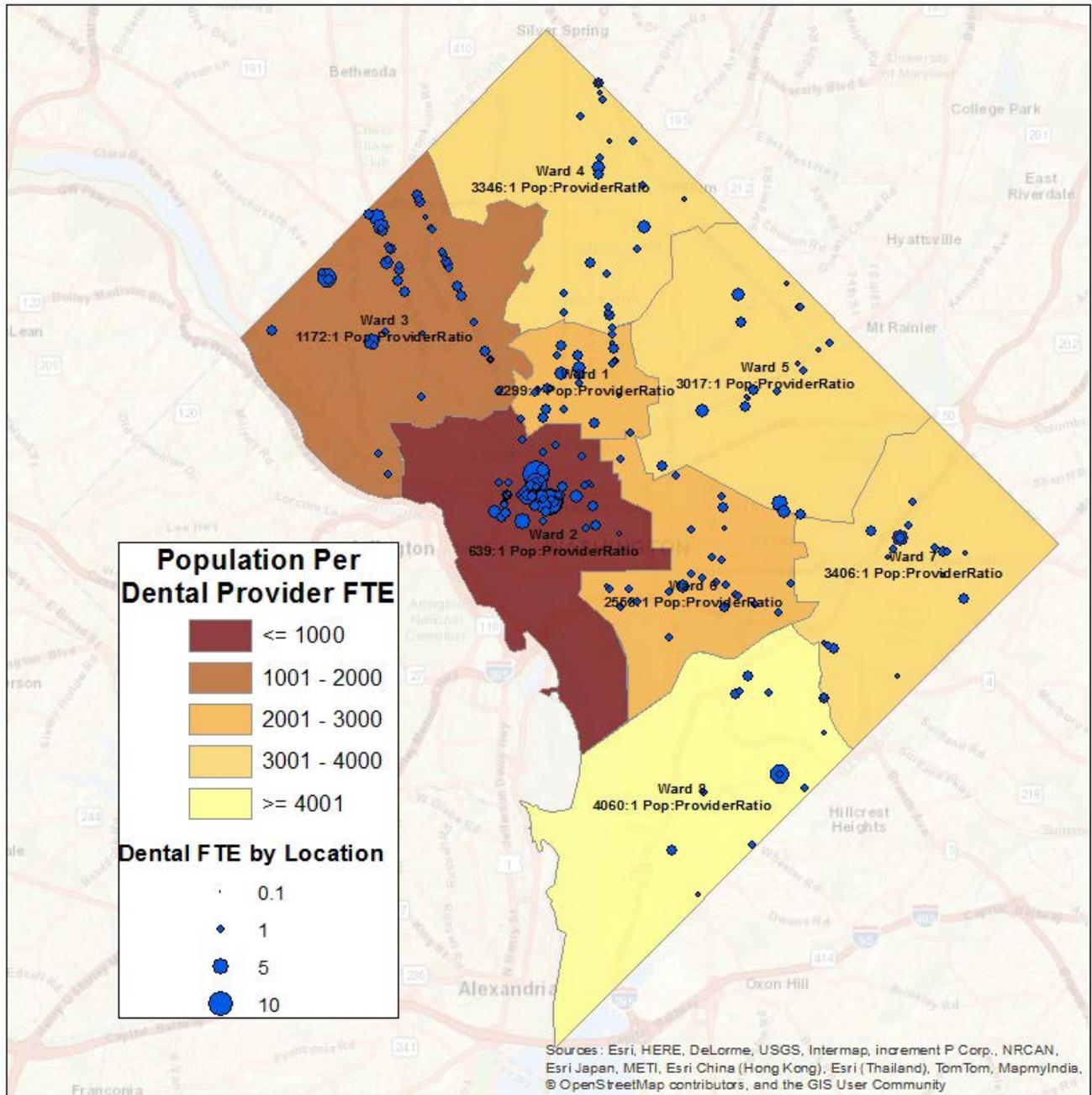
Dental Provider Capacity

The Population-to-Provider table by Ward (below) and map of primary care dental provider availability based on DC Board of Dentistry's license list and 2015 survey data (on the following page). The provider license/survey data was limited to active General or Pediatric dentists in clinical practice at 'community accessible' locations, and FTE were calculated for each location worked. The map shows the location of each dental practice by the number of dentist FTE located there. The practice locations are overlaid on the Wards shown according to the Population per Dentist FTE. Unlike the Medical practices, where several very large practices are observed, the dental practices are generally smaller and more scattered, with few locations having more than 10 dental FTE. The overall Population per Dentist FTE ratio is just over 1,800:1, which is below half of the low income Dental HPSA designation threshold of 4,000:1 (and further below the 5,000:1 Geographic ratio). The dental providers are not evenly distributed within the city. Ward 2 has a heavy concentration of the city's dentists, resulting in a ratio of 639 residents per dentist. Ward 3 in North West has the second lowest population per dentist, with many practices located along Wisconsin and Connecticut Avenues. Wards 4, 5, and 7, to the east, have notably higher ratios in the 3,000-3,500:1 range, while Ward 8 shows the least dental availability within its borders, at a ratio just exceeding the 4000:1 level.

Appendix Table E1: Dental Provider to Population Ratio by Ward

Geography	Population	FTE	Pop Per FTE
Ward 1	80,455	35.0	2,299
Ward 2	78,792	123.3	639
Ward 3	83,496	71.3	1,172
Ward 4	84,492	25.3	3,346
Ward 5	82,211	27.3	3,017
Ward 6	83,611	32.8	2,553
Ward 7	73,219	21.5	3,406
Ward 8	81,208	20.0	4,060
DC Total	647,484	356.3	1,817

## Appendix Figure E1: DC Population per Dental Provider FTE (2015)

Mental/Behavioral Health (Psychiatrist) Provider Capacity

The provider data for mental/behavioral health care access in DC focused on Psychiatrist data from the Board of Medicine licensure and survey data, although it is acknowledged that there are many other categories of staff in this discipline that are not accounted for here. The Population to Psychiatrist FTE ratio for DC is 2,293:1. This ratio is exceptionally low, indicating a great deal of provider availability overall. For comparison, the designation thresholds for a Psychiatrist-Only Mental Health Professional Shortage Area (MHPSA) designation is 20,000:1 for a low income or high needs population designation, and 30,000: 1 for a geographic designation. Again, we do see a notable degree of variation between the different areas of the city. The map on the next page, shows the Psychiatrist practice locations, with points proportional to the FTE located there, overlaid on the Provider –to-Population ratio by Ward. There are a few locations with provider FTE in the mid- to upper-teens, but most practices are under 10 FTE. As with dental, Ward 2 has the most favorable Population-to-Provider ratio, with just 824 residents per provider FTE. There are many psychiatric provider organizations in this area, including GW Medical Faculty Associates, with the largest capacity in DC per the licensing data. This is followed by Ward 3 with 1,166 per FTE, including Georgetown University and the Psychiatric Institute of Washington. Wards 4 and 7 have the least psychiatric provider availability, with ratios of 10,729 per FTE and 12,203 per FTE respectively. Ward 5 benefits from the presence of the MedStar Washington Hospital Center, in particular, while Ward 8 shows provider capacity in the area of Saint Elizabeth's Hospital, which is specifically dedicated to the treatment of mental illness, though its services are inpatient and forensic in nature, and not available to the general public for primary care. It is worth noting that many of the other hospitals in DC also operate psychiatric beds, and psychiatric conditions account for the second highest number of hospital days by line of service classification and third highest by major diagnostic category.

Appendix Table E2: Psychiatric Provider to Population Ratio by Ward

Geography	Population	FTE	Pop Per FTE
Ward 1	80,455	12.5	6,462
Ward 2	78,792	95.7	824
Ward 3	83,496	71.6	1,166
Ward 4	84,492	7.9	10,729
Ward 5	82,211	42.0	1,960
Ward 6	83,611	23.8	3,513
Ward 7	73,219	6.0	12,203
Ward 8	81,208	23.0	3,527
DC Total	**647,484**	**282.4**	**2,293**

Appendix Figure E2: DC Population per Psychiatric Provider FTE (2016)
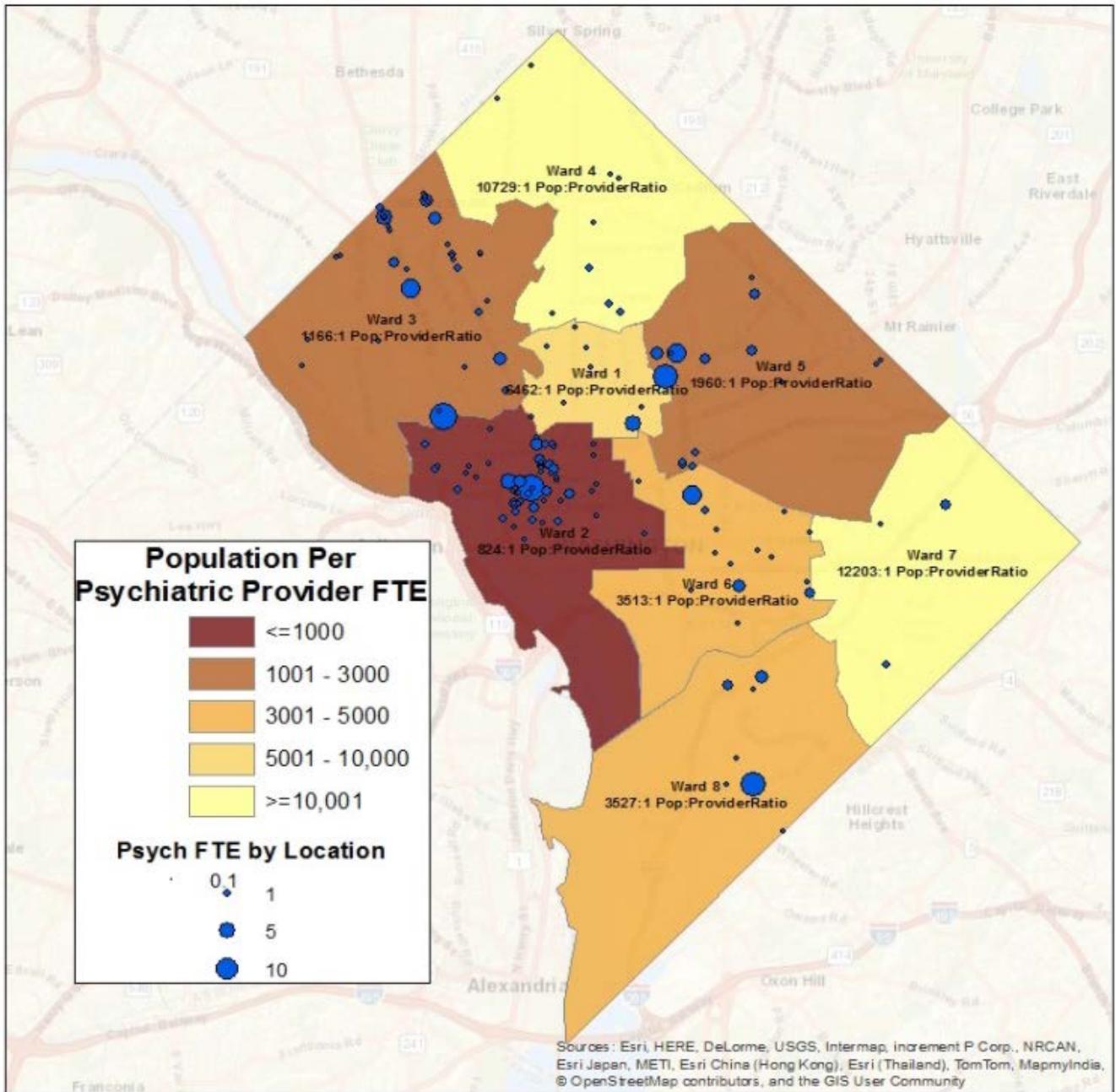
APPENDIX F: DC FQHC PATIENT DEMOGRAPHIC PROFILE

Appendix Table F1: Demographic Profile of DC FQHC Patients by Organization (2015)

Health Center Name	Total Patients	% Low Income	% Below Poverty	% Uninsured	% Medicaid/ CHIP	% Medicare	% Other Third Party	Racial and/or Ethnic Minority	Hispanic/ Latinx Ethnicity	Black/ African American
Bread For the City	2,488	95.17%	77.92%	21.14%	49.92%	15.80%	13.14%	96.04%	15.78%	83.26%
Community of Hope	9,825	91.38%	75.10%	7.79%	70.36%	4.04%	17.81%	93.92%	11.27%	82.76%
Elaine Ellis Center of Health	1,280	87.30%	67.45%	4.45%	87.81%	3.13%	4.61%	96.67%	1.49%	95.53%
Family and Medical Counseling Service	2,326	96.13%	86.45%	26.61%	57.22%	11.74%	4.43%	98.31%	2.16%	93.54%
La Clinica Del Pueblo	3,304	94.07%	47.21%	28.57%	31.42%	7.11%	32.90%	98.88%	92.25%	38.46%
Mary's Center For Maternal & Child Care	36,636	98.00%	64.94%	39.10%	44.27%	1.09%	15.55%	95.04%	70.67%	22.50%
Unity Health Care	106,469	92.91%	74.05%	13.83%	58.78%	7.61%	19.77%	97.43%	19.40%	85.31%
Whitman-Walker Clinic	8,310	66.98%	50.84%	14.87%	33.89%	11.31%	39.93%	66.85%	15.35%	50.41%

APPENDIX G: ORIGIN-DESTINATION ANALYSIS OF MEDICAID POPULATIONS WITH DIABETIC DIAGNOSES

The PCNA also conducted origin-destination analyses for the sub-group of Medicaid beneficiaries with diabetes diagnoses. Diabetes was chosen as an example because it was frequently coded in the claims data, and the District shows a great deal of variability in diabetes rates and outcomes; however, similar analyses could be produced for any number of chronic conditions.

Among Medicaid patients with diabetes diagnoses, the analysis showed a more concentrated pattern of care delivery, with nearly every zip code in the District showing zip code 20009 as the dominant destination for care - as well as a greater percentage of claims following that preference pattern. Since there are a number of community health centers and no major medical centers in 20009, this pattern could suggest that the health centers may be taking a leading role in diabetes care for the Medicaid population, which is often connected to other social determinants targeted by FQHCs. The pattern also shows, however, that a sizeable proportion of economically-vulnerable and chronically-ill patients are traveling across the District to receive services.

Appendix Figure G1: Medicaid Primary Care Visits, with Diabetes, Volume and Preference by Zip Code (2015 – 2016)