Veterans Health Administration

Office of Health Equity

National Veteran Health Equity Report–FY2013

Dedication

The National Veteran Health Equity Report is dedicated to the brave men and women who have served our country and their families.

Acknowledgements

The forces behind the Office of Health Equity at the United States Department of Veterans Affairs and this inaugural report.

Supplemental Materials

All exhibits and tables in this report can be found on the supplemental report website. Some content referenced in this report is only available on the supplemental report website due to space limitations. Visit the supplemental report website by visiting http://www.va.gov/healthequity/NVHER.asp or by clicking on the hyperlinked text contained in the report.

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Foreword

"The arc of the moral universe is long, but it bends toward justice."

- Theodore Parker

Like two-thirds of my fellow physicians, I had the privilege of training at Veterans Administration (VA) hospitals and clinics. As both a medical student and a resident, I cared for men and women who had served our country, while working alongside VA health professionals who provided daily examples of the ethical commitments we make as physicians: to do no harm, provide benefit, respect patient autonomy, and work toward justice in care.

It is that fourth pillar of medical ethics—justice in care—that most acutely requires health professionals' constant attention and dedication. Understanding the social factors that contribute to disease is key to the VA's mission to care for our nation's Veterans. By providing data about sociodemographic characteristics, care utilization patterns, and medical conditions of Veteran patients related to race/ethnicity, sex, age, geography, and mental health status, this first-of-its-kind National Veteran Health Equity Report, published by the Office of Health Equity in the Veterans Health Administration (VHA), contributes to the scholarship on social inequity and disease and raises awareness of health care disparities among Veterans.

The report's findings highlight the increasing diversity of the VHA patient population, which reflects growing participation by women and minorities in the military. The number of women in the VHA patient population has grown 140% since 2000, and the Veteran patient population is expected to reflect national demographic trends by becoming increasingly racially and ethnically diverse in the coming years. As the report notes, these trends make it increasingly important that VHA care providers ensure that care is culturally and gender sensitive and reflects the needs and preferences of diverse populations.

As in our national population, the need for care will increase and access issues will become more pronounced as the VHA patient population ages. With more than one-third of all Veterans served by the VHA living in rural areas—including 40.7% of Veterans aged 65 and older—geography amplifies the seriousness of physician shortage issues. Ensuring Veterans' access to preventive and specialty health services may require tailoring care and employing innovative solutions to reach Veterans unable to travel regularly to a VHA medical center.

With these and other findings, this report provides a useful baseline to help health care providers, scholars, and educators improve the state of care for Veterans. A better understanding of the causes of health care disparities is the first step toward achieving health equity for our nation's Veterans, and ultimately for all citizens. This report also contributes to our understanding that while Veterans as a group are at greater risk for certain negative health outcomes than are non-Veterans, within the Veteran population there are subgroups at even greater risk

of morbidity and mortality. In addition, because the VA sponsors approximately 10 percent of graduate medical education trainee positions, this report will inform the way the next generation of physicians thinks about equity and care for vulnerable patients.

As the Commission on Care[1] noted in its 2016 findings, despite the challenges in Veterans' care in recent years, *"VHA has many excellent clinical programs, as well as research and educational programs, that provide a firm foundation on which to build."* This foundation includes thousands of dedicated health professionals and staff who are committed to the vision of a high-quality, equitable VHA Care System that delivers health care when our Veterans need it.

Of note to the findings presented in this e-Book are two recommendations from the Commission on Care:

> **Recommendation #5:** Eliminate health care disparities among Veterans treated in the VHA Care System by committing adequate personnel and monetary resources to address the causes of the problem and ensuring the VHA Health Equity Action Plan is fully implemented.
>
> **Recommendation #14:** Foster cultural and military competence among all VHA Care System leadership, providers, and staff to embrace diversity, promote cultural sensitivity, and improve Veteran health outcomes.

As health professionals, we have a clear ethical obligation to eliminate health and health care disparities and embrace diversity and cultural humility—particularly in care and outcomes for the men and women who have served our country without reservation.

There is a common saying in health care, *"You can only change what you measure."* My hope is that this report will help guide those who serve and heal our nation's Veterans to a more equitable future. While the journey to equity will no doubt be long, like Theodore Parker, I am certain it will bend toward justice.

Darrell G. Kirch, MD
President and CEO
Association of American Medical Colleges

1 Commission on Care. *Commission on Care: Final Report. 2016*; https://commissiononcare.sites.usa.gov/files/2016/07/Commission-on-Care_Final-Report_063016_FOR-WEB.pdf. Accessed October 04, 2016.

CHAPTER 1

Introduction

Elizabeth Yano, PhD, MSPH

Background

The largest integrated healthcare system in the U.S., the Veterans Health Administration (VHA) delivers care to a broad segment of the American public in every state and territory–young adults and old, men and women, virtually all races and ethnicities, those with serious mental illness and without, in large urban and remote rural locations, and regardless of sexual and gender minority status. In many respects, the diversity of Veteran VHA enrollees reflects the diversity of all Americans through the lens of those who have given of themselves through military service.

Of the roughly 22 million U.S. Veterans, approximately 9.1 million are enrolled in the VA healthcare system and receive services either directly through one or more VA healthcare facilities or through arrangements with providers in the community as needed.[1] Enrollment is linked to eligibility criteria established through compensation and pension exams and other means testing, with those Veterans with service-connected disabilities having the highest priority for care. The VA healthcare system has been transitioning from a solely "bricks and mortar" infrastructure to a health plan over the past 20 years, starting with VA's "quality transformation" of the mid-1990s, with increased volumes of purchased care in the community in addition to growth of VA community-based outpatient clinics to ensure access to needed care within 30 minutes of Veterans' homes.[2,3]

While the VA healthcare system represents an essentially equal access system, driven by service-connected disability and other eligibility parameters that are less impacted by socioeconomic factors linked to access to private-sector care, disparities in some aspects of care in VA persist. The drivers of these disparities differ with respect to the sociodemographics (e.g., age, gender, race/ethnicity, socioeconomic status), location (e.g., urban/rural location, distance to nearest VA facility), and other factors, which may be more or less studied or understood. Systematically tackling disparities requires better awareness and understanding of their determinants, so that programs and policies may be designed to ameliorate them in systematic and meaningful ways.

Overview of Report Purpose and Content

This report is designed to provide basic comparative information on the sociodemographics, utilization patterns and rates of diagnosed health conditions among the groups over which the VHA Office of Health Equity (OHE) has responsibility with respect to monitoring, evaluating and acting on identified disparities in access, use, care, quality and outcomes. **Chapter 2** summarizes the OHE's charge and actionable steps related to this report. **Chapters 3-7** describe comparative data in subgroups of Veterans:

- **Chapter 3** focuses on racial/ethnic disparities;
- **Chapter 4** focuses on gender disparities;
- **Chapter 5** focuses on disparities among older Veterans, comparing and contrasting different age groups;
- **Chapter 6** focuses on disparities among Veterans who reside in rural vs. urban areas; and
- **Chapter 7** focuses on disparities among Veterans with and without serious mental illness.

1 US Department of Veterans Affairs. Statistics at a Glance. www.va.gov/vetdata/Quick_Facts.asp, accessed January 15, 2016.
2 Jha AK, Perlin JB, Kizer KW, Dudley RA. Effect of the transformation of the Veterans Affairs Healthcare System on the quality of care. *N Engl J Med*. 2003 May 29;348(22):2218-2227.
3 Liu CF, Chapko M, Bryson CL, et al. Use of outpatient care in Veterans Health Administration and Medicare among veterans receiving primary care in community-based and hospital outpatient clinics. *Health Serv Res*. 2010 Oct;45(5Pt1):1268-1286.

These chapters rely on centralized analyses of VA administrative data (sociodemographics, utilization patterns, health conditions) for FY13 (October 1, 2012 through September 30, 2013). Chapters were also developed in partnership with appropriate VA program offices where available. For example, chapter 4 was developed with Women's Health Services in the Office of Patient Care Services, while chapter 6 was written by leaders in the VA Office of Rural Health.

- **Chapter 8** highlights the findings from all of the other chapters, including major findings and gaps, and describes recommended next steps in terms of future data needs, and potential research and evaluation responses to information presented in each chapter.

We have also included a **Technical Appendix** that includes the methods used to generate the tables and summaries within our data-focused chapters.

Brief Overview of Methods and Guidelines for Interpretation

Utilization of VA administrative data to generate epidemiologic analyses of utilization patterns and the prevalence of health conditions has a longstanding history given that the national VA datasets reflect the census of all Veteran users of the VA healthcare system. Nonetheless, expertise in their use is required given variations in the quality of individual data elements, their utility, and appropriate coding and programming to ensure the highest possible quality of reporting. Data analyses were conducted by a team overseen by Dr. Susan Frayne, at the VA Palo Alto Healthcare System, who directs the Women's Health Evaluation Initiative (WHEI). WHEI has created national uniform datasets extracted, organized and cleaned from source VA databases for use in evaluating patterns of VA care delivery that served as the foundation for this report.

We have included a series of methodological points necessary for appropriate interpretation of the material presented in each chapter. An overarching methodological distinction that is important to interpretation is that data presented in this report's Tables are unadjusted. Therefore, in Chapter 4, gender differences are not adjusted for age, so it is not possible to determine whether differences in women vs men are driven by gender or age (or both) or by other factors. Several other methodological issues are worth mentioning:

- **Race/ethnicity**. Race/ethnicity categories reported here are mutually exclusive. All individuals with indication of Hispanic ethnicity are included in the "Hispanic" race/ethnicity group regardless of their race. The remaining race/ethnicity categories contain Veteran patients who have identified as "non-Hispanic," but for simplicity, the label identifies only the race. For example, "White" is used as shorthand for non-Hispanic White, and "Black/African American" is used as shorthand for non-Hispanic Black or African American. The multi-race category is comprised of non-Hispanic individuals who identify more than one race.
- **Urban/rural location**. In FY13 (and prior), VA defined rurality by using the three category URH scheme, which gave each Veteran the designation of urban, rural, or highly rural based on U.S. Census Bureau information and Veteran residence. The URH scheme is used throughout this report. This classification system was updated in FY15 to the US Department of Agriculture (USDA) and Department of Health and Human Services (HHS) Rural-Urban Commuting Area (RUCA) methodology to allow for increased consistency across federal agencies in the definition of rural designation.
- **Utilization**. Veteran users of VA healthcare services may also use healthcare outside the VA (e.g., reimbursed through Medicare, Medicaid, private insurance, or other non-VA sources). Utilization represented in this report may therefore underestimate the total amount of care Veterans receive from all sources combined. Further, long-term nursing home care and VA pharmacy services are not included in any counts of utilization. However, utilization data in this report include care outsourced and paid for by VA through the non-VA (Fee) medical care system. These data pre-date changes in coding enacted through implementation of the Veterans Choice Act. When interpreting differences in utilization based, on age, gender, race/ethnicity, or other population characteristics, it is important to

recognize that these analyses represent unadjusted comparisons of proportions, without adjustment for patient characteristics such as number of medical conditions, which may influence conclusions regarding between-group differences in use of VA services.

- **Conditions**. Condition rates are based on ICD-9 diagnostic codes, with denominators representing counts of the number of patients using VHA for any reason (e.g., outpatient care, inpatient care, and outsourced VHA care). Use of FY13 data preceded implementation of ICD-10 diagnoses. Use of diagnosis codes to ascertain prevalence of health conditions results in our use of the term "rate of diagnosed X," where X represents the medical or mental health condition of interest.

Report Team

The VHA OHE engaged VA health services researchers at the Health Services Research & Development (HSR&D) Centers of Innovation at the VA Greater Los Angeles and VA Palo Alto Healthcare Systems. A nationally recognized expert in health equity and disparities in care, **Donna L. Washington, MD, MPH**, is Director of the OHE/Quality Enhancement Research Initiative (QUERI) Partnered Evaluation Center and 2015 recipient of the Herbert Nickens Award for Excellence in Health Disparities from the Society of General Internal Medicine. She is also a Core investigator at VA Los Angeles' HSR&D Center for the Study of Healthcare Innovation, Implementation & Policy (CSHIIP) and Professor of Medicine at the UCLA Geffen School of Medicine. Dr. Washington took a leading role in editorial oversight for the report chapters. **Uchenna S. Uchendu, MD**, directs the VHA OHE as VA's Chief Health Equity Officer. Dr. Uchendu proposed the idea of the report, engaged the report team and was closely involved in report planning, editing and policy review. She explored options and worked with the VA Employee Education System (EES) to transform the report into an electronic format and educational tool. **Susan Frayne, MD, MPH**, is Director of the Women's Health Evaluation Initiative (WHEI), and oversaw analyses supporting report content. She is a core investigator at VA Palo Alto's HSR&D Center for Innovation to Implementation (Ci2i) and a Professor of Medicine at Stanford University. **Fay Saechao, MPH**, is the project manager for WHEI and lead technical writer of the WHEI Sourcebook Volume 3, including its extensive Technical Appendix. **Deborah Riopelle, MSPH**, is a senior project director at CSHIIP and a core staff member of the OHE/QUERI Partnered Evaluation Center. She served as the project director for the report, supported chapter and report authors, and oversaw draft report formatting and completion. **Kenneth T. Jones, PhD**, is a program analyst in the OHE and coordinated the effort to turn the draft report into an interactive versatile electronic format. He worked closely with the VA EES graphic designers on behalf of the OHE to accomplish the final report. **Elizabeth M. Yano, PhD, MSPH**, is the Director of CSHIIP, and Professor of Health Policy and Management at the UCLA Fielding School of Public Health. She conceptualized the report, designed its content, and secured and organized Chapter author teams.

The report team would not have been successful without the contributions of each chapter authorship team, each member of which donated their time to chapter completion.

Chapter 2

Office of Health Equity: Background and Role in VHA Disparities Reduction

Uchenna S. Uchendu, MD

The U.S. Department of Veterans Affairs (VA) Office of Health Equity (OHE) is proud to present the first ever Veterans Health Administration (VHA) National Veteran Health Equity Report. The report stems from the VHA Health Equity Action Plan (HEAP), which is the Administration's strategic plan to achieve equitable health for all Veterans. It is the culmination of efforts of many who gave of their time and talent without reservation. It represents the fruit of a vision to create foundational knowledge around Veterans health disparities. This idea seemed bleak in July 2013 when we first explored it at the OHE two day think tank meeting focused on Veteran health disparities. Over time, this vision took form and when the right opportunity presented itself, we took action. A combination of subject matter experts on vulnerable populations, excellent data mining and analysis, as well as the diligence of the leads on multiple OHE projects, yielded this inaugural edition. The content adds to the foundational work that is necessary for setting the stage in order to tackle health and healthcare disparities among Veterans at the VA and beyond.

Even though the VHA by virtue of its set up is intended to provide equal access healthcare for all enrolled Veterans, disparities still exist among vulnerable Veteran groups. Achieving health equity is not an easy feat in a system that serves about nine million enrolled Veterans per year and operates over 1,700 sites of care comprised of medical centers, with in-patient and outpatient settings, as well as community living centers and health clinics.[1]

The VHA is one of three organizations under VA. The VHA is charged with healthcare; the Veterans Benefits Administration attends to financial, education and housing benefits; and the National Cemetery Administration tends to final burial rights and related issues. Together the three arms uphold America's promise to the Veterans embodied in the VA vision: *To care for (those) who shall have borne the battle, for their widows and orphans.*

Office of Health Equity

Vision

Office of Health Equity champions the advancement of health equity and reduction of health disparities.

Mission

- Position Veterans Health Administration (VHA) as a national leader in achieving equity in healthcare and health outcomes among vulnerable populations.
- Champion efforts to address health disparities through education, training, communications, programs, projects and initiatives that bring synergy and break down silos within the organization.
- Capitalize on the existing network of Department of Veterans Affairs (VA) Offices and Veteran advocates to coordinate and harness efforts to advance health equity and achieve equitable healthcare.
- Represent VA and serve as liaison to other governmental and non-governmental organizations working to achieve health equity.

Until now, a national health equity report detailing the sociodemographics, utilization and health conditions of diverse vulnerable Veteran groups in a focused format did not exist. The lack of a comprehensive national report specific to the VHA and for vulnerable Veterans hindered the identification, development, or establishment of outcome metrics consistent with those in Healthy People 2020 and the National Healthcare Quality & Disparities Reports published by the Department of Health and Human Services (HHS). Identification of sociodemographics, utilization and health conditions is a first step to systematic evaluation and action.

1 VA Office of Health Equity. *Office of Health Equity.* www.va.gov/healthequity, accessed September 21, 2016.

VHA Health Equity Action Plan

The HEAP is developed to align with VHA Strategic Plan Objective 1(e)—Quality & Equity: Veterans will receive timely, high quality, personalized, safe effective and equitable healthcare, irrespective of geography, gender, race, age, culture, or sexual orientation. The implementation activities of the HEAP are modeled after the five-goal framework of the National Partnership for Action's National Stakeholder Strategy for Achieving Health Equity sponsored by the Department of Health and Human Services. These goals are reflected in the HEAP as the following focus areas:

1. Awareness
2. Leadership
3. Health system and life experience
4. Cultural and linguistic competency
5. Data, research, and evaluation

Please visit http://www.va.gov/HEALTHEQUITY/Health_Equity_Action_Plan.asp for more information on the VHA Health Equity Action Plan.

The VHA National Veteran Healthcare Equity Report is an attempt to eliminate this barrier and serves as a basis for establishing realistic and consistent goals to ensure that all Veterans attain the highest quality and level of health and healthcare from the VA. Essential to this goal is the use of this report as a tool to bolster partnerships and actions from Veterans themselves and stakeholders. This endeavor enables policymakers and clinicians to appropriately apply an equity lens to Veteran care. In doing so, it becomes clear that treating all Veteran equally is insufficient; whereas, it is necessary to recognize that some Veterans, namely vulnerable Veterans, will require varying levels of treatment, interventions, and other types of support thereby ensuring that all Veterans have the same opportunity for optimal health (see *Exhibit 2-1*).[2] In the context of health equity, vulnerable Veterans have membership in groups that have systematically experienced greater social and/or economic obstacles to health or a clean environment based on race/ethnicity; gender; age; geography; religion; socioeconomic status; sexual orientation; mental health; military era or period of service; or cognitive, sensory, or physical disability.

The report also serves as a tool, and rationale, for advancing health equity as a strategic priority for Veterans in line with recent legislative efforts that improved care for Americans. For example, the Patient Protection and Affordable Care Act ("Affordable Care Act")[3] included provisions to prioritize health equity. The law established offices of health equity or minority health in many federal agencies and aims to improve and ensure access to care and providers, increase workforce diversity and cultural competence, standardize data collection, and advance other preventive and population health and equity initiatives. Unfortunately, these provisions did not apply to the VA.

Recently, however, the pursuit of health equity for Veterans has gained support. The recent Veterans Access, Choice and Accountability Act of 2014 ("Choice Act")[4] established the Commission on Care to

2 VA Office of Health Equity. *Applying an Equity Lens: The Difference Between Equality and Equity--Part 1.* www.va.gov/HEALTHEQUITY/Applying_an_Equity_Lens.asp, accessed September 21, 2016.

3 US Centers for Medicare & Medicaid Services. *Patient Protection and Affordable Care Act.* www.healthcare.gov/glossary/patient-protection-and-affordable-care-act, accessed September 21, 2016.

4 US Department of Veterans Affairs. *Summary: Veterans Access, Choice and Accountability Act of 2014 ("Choice Act").* www.va.gov/opa/

make recommendations to improve care Veterans receive in VA facilities. The Commission made specific recommendations relevant to health equity in their final report delivered to the President through the Secretary of the VA.[5] The Commission's fifth recommendation (shown directly below) is relevant to the goals of the report. It is clear that the Commission's intent is to ensure that all Veterans receive high quality and equitable medical care consistently at all VA facilities. The availability of information and data to illuminate the state of affairs for vulnerable Veterans is a necessity for reaching this goal.

Who are Vulnerable Veterans?

In the context of health equity, vulnerable Veterans have membership in groups that have systematically experienced greater social and/or economic obstacles to health or a clean environment based on

- Race/ethnicity;
- Gender;
- Age;
- Geography;
- Religion;
- Socioeconomic status;
- Sexual orientation;
- Mental health;
- Military era or period of service; or
- Cognitive, sensory, or physical disability.

choiceact/documents/choice-act-summary.pdf, accessed September 21, 2016.

5 Commission on Care. *Commission on Care: Final Report. 2016*; https://commissiononcare.sites.usa.gov/files/2016/07/Commission-on-Care_Final-Report_063016_FOR-WEB.pdf. Accessed September 21, 2016.

VA Commision On Care

Recommendation #5: Eliminate healthcare disparities among Veterans treated in the VHA Care System by committing adequate personnel and monetary resources to address the causes of the problem and ensuring the VHA Health Equity Action Plan (HEAP) is fully implemented." According to the Commission, despite unique assets that secure VA's position as an industry leader in today's healthcare market, the challenges it faces in ensuring timely access to high quality, equitable healthcare for all Veterans remain real and in need of more action. The Commission made additional sub recommendation to address such challenges:

VHA work to eliminate health disparities by establishing healthcare equity as a strategic priority;

- VHA provide the Office of Health Equity (OHE) adequate resources and level of authority to successfully build cultural and military competence among all VHA Care System providers and employees;
- VHA ensure that the HEAP is fully implemented with adequate staffing, resources, and support; and
- VHA increase the availability, quality, and use of race, ethnicity, and language data to improve the health of minority Veterans and other vulnerable Veteran populations with strong surveillance systems that monitor trends in health status, patient satisfaction, and quality measures.

Source: VA Commission on Care Report 2016

The current VHA National Veteran Health Equity Report covers vulnerable Veterans utilization and health conditions based on race/ethnicity, gender, age, geography, and mental health status. Each chapter explores the background, pertinent health concerns, and relevant literature; sociodemographics, healthcare utilization at the VHA; health conditions; and concluding remarks. Each section summarizes implications of the findings. Currently, the report does not reflect all of the vulnerable Veteran populations. For example, VHA does not yet collect sexual orientation and gender identity data. However, efforts are underway to include appropriate fields in the electronic health record to monitor the care of these Veterans. Finally, the report includes a technical appendix that outlines data sources used, methods for creating the cohorts reviewed in each chapter, and data and programming algorithms that will allow local medical centers to develop their own cohorts in order to assess and monitor their metrics compared to the national data included in this report. This is keeping in line with the OHE vision and mission, and strategies of the HEAP, to reduce disparities locally and nationally among Veterans at the VA and elsewhere.

Conclusion

The VHA National Veteran Health Equity Report aligns with the HEAP and momentum across the federal sector by increasing awareness of Veteran health equity issues. The report embodies a comprehensive review of existing evidence of disparities among Veterans including relevant literature, VHA administrative data, and descriptive analyses by subject-matter experts. Each chapter identified limitations of existing data, barriers and other issues that affect VA's ability to describe and understand disparities.

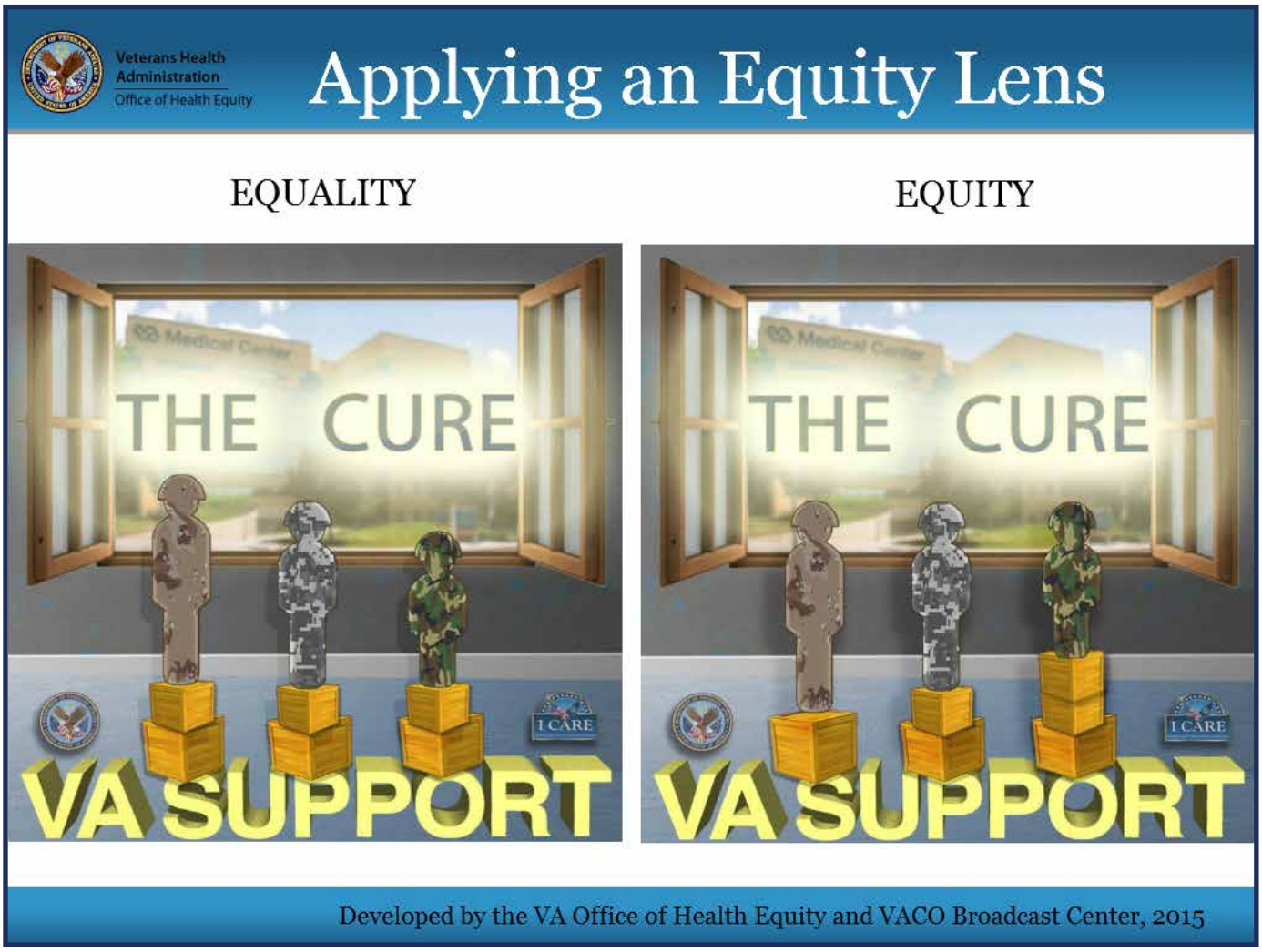
The report furthers OHE efforts to develop common definitions and measures of disparities and inequities. Future iterations of this report will continue to evolve in order to meet the needs of the Veterans entrusted to the VA. There is no doubt that it takes all hands on deck to address, diminish and where possible eliminate health disparities, the OHE calls on everyone to own their piece of the puzzle and collaborate with synergy to advance the cause for Veterans and all others with disparate healthcare and health outcomes.

The OHE anticipates wide dissemination of this report to reach Veterans, VHA staff and other practitioners, educators, trainees, policymakers, and others concerned about improving the care of all Veterans whose membership in these subgroups may increase their risk of disparate care or outcomes. The overall goal of this and future reports is to improve the lives and healthcare of the Veterans. The report is intended to raise awareness and bolster action of all sectors of society that touch the lives of Veterans. Ultimately, we believe that the report will be helpful in designing and generating tools and interventions (e.g., network-wide or market area maps that display health disparities to enable interactive analyses and educational tools for understanding Veteran disparities key to access, services, outcomes, and other variables). The OHE is grateful to everyone who contributed to this report and all those who will use it appropriately in order to address and where possible eliminate health and healthcare disparities among Veterans.

This chapter will not be complete without what has become the signature charge from the VA's chief health equity officer. The pursuit of health equity should be everyone's business; it is a journey that takes time and sustained effort *(Exhibit 2-1)*. What can you do today within your area of influence to advance health equity?[6]

EXHIBIT 2-1

APPLYING AN EQUITY LENS



6 Uchendu, U. S. (2014). Institutional Journey in Pursuit of Health Equity: Veterans Health Administration's Office of Health Equity. *American Journal of Public Health*, 104(S4): S511-S513.

Chapter 3

Health and Healthcare for Veterans in VHA by Race/Ethnicity

Donna L. Washington, MD, MPH

Section I: Significance & Background

Racial/Ethnic Health and Healthcare Disparities

Racial/ethnic disparities in healthcare have persisted over time in the U.S. for a wide range of conditions,[1, 2] and are associated with worse health outcomes and the presence of unmet healthcare needs.[3, 4, 5] The Veterans Health Administration (VA) serves a patient population that is increasingly racially and ethnically diverse. Racial/ethnic diversity is particularly prominent in some subgroups such as women or Veterans receiving care in certain geographic regions.[6, 7] While equitable access to high-quality care for all Veterans is a major tenet of the VA healthcare mission, evidence for ongoing racial/ethnic disparities exist, though evidence for the extent of these disparities in VA has been mixed, especially since financial barriers to healthcare use are diminished for VA users[8, 9,10]

Racial/ethnic variations in use of any VA healthcare (compared with VA non-use) has been described, and examined in association with self-reported unmet healthcare needs.[11] Black or African-American Veterans (referred to as Black Veterans in this chapter) and Hispanic Veterans, compared with White Veterans, were more likely to depend upon the VA to provide all or some of their healthcare.[12, 13] Across all Veterans (VA users and VA non-users), significant disparities were detected between traditionally underserved racial/ethnic groups and White Veterans in their ability to obtain needed medical care, e.g., with greater proportions of American Indian/Alaska Native, Hispanic, and Black Veterans reporting barriers to care.[14] Use of VA healthcare (versus VA non-use) reduced the magnitude of those racial/ethnic disparities.[14] That research provided support for the role of VA as a medical safety net provider for vulnerable Veterans, but suggested that racial/ethnic differences in Veterans' health cannot be attributed solely to differences in healthcare access.

Prior research has examined trends in quality of VA care for Black and White Veteran VA healthcare users.[15] A key finding was that after the VA's organizational transformation of the mid-1990s, VA achieved important performance improvements in process of care measures (i.e., receipt of recommended care) for both White and Black Veterans; however, racial gaps in clinical outcomes persisted for hypertension, cardiovascular care, and

1 Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services. 2013 National Healthcare Disparities Report. *AHRQ Publication No.14-0006*. [online]. (May 2014) {cited 2015 Feb 4}
2 Weinick RM, Zuvekas SH, Cohen JW. Racial and ethnic differences in access to and use of healthcare services, 1977 to 1996. *Med Care Res Rev*. 2000;57 Suppl 1:36-54.
3 Otten MW, Teutsch SM, Williamson DF, Marks JS. The effect of known risk factors on the excess mortality of Black adults in the United States. *JAMA*. 1990;263:845-50.
4 Nickens HW. The health status of minority populations in the United States. *West J Med*. 1991;155:27-32.
5 Centers for Disease Control and Prevention. CDC Health Disparities and Inequalities Report – U.S. 2013. *Morbidity and Mortality Weekly Report – Supplement*. 2013;62(3).
6 Washington DL, Bean-Mayberry B, Riopelle D, Yano EM. Access to care for Women Veterans: Delayed healthcare and unmet need. *J Gen Intern Med*. 2011;26(Suppl 2):S655-61.
7 Egede LE, Gebregziabher M, Hunt KJ, et.al. Regional, geographic, and racial/ethnic variation in glycemic control in a national sample of Veterans with diabetes. *Diabetes Care*. 2011;34(4):938-43.
8 Saha S, Freeman M, Toure J, Tippens KM, Weeks C. Racial and ethnic disparities in the VA healthcare system: a systematic review. *VA HS-R&D Evidence Synthesis Pilot Program*. 2007.
9 Quinones AR, O'Neil M, Saha S, Freeman M, Henry S, Kansagara D. Interventions to Improve Minority Healthcare and Reduce Racial and Ethnic Disparities. VA-ESP Project #05-225; 2011.
10 Rose DE, Farmer MM, Yano EM, Washington DL. Racial/ethnic differences in cardiovascular risk factors among women Veterans. *J Gen Intern Med*. 2013;28(Suppl 2):S524-8.
11 Washington DL, Harada ND, Villa VM, et.al. Racial variations in Department of Veterans Affairs ambulatory care use and unmet healthcare needs. *Mil Med*. 2002;167:235-41.
12 Washington DL, Villa V, Brown A, Damron-Rodriguez J, Harada N. Racial/ethnic variations in Veterans' ambulatory care use. *Am J Public Health*. 2005;95:2231-7.
13 Harada ND, Damron-Rodriguez J, Villa VM, Washington DL, Dhanani S, Shon H, et.al. Veteran identity and race/ethnicity: influences on VA outpatient utilization. *Med Care*. 2002;40:S117-28.
14 Washington DL, Harada ND, Villa VM, et.al. Racial variations in Department of Veterans Affairs ambulatory care use and unmet healthcare needs. *Mil Med*. 2002;167:235-41.
15 Trivedi AN, Grebla RC, Wright SM, Washington DL. Despite improved quality of care in the Veterans Affairs health system, racial disparity persists for important clinical outcomes. *Health Aff (Millwood).* 2011;30(4):707-15.

diabetes care.[15] Other research has found racial disparities in diabetes care processes.[16] There is mixed evidence on racial disparities in VA cancer care.[17,18] An examination of racial/ethnic differences in types and amount of VA healthcare services used may provide insight on some of the underlying factors associated with previously documented VA racial/ethnic healthcare disparities.

Most of the research on racial/ethnic disparities among Veterans has focused on single clinical conditions or on limited racial/ethnic minority group comparisons.[19] There is limited evidence on health and healthcare for racial/ethnic groups of Veterans other than Black and White.[19, 20] The goal of this chapter, which systematically examines demographic characteristics, types and amount of VA services used, and rates of diagnosed health conditions among Veteran VA users by race/ethnicity, is to begin to fill that information gap. The findings in this chapter can advance our understanding of Veteran racial/ethnic health and healthcare disparities.

16 Heisler M, Smith DM, Hayward RA, Krein SL, Kerr EA. Racial disparities in diabetes care processes, outcomes, and treatment intensity. *Med Care.* 2003;41(11):1221-32.

17 Samuel CA, Landrum MB, McNeil BJ, Bozeman SR, Williams CD, Keating NL. Racial disparities in cancer care in the Veterans Affairs health-care system and the role of site of care. *Am J Public Health*. 2014;104 Suppl 4:S562-71.

18 Zullig LL, Jackson GL, Weinberger M, Provenzale D, Reeve BB, Carpenter WR. An examination of racial differences in process and outcome of colorectal cancer care quality among users of the Veterans affairs healthcare system. *Clin Colorectal Cancer.* 2013;12(4):255-60.

19 Saha S, Freeman M, Toure J, Tippens KM, Weeks C. Racial and ethnic disparities in the VA healthcare system: a systematic review. *VA HSR&D Evidence Synthesis Pilot Program*. 2007.

20 Kramer BJ, Jouldjian S, Washington DL, Harker JO, Saliba D, Yano EM. Healthcare for American Indian and Alaska Native women: The roles of the Veterans Health Administration and the Indian Health Service. *Wom Health Issue*. 2009;19(2):135-43.

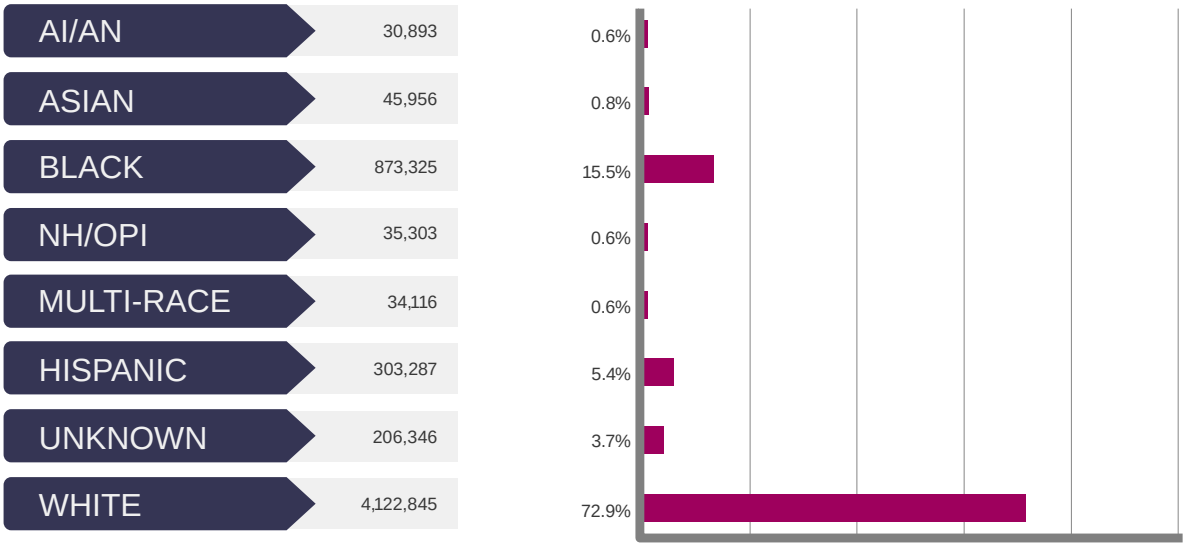
Distribution of Race and Ethnicity Among Veteran VHA Patients

The racial/ethnic distribution of Veteran VA healthcare users in fiscal year (FY) 2013 is shown below *(Exhibit 3-1)*.[21]

Overall, among FY13 Veteran VA healthcare users, 23.5% were members of a racial/ethnic minority group, 72.9% were White, and 3.7% were unknown race/ethnicity. In descending order of frequency, representation of racial/ethnic minorities was: 15.5% Black or African-American (referred to as Black in tables and figures); 5.4% Hispanic; 0.8% Asian; 0.6% Native Hawaiian or other Pacific Islander (NH/OPI); 0.6% multi-race; and 0.6% American Indian or Alaska Native (AI/AN).

EXHIBIT 3-1

DISTRIBUTION OF RACE/ETHNICITY AMONG VETERAN VHA PATIENTS, FY13



Abbreviations applied throughout this chapter: AI/AN = American Indian or Alaska Native; Black = Black or African-American; NH/OPI = Native Hawaiian or other Pacific Islander.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

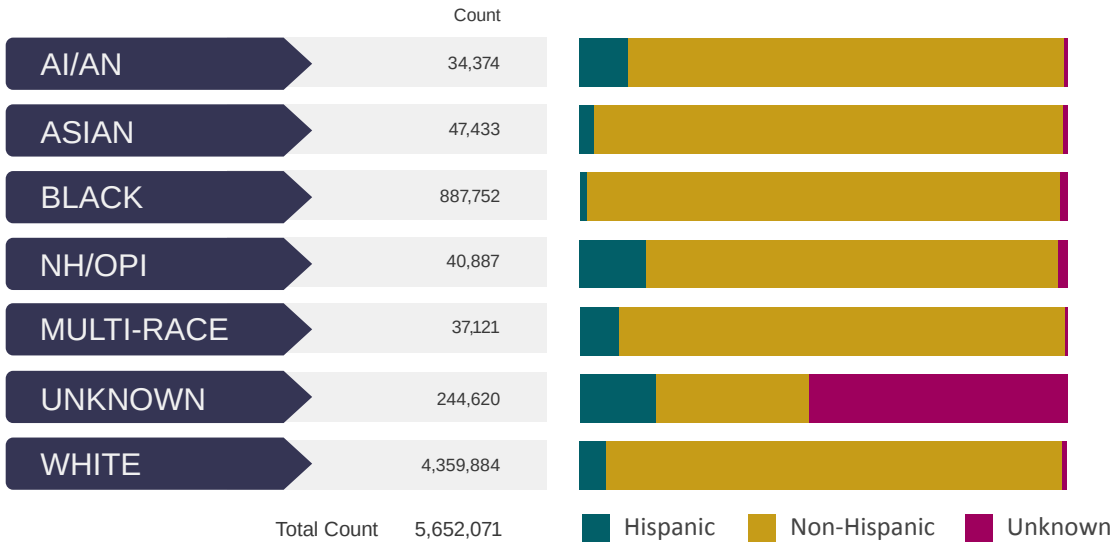
21 Race and ethnicity was assessed separately, then combined to create the race/ethnicity measure. The Hispanic group is comprised of all individuals reporting Hispanic ethnicity; all other groups are defined by race plus non-Hispanic ethnicity (or race plus Hispanic ethnicity missing). The unknown group is comprised of individuals where no specific race/ethnicity could be identified (i.e., because the only values for race and ethnicity were "unknown", "other", "none", or "declined", or if there were no values [i.e., missing] in any record for race and ethnicity). For complete reporting, the data is included for the group with unknown race/ethnicity; however, findings for this group are not discussed. The technical specifications for the race/ethnicity measure are described in more detail in the technical appendix.

In 1997, OMB issued its revised recommendations for the collection and use of race and ethnicity data by Federal agencies (Policy Directive 15) (Office of Management and Budget. Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity. Federal Register, October 30, 1997. Available at: *https://www.whitehouse.gov/omb/fedreg_1997standards*). The OMB stated that its race and ethnicity categories were not anthropologic or scientifically based designations, but instead were categories that described the sociocultural construct of our society (OMB, 1997). Though ethnicity and race are assessed separately, there is not a consensus on whether race/ethnicity should be collected and reported as single versus separate identifications (see Issue 3 of: Office of Management and Budget. Standards for the Classification of Federal Data on Race and Ethnicity. Federal Register, August 28, 1995. Available at: *https://www.whitehouse.gov/omb/fedreg_race/ethnicity/*. Office of Management and Budget. Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity. Federal Register, October 30, 1997. Available at: *https://www.whitehouse.gov/omb/fedreg_1997standards*), and many research and other reports present race and ethnicity data in the combined format. Since a component of monitoring disparities in VA is to benchmark against non-VA data, this chapter reports race and ethnicity data in the combined format. These categories will facilitate comparisons with published clinical studies and data collected by other agencies.

Compared with White Veterans, among NH/OPIs and AI/ANs, a much larger percentage are Hispanic (13.7% and 10.1%, respectively), and among Blacks and Asians, a much smaller percentage are Hispanic (1.6% and 3.1%, respectively) *(Exhibit 3-2)*.

EXHIBIT 3-2

DISTRIBUTION OF ETHNICITY BY RACE OF VETERAN VHA PATIENTS, FY13



Note: AI/AN = American Indian or Alaska Native; Black = Black or African-American; NH/OPI = Native Hawaiian or other Pacific Islander. Missing = 1,235
Denominator: All Veterans who used any VHA care in FY2013 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY2013 VHA patients" (Data source: WHEI Master Database).
Source: VHA National Health Equity Report 2016

IMPLICATIONS Based on U.S. Census projections, in 2010, 32.2% of the U.S. adult population (18 years and older) were a race or ethnicity other than non-Hispanic White alone (including 13.9% Hispanic).[22] This group, referred to as "racial/ethnic minorities" increased in size by 29% over the past decade. The Census Bureau projects that by 2044, the U.S. population will become "majority minority" (49.7% White, 25.0% Hispanic, 12.7% Black, 7.9% Asian, 3.7% multi-racial).[23] The Veteran VA user population is somewhat less racially and ethnically diverse than the U.S. adult population, likely related to the age distribution of Veterans. However, reflecting U.S. population projections, the Veteran VA user population is expected to continue to become increasingly racially and ethnically diverse. The VHA Blueprint for Excellence describes themes, strategies, and activities that include improving performance (anticipating and meeting the unique needs of enrolled Veterans) and delivering high quality, Veteran-centered care. To meet these challenges for the increasingly diverse Veteran patient population, VA should monitor and report out quality and patient experience data by race/ethnicity. To facilitate measurement, tools for measuring parameters of interest by race/ethnicity should be incorporated into the next generation of the VA electronic health record user interface.

22 Population: Estimates and Projections by Age, Sex, Race/Ethnicity. Table 12. Resident Population Projections by Race, Hispanic Origin Status, and Age: 2010 and 2015. Available at: http://www.census.gov/compendia/statab/cats/population/estimates_and_projections_by_age_sex_raceethnicity.html.

23 U.S. Census Bureau. Projections of the Size and Composition of the U.S. Population: 2014 to 2060. Current Population Reports. 2015;25-1143. Available at: https://www.census.gov/content/dam/Census/library/publications/2015/demo/p25-1143.pdf.

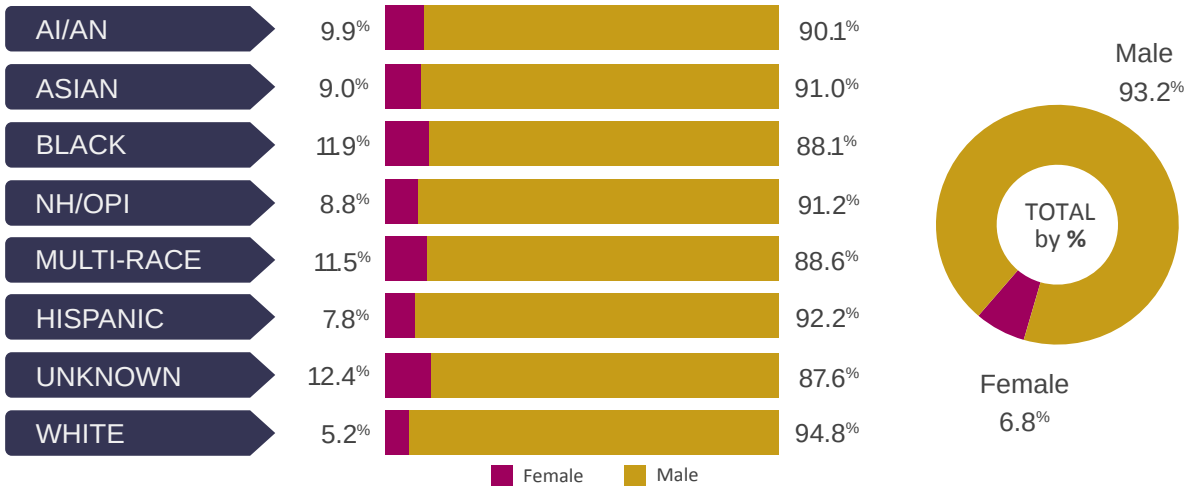
Section II: Sociodemographics

Gender by Race/Ethnicity

Overall, among FY13 Veteran patients, 6.8% were female. All racial/ethnic minority groups had much greater representation of females compared with Whites *(Exhibit 3-3)*. In descending order of female representation, 11.9% of Blacks, 11.4% of multi-race individuals, 9.9% of AI/ANs, 9.0% of Asians, 8.8% of NH/OPIs, and 7.8% of Hispanics were female, in contrast to 5.2% of Whites.

EXHIBIT 3-3

PERCENT DISTRIBUTION OF GENDER BY RACE/ETHNICITY AMONG VETERAN VHA PATIENTS, FY13



Note: AI/AN = American Indian or Alaska Native; Black = Black or African-American; NH/OPI = Native Hawaiian or other Pacific Islander.
Missing = 1,235
Denominator: All Veterans who used any VHA care in FY2013 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY2013 VHA patients" (Data source: WHEI Master Database).
Source: VHA National Health Equity Report 2016

IMPLICATIONS The gender representation of women among racial/ethnic minority groups compared with Whites highlights the need for VA healthcare services that are both gender-sensitive and culturally-sensitive.[24] As non-VA care takes on a larger role in healthcare for Veterans, VA should identify strategies for arranging non-VA care that is also sensitive to the needs and healthcare delivery preferences of a diverse Veteran patient population.

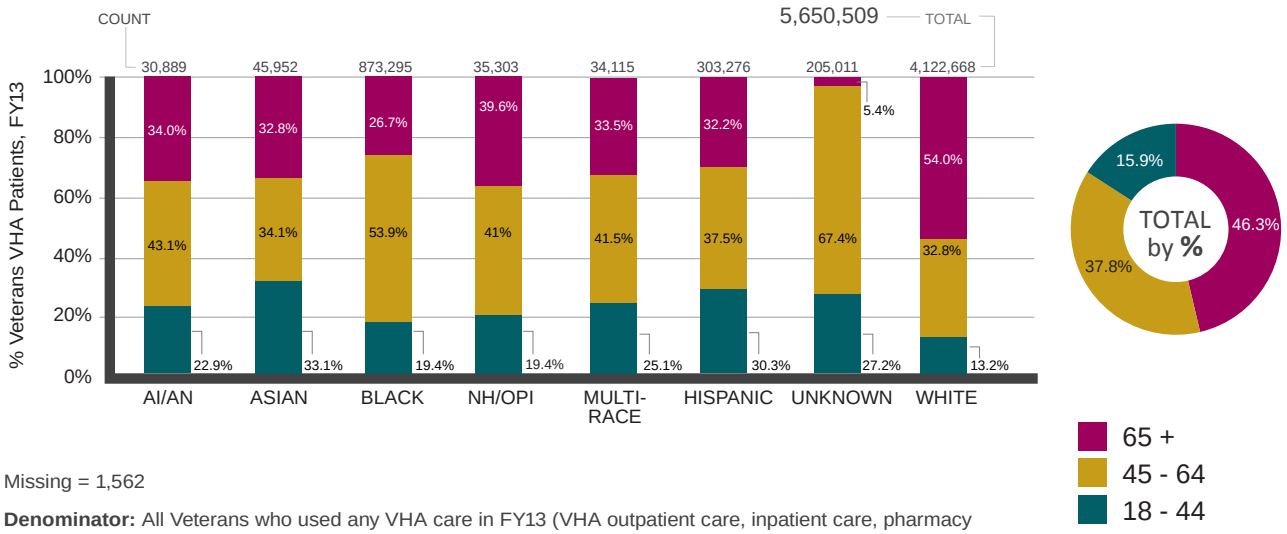
24 Washington DL, Farmer MM, Mor SS, Canning M, Yano EM. Assessment of the Healthcare Needs and Barriers to VA Use Experienced by Women Veterans. *Med Care*. 2015;53:S23-S31.

Age by Race/Ethnicity

All racial/ethnic minority groups were substantially younger than Whites, with the mean age by race/ethnicity being: 57 for AI/ANs; 55 for Asians; 56 for Blacks; 59 for NH/OPIs; 56 for multi-race individuals; 55 for Hispanics; 51 for the group with unknown race/ethnicity; 64 for Whites; and 62 overall. In descending order by percent in the youngest age group, 33.1% of Asians, 30.3% of Hispanics, 25.1% of multi-race individuals, 22.9% of AI/ANs, and 19.4% each of Blacks and NH/OPIs were in the 18-44 year age range, in contrast to 13.2% of Whites *(Exhibit 3-4)*. For all racial/ethnic minority groups, the most populous age group was the 45-64 year age group. By contrast, a majority of Whites (54.0%) were in the 65+ age group. The proportion of racial/ethnic minorities age 65+ was: 26.7% of Blacks, 32.2% of Hispanics, 32.8% of Asians, 33.5% of multi-race individuals, 34.0% of AI/ANs, and 39.6% of NH/OPIs.

EXHIBIT 3-4

PERCENT DISTRIBUTION OF AGE BY RACE/ETHNICITY AMONG VETERAN VHA PATIENTS, FY13



Missing = 1,562

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS With the influx into VA of an increasingly racially and ethnically diverse cohort of younger Veterans, attention should be directed toward the needs, risk behaviors, and psychosocial challenges of Veterans who are still relatively early in their life course. For example, in the National Survey of Women Veterans, barriers to care differed by age group.[25] These challenges might be compounded for racial/ethnic minorities.

25 Washington DL, Farmer MM, Mor SS, Canning M, Yano EM. Assessment of the Healthcare Needs and Barriers to VA Use Experienced by Women Veterans. *Med Care*. 2015;53:S23-S31.

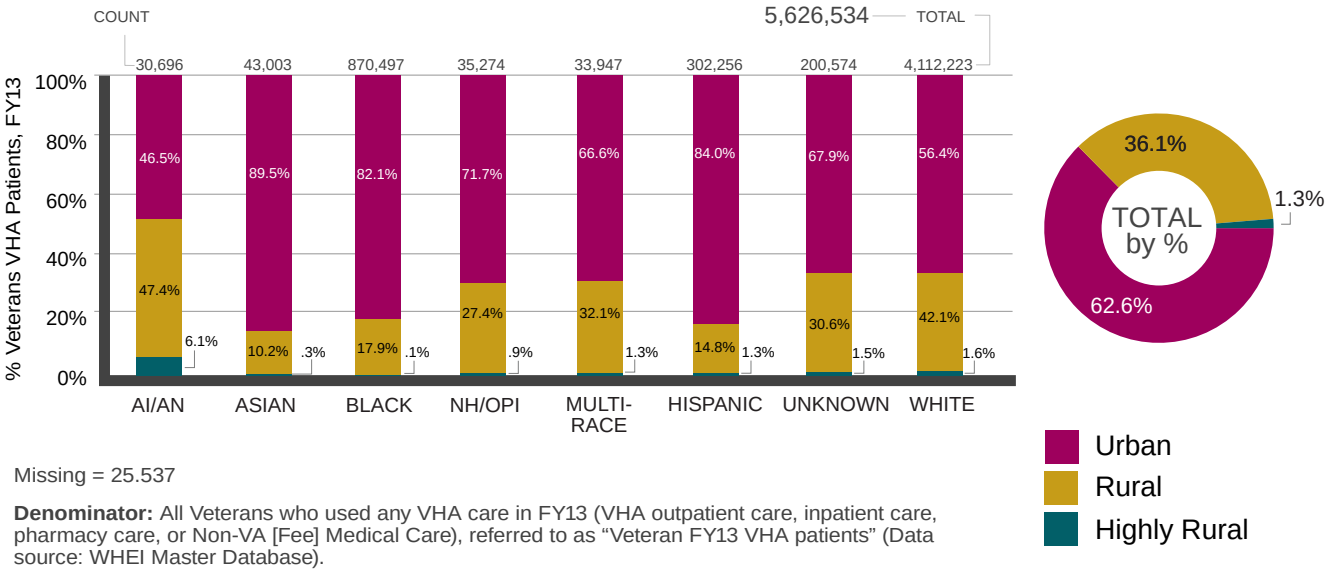
Rural/Urban Status by Race/Ethnicity

Overall, 37.4% of Veteran patients lived in rural or highly rural settings. However, these percentages were much higher for American Indian/Alaska Native Veterans, with a majority (53.5%) of these Veterans residing in rural or highly rural settings *(Exhibit 3-5)*. Among AI/AN Veteran patients, 6.1% lived in highly rural settings, in contrast to 1.6% of White Veteran patients, and 1.3% of Veteran patients overall. Other racial/ethnic groups were less likely than White Veteran patients to live in rural or highly rural settings.

Asian (89.5%), Hispanic (84.0%), and Black or African-American (82.1%) Veteran patient groups had particularly high percentages residing in an urban environment. This was in contrast to White (56.4%) and AI/AN (46.5%) Veteran patient groups.

EXHIBIT 3-5

PERCENT DISTRIBUTION OF RURAL/URBAN STATUS BY RACE/ETHNICITY AMONG VETERAN VHA PATIENTS, FY13



Missing = 25.537

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Rural residing residents often experience geographic challenges to accessing healthcare. The VA and Indian Health Service (IHS) have executed an agreement to share resources to improve access and health outcomes for AI/AN Veterans. In fiscal years 2002 and 2003, of IHS enrollees who used VA and/or IHS, 25% used both healthcare organizations, 28% used VA only, and 46% used IHS only.[26] VA should continue identifying strategies to address healthcare access and care coordination targeted toward rural-residing Veteran patients.

Urban residence may have its own set of challenges, particularly for racial/ethnic minority groups that live in residentially segregated, highly urban environments.[27, 28] VA research should be directed toward investigating neighborhood effects and the effects of other social determinants of health on the health behavior and outcomes of racially/ethnically diverse Veteran patients.

26 Kramer BJ, Wang M, Jouldjian S, Lee ML, Finke B, Saliba D. Veterans Health Administration and Indian Health Service: healthcare utilization by Indian Health Service enrollees. *Med Care.* 2009;47(6):670-6

27 Inagami S, Borrell LN, Wong MD, Fang J, Shapiro MF, Asch SM. Residential segregation and Latino, black and white mortality in New York City. *J Urban Health.* 2006;83(3):406-20.

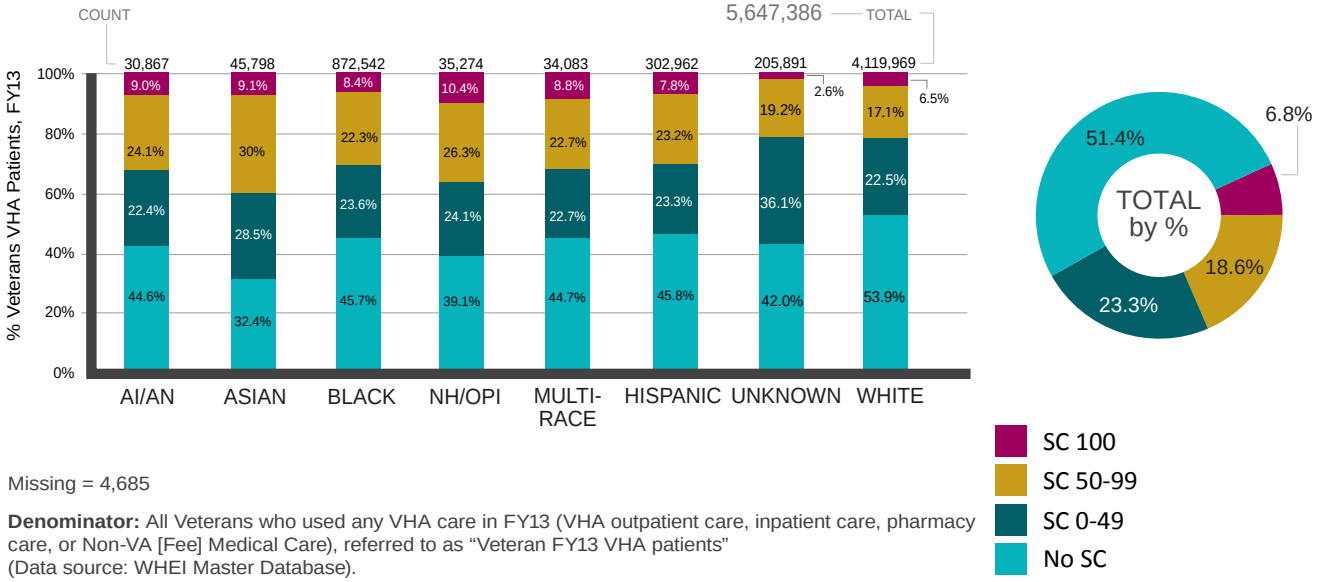
28 Lee H, Kang HM, Ko YJ, Kim HS, Kim YJ, Bae WK, Park S, Cho B. Influence of urban neighbourhood environment on physical activity and obesity-related diseases. *Public Health*. 2015. pii: S0033-3506(15)00238-3.

Service-Connected Disability Rating Status by Race/Ethnicity

Overall, about one-half (48.6%) of Veteran patients had service-connected disabilities. All racial/ethnic minority Veteran patient groups, compared with Whites, were more likely to have a service-connected disability. In descending order by proportion, the percent of each group having a service-connected disability was: 67.6% of Asians; 60.9% of NH/OPIs; 55.5% of AI/ANs; 55.3% of multi-racial individuals; 54.3% of Blacks or African-Americans; 54.2% of Hispanics; and 46.1% of Whites *(Exhibit 3-6)*.

EXHIBIT 3-6

PERCENT DISTRIBUTION OF SERVICE-CONNECTED DISABILITY RATING STATUS BY RACE/ETHNICITY AMONG VETERAN VHA PATIENTS, FY13



Missing = 4,685

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Having a service-connected disability rating is an important facilitator of VA healthcare access.[29,30] This may be particularly relevant for racial/ethnic minority groups that have been traditionally underserved in non-VA healthcare settings.[31] An important caveat in interpreting data on service-connected disability ratings by race/ethnicity, is that racial/ethnic variations in disability claims were not examined; there is mixed evidence on whether those variations are a concern.[32, 33]

29 Washington DL, Harada ND, Villa VM, et.al. Racial variations in Department of Veterans Affairs ambulatory care use and unmet healthcare needs. *Mil Med.* 2002;167:235-41.

30 Washington DL, Yano EM, Simon B, Sun S. To use or not to use. What influences why women Veterans choose VA healthcare. *J Gen Intern Med*. 2006;21 Suppl 3:S11-8

31 Murdoch M, van Ryn M, Hodges J, Cowper D. Mitigating effect of Department of Veterans Affairs disability benefits for post-traumatic stress disorder on low income. *Mil Med*. 2005;170(2):137-40.

32 Murdoch M, Hodges J, Cowper D, Fortier L, van Ryn M. Racial disparities in VA service connection for posttraumatic stress disorder disability. *Med Care*. 2003;41(4):536-49.

33 Grubaugh AL, Elhai JD, Ruggiero KJ, Egede LE, Naifeh JA, Frueh BC. Equity in Veterans Affairs disability claims adjudication in a national sample of Veterans. *Mil Med*. 2009;174(12):1241-6.

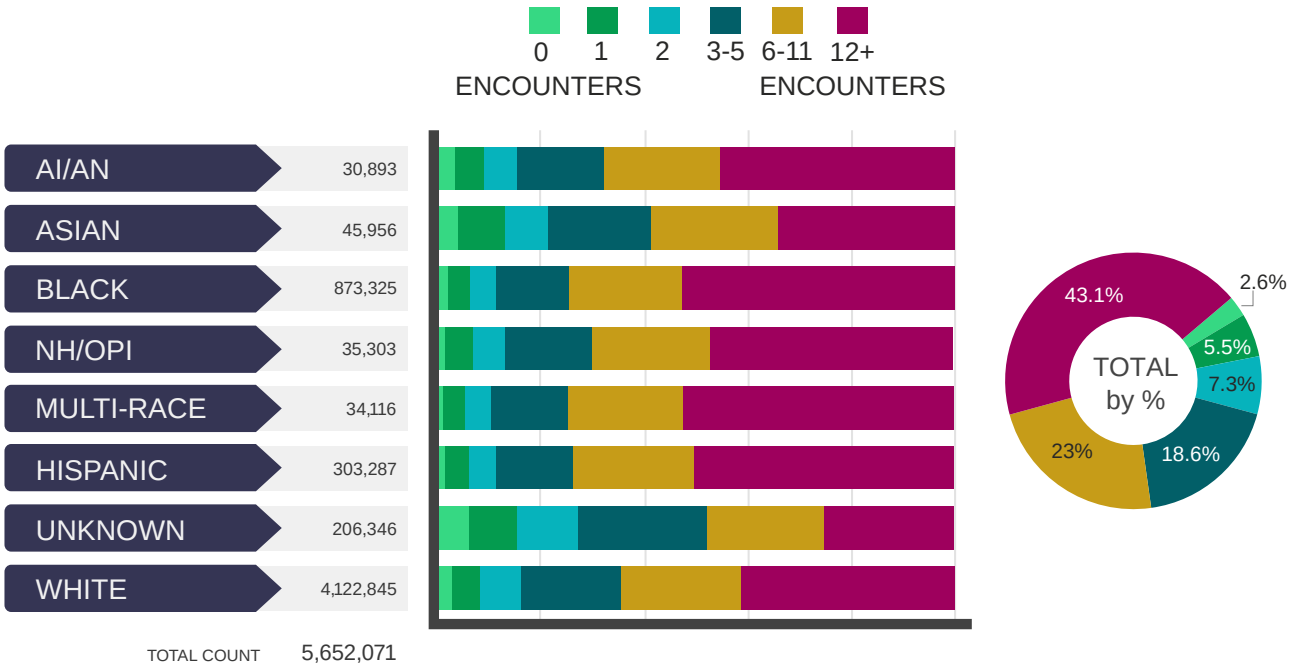
Section III: Utilization

VHA Outpatient Encounters by Race/Ethnicity

VHA outpatient encounters are the portion of care that occurs at VHA facilities (fee outpatient services are presented at the end of this Section on Utilization). The vast majority of FY13 Veteran patients (97.4%) had one or more VHA outpatient encounters. In FY13, approximately two-thirds of Veteran patients (66.1%) had six or more encounters. Multi-race (74.7%), Black or African-American (74.6%) and Hispanic (73.8%) Veteran patients were more likely than White Veteran patients (64.6%) to have six or more encounters, whereas Asian Veteran patients (58.7%) were less likely to have this *(Exhibit 3-7)*.

EXHIBIT 3-7

PERCENT DISTRIBUTION OF VHA OUTPATIENT ENCOUNTERS BY RACE/ETHNICITY AMONG VETERAN VHA PATIENTS, FY13



Abbreviations applied throughout this chapter: AI/AN = American Indian or Alaska Native; Black = Black or African-American; NH/OPI = Native Hawaiian or other Pacific Islander.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Among Veterans who use VA care, most racial/ethnic minority group members had a greater number of encounters than White Veteran patients. In keeping with the Blueprint for Excellence transformational actions related to improving performance, VA should assure that care delivered is based on Veteran demographics, preferences and care needs and an evolving healthcare delivery model (transformational action 1c).[34]

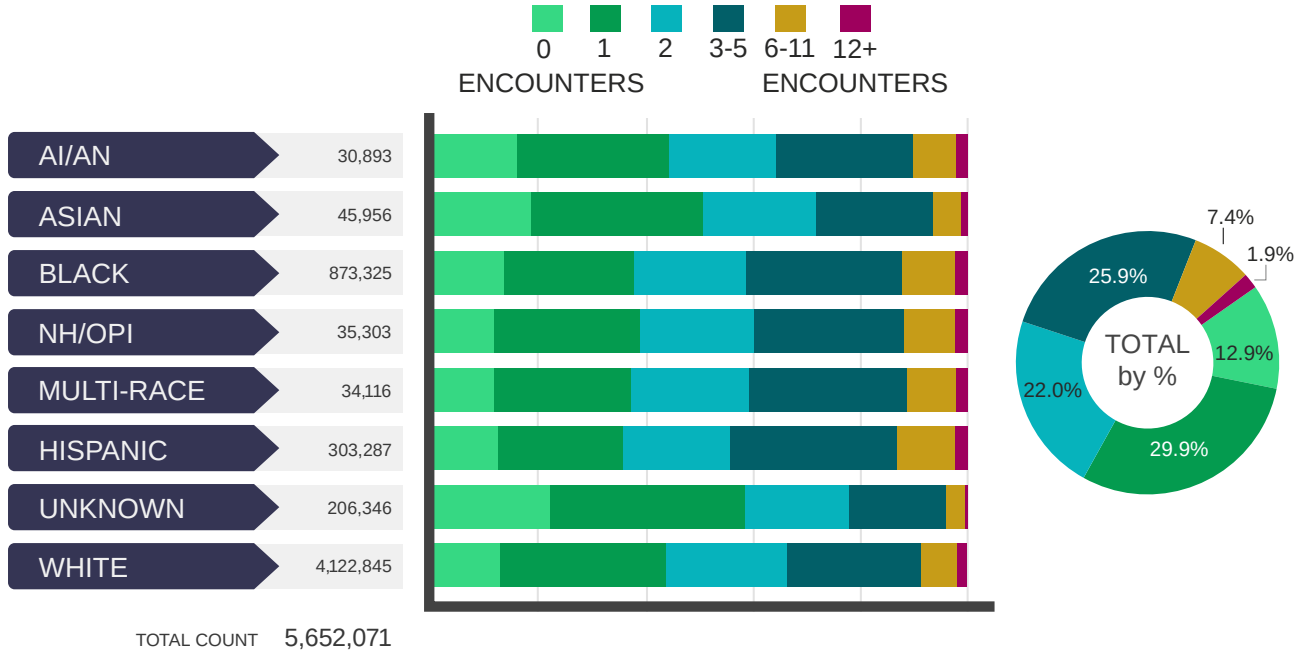
34 Veterans Health Administration, Department of Veterans Affairs. *Veterans Health Administration Blueprint for Excellence*. [online]. (September 21, 2014).

Primary Care Encounters by Race/Ethnicity

The majority (87.1%) of FY13 Veteran patients utilized primary care. However, primary care use was somewhat lower for Asian Veteran patients (81.9%) than for other groups. The number of primary care encounters varied by race/ethnicity. One-third (33.8%) of White Veteran patients made three or more primary care encounters, whereas Hispanic (44.5%), Black or African-American (41.4%), multi-race (40.9%), and NH/OPI (40.0%) Veteran patients were more likely to have three or more primary care encounters *(Exhibit 3-8)*. Asians (28.5%) were less likely than Whites to have three or more primary care encounters; and AI/ANs (35.8%) had similar numbers of primary care encounters as Whites. Less than 10% of Veteran patients had six or more primary care encounters. The groups that were most likely to have six or more encounters were Hispanics (13.0%) and Blacks or African-Americans (12.1%); this was in contrast to 8.6% of Whites and 6.5% of Asians.

EXHIBIT 3-8

PERCENT DISTRIBUTION OF PRIMARY CARE ENCOUNTERS BY RACE/ETHNICITY AMONG VETERAN VHA PATIENTS, FY13



Abbreviations applied throughout this chapter: AI/AN = American Indian or Alaska Native; Black = Black or African-American; NH/OPI = Native Hawaiian or other Pacific Islander.

Denominator: All Veterans who used any VHA care in FY2013 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY2013 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS The primary care clinical setting, utilizing Patient-Aligned Care Teams (PACT), is the preferred setting within VA for coordinating care delivery for most patients, particularly those with complex care needs. Racial/ethnic minority groups other than Asians, have a similar or greater number of VA primary care encounters as White Veteran patients. Achievement of PACT initiative goals varies across VA sites, with greater PACT implementation associated with higher patient satisfaction, higher care quality, and lower ambulatory care sensitive hospitalizations and emergency department use.[35] Future steps in evaluating VA primary care use by race/ethnicity should examine variations in these important correlates of PACT implementation by race/ethnicity.

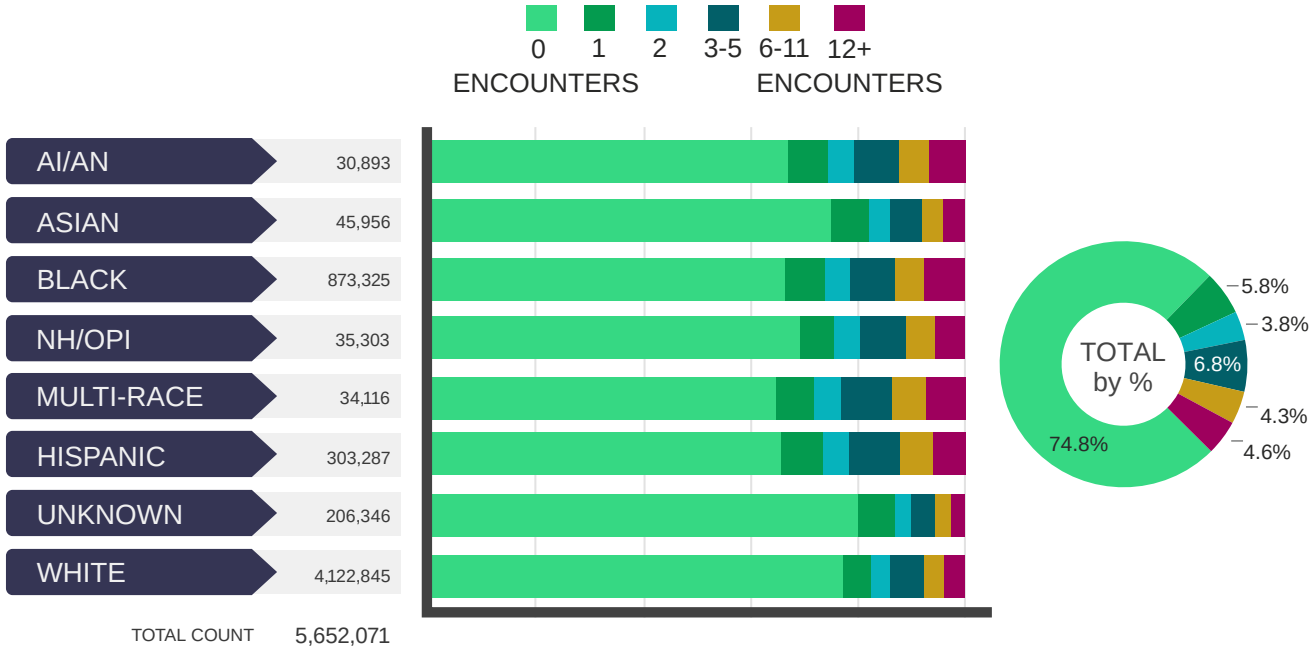
35 Nelson KM, Helfrich C, Sun H, Hebert PL, Liu CF, Dolan E, et. al. Implementation of the patient-centered medical home in the Veterans Health Administration: associations with patient satisfaction, quality of care, staff burnout, and hospital and emergency department use. *JAMA Intern Med*. 2014;174(8):1350-8.

Mental Health/Substance Use Disorder Encounters by Race/Ethnicity

One-quarter (25.2%) of FY13 Veteran patients utilized VA care for mental health and substance use disorders. All racial/ethnic minority groups were more likely than White Veteran patients to utilize this care. The percent of each group who had one or more mental health or substance use disorder encounters, in descending order, was: multi-race (35.4%), Hispanic (34.5%), Black or African-American (33.8%), AI/AN (33.4%), NH/OPI (31.0%), and Asian (25.0%) *(Exhibit 3-9)*. Overall, 8.9% of Veteran patients had six or more encounters for mental health and substance use disorder care. Among Veteran patients with one or more encounters for mental health and substance use disorder care, 35.1% had six or more encounters, including: 39.0% of Blacks; 38.8% of multi-race individuals; 37.4% of AI/ANs; 35.7% of NH/OPIs; 35.5% of Hispanics; 34.2% of Whites; and 31.9% of Asians.

EXHIBIT 3-9

PERCENT DISTRIBUTION OF MENTAL HEALTH/SUBSTANCE USE DISORDER ENCOUNTERS BY RACE/ETHNICITY AMONG VETERAN VHA PATIENTS, FY13



Abbreviations applied throughout this chapter: AI/AN = American Indian or Alaska Native; Black = Black or African-American; NH/OPI = Native Hawaiian or other Pacific Islander.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

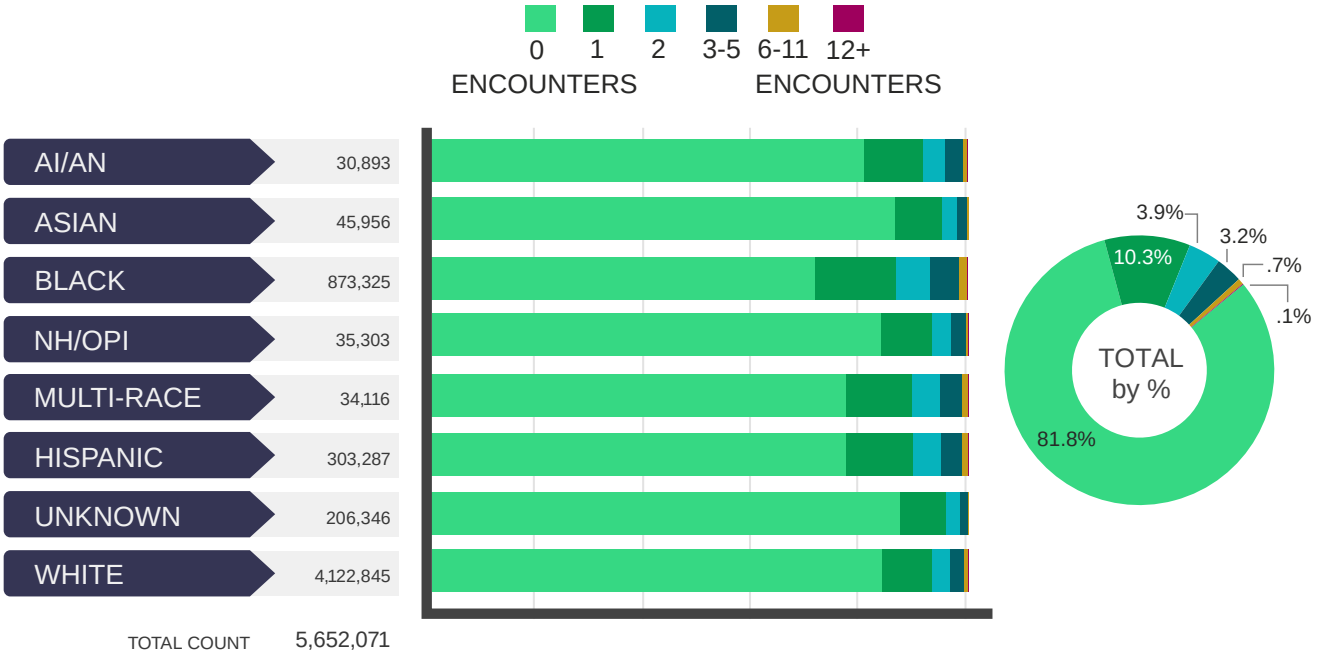
IMPLICATIONS Racial/ethnic minority group members were more likely than White Veteran patients to have encounters for VA mental health and substance use disorder care. Data on this use should be correlated with mental health and substance use disorder diagnoses and symptoms to gauge if this level of use meets need for this care. For patients who initiate care for mental health and substance use disorders, retention in care is sometimes a concern. Though retention in care was not assessed with this data, there were not wide variations by race/ethnicity in the proportion of users of mental health and substance use disorder care with six or more encounters.

Emergency Department Encounters by Race/Ethnicity

Overall, 18.2% of Veteran patients had one or more VA emergency department encounters in FY13. There was significant variation by racial/ethnic group in use of VA emergency department care, with 28.6% of Black or African-American, 22.9% of Hispanic, 22.7% of multi-race, 19.5% of AI/AN, 16.2% of NH/OPI, 16.0% of White, and 13.6% of Asian Veteran patients making one or more encounters in FY13 *(Exhibit 3-10)*.

EXHIBIT 3-10

PERCENT DISTRIBUTION OF EMERGENCY DEPARTMENT ENCOUNTERS BY RACE/ETHNICITY AMONG VETERAN VHA PATIENTS, FY13



Abbreviations applied throughout this chapter: AI/AN = American Indian or Alaska Native; Black = Black or African-American; NH/OPI = Native Hawaiian or other Pacific Islander.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

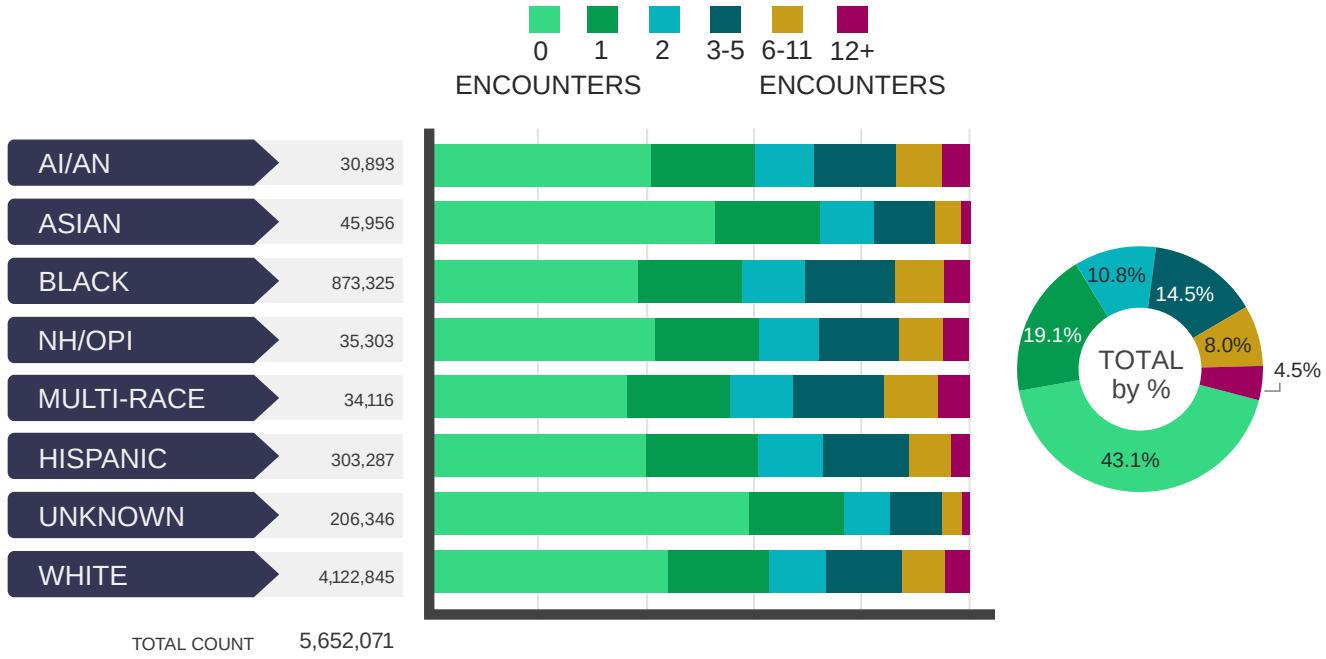
IMPLICATIONS Emergency department use may be a marker for primary care access barriers, poor care coordination, or unmet needs. Characteristics of emergency department users and encounters should be explored, to better understand the correlates and outcomes of the racial/ethnic variations in VA emergency department use.

Telephone Encounters by Race/Ethnicity

More than one-half (56.9%) of Veteran patients had one or more VA telephone encounters in FY13. There was variation by racial/ethnic group in use of VA telephone care, with 64.0% of multi-race, 61.9% of Black or African-American, 60.4% of Hispanic, 59.4% of AI/AN, 58.6% of NH/OPI, 56.3% of White, and 47.5% of Asian Veteran patients having one or more telephone encounters in FY13. One in eight (12.5%) of Veteran patients had six or more telephone encounters *(Exhibit 3-11)*. The frequency by race/ethnicity of having 6 or more telephone encounters was similar to the rank order for any use of telephone care.

EXHIBIT 3-11

PERCENT DISTRIBUTION OF TELEPHONE ENCOUNTERS
BY RACE/ETHNICITY AMONG VETERAN VHA PATIENTS, FY13



Abbreviations applied throughout this chapter: AI/AN = American Indian or Alaska Native; Black = Black or African-American; NH/OPI = Native Hawaiian or other Pacific Islander.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

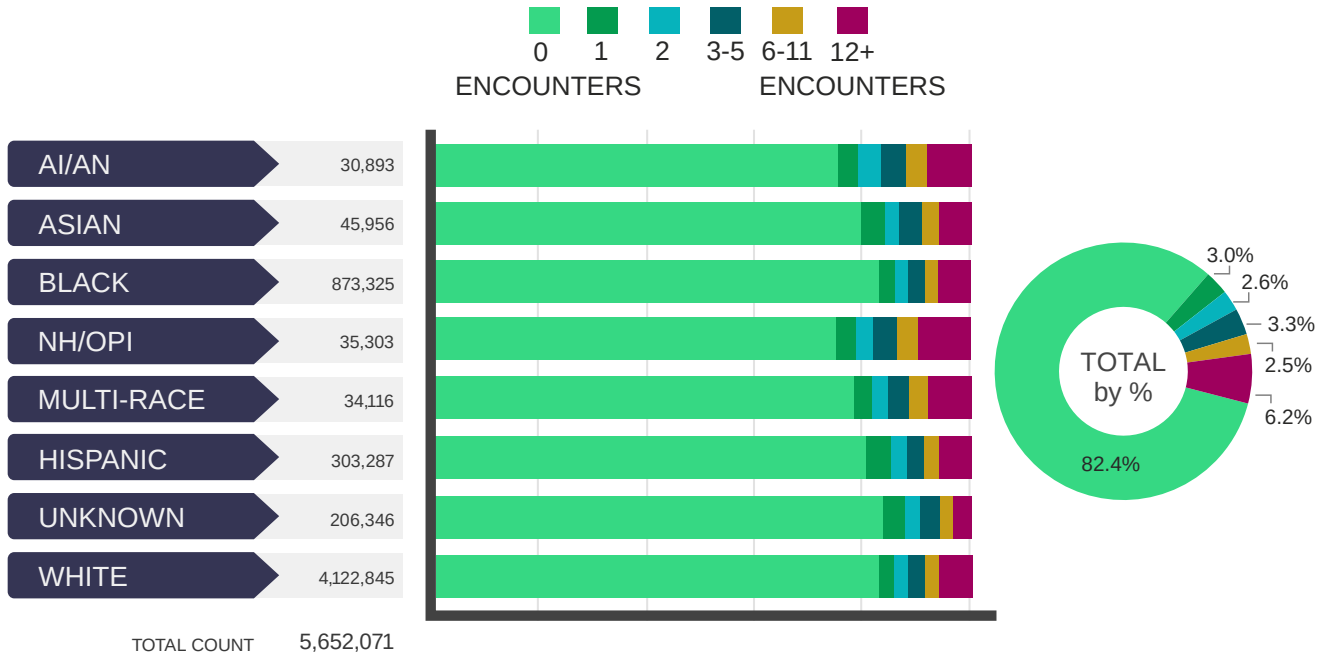
IMPLICATIONS Telephone care is an important part of remote communication between VA patients and their providers. This modality of care appears to be somewhat more important for most racial/ethnic minority groups compared with White Veteran patients.

Fee Outpatient Services by Race/Ethnicity

In FY13, 17.6% of Veteran patients used one or more fee outpatient services and 8.7% used six or more. There was significant racial/ethnic variation in use of fee outpatient services, with most racial/ethnic groups using a greater number of fee services than White Veteran patients *(Exhibit 3-12)*. The percent of each group who used one or more fee outpatient services, in descending order, was: NH/OPI (25.2%), AI/AN (24.8%), multi-race (21.9%), Asian (20.5%), Hispanic (19.8%), White (17.4%), and Black or African-American (17.3%). The percent of each group who used six or more fee outpatient services had a similar rank order – NH/OPI (13.8%), AI/AN (12.1%), multi-race (11.7%), Asian (9.3%), Hispanic (8.8%), White (8.8%), and Black or African-American (8.5%).

EXHIBIT 3-12

PERCENT DISTRIBUTION OF FEE OUTPATIENT SERVICES BY RACE/ETHNICITY AMONG VETERAN VHA PATIENTS, FY13



Abbreviations applied throughout this chapter: AI/AN = American Indian or Alaska Native; Black = Black or African-American; NH/OPI = Native Hawaiian or other Pacific Islander.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS VA fee care is an important adjunct to VA outpatient services for many of the Veterans served by VA. Higher rates of fee use by NH/OPI and AI/AN Veteran patients may relate to geographic characteristics of their residential areas. There are also select services for which VA fee care is often used and use of fee care could vary by patient characteristics that are correlated with need for these services. Unlike VA outpatient services that are delivered on-site, the quality of VA fee care is not systematically monitored. VA should identify strategies for systematically monitoring the quality of VA fee care, particularly given the lower quality of care and greater racial/ethnic disparities in care that have been documented in community settings compared to VA outpatient care. As VA monitors the patient experience of care, they should include assessments of VA fee care stratified by race/ethnicity.

Section IV: Conditions

This section reports on diagnosed conditions (202 clinically meaningful groups of ICD-9-CM diagnosis codes) for each racial/ethnic group. To facilitate comparisons among groups, data on diagnosed conditions are summarized in three ways. First, as described in detail in the technical appendix, conditions were grouped into 17 broad, higher-order major disease categories. The percent of each racial/ethnic group that received one or more diagnoses in each category in FY13 is given in *Exhibit 3-13*. This is followed by *Exhibit 3-14*, which provides the details of the percent of each racial/ethnic group that was diagnosed with each condition. Second, the conditions diagnosed in 20% or more of each racial/ethnic group are listed in Exhibit 3-15. Third, for the overall top 20 diagnosed conditions in FY13, the difference in percent diagnosed between each racial/ethnic group and White Veteran patients is given in *Exhibit 3-16*.

Categories of Diagnosed Conditions by Race/Ethnicity

The categories of diagnosed conditions and the percent of each racial/ethnic group that received one or more diagnoses in each category are listed in *Exhibit 3-13*. The diagnosed conditions within each category are listed in *Exhibit 3-14*.

The category with the highest diagnosed condition rate was *endocrine/metabolic/nutritional*, which was the #1 category of diagnosed conditions for all racial/ethnic groups except for Blacks or African-Americans, for which it was the #2 diagnosed condition category. Across most groups, 59-66% of Veterans received diagnoses in that category (with highest diagnosed condition rate being 65.7% for NHO/PIs and 65.6% for Whites), though the diagnosed condition rate in Asians was somewhat lower (51.9%).

Two other categories with diagnosed condition rates of approximately 48-62% for each racial/ethnic group were the *cardiovascular category* and the *musculoskeletal category*. For Blacks or African-Americans, the *cardiovascular category* was the category with the highest diagnosed condition rate. In the *cardiovascular category*, the highest diagnosed condition rates were 62.3% for Whites and 62.0% for Blacks or African-Americans. In the *musculoskeletal category*, all racial/ethnic minority groups other than Asians had higher diagnosed condition rates compared with White Veteran patients. These musculoskeletal diagnosed condition rates ranged from approximately 54-57% for most groups, compared with approximately 48% for Whites and Asians.

In the *sense organ category* (which includes vision and hearing conditions), 40-44% of each racial/ethnic group received a diagnosis.

There were racial/ethnic variations in the diagnosed condition rates for the *mental health/substance use disorder category*; greater than 40% of multi-race (43.2%), AI/AN (42.5%), and Hispanic (41.3%) Veteran patients received diagnoses in that category, in contrast to 31.5% of White Veteran patients.

Across all categories, Asian Veteran patients tended to have the lowest diagnosed condition rate.

EXHIBIT 3-13

PERCENT DISTRIBUTION OF DIAGNOSED CONDITION CATEGORIES BY RACE/ETHNICITY AMONG VETERAN VHA PATIENTS, FY13

	AI/AN	Asian	Black	NH/OPI	Multi-race	Hispanic	Unknown	White	TOTAL
Count	30,893	45,956	873,325	35,303	34,116	303,287	206,346	4,122,845	5,652,071
CONDITION	%	%	%	%	%	%	%	%	%
Infectious Disease	21.8	15.1	28.8	22.1	26.0	24.5	13.8	19.8	**21.3**
Endocrine/ Metabolic/ Nutritional	59.0	51.9	59.8	65.7	62.1	62.7	44.7	65.6	**63.6**
Cardiovascular	53.4	46.0	62.0	60.4	57.8	51.9	37.7	62.3	**60.6**
Respiratory	27.2	22.9	28.2	27.8	30.6	25.3	18.3	27.9	**27.4**
Gastrointestinal	33.0	25.4	35.1	33.8	36.2	35.2	23.9	35.2	**34.7**
Urinary	14.4	12.2	19.0	17.6	17.2	15.9	7.1	16.4	**16.4**
Reproductive Health	20.6	18.5	29.3	23.5	25.4	23.6	14.0	24.2	**24.5**
Breast	0.9	0.5	1.3	0.9	1.1	0.8	0.7	0.7	**0.8**
Cancer	7.7	5.0	9.7	9.2	9.1	7.5	3.4	10.9	**10.2**
Hematologic/Immunologic	9.4	6.1	13.1	10.6	11.3	9.8	4.5	10.2	**10.4**
Musculoskeletal	54.6	47.8	56.6	55.0	57.3	53.6	41.8	48.3	**49.8**
Neurologic	25.2	20.4	25.2	25.4	27.2	25.5	13.9	24.6	**24.3**
Mental Health/SUD	42.5	28.1	39.9	38.5	43.2	41.3	24.8	31.5	**33.2**
Sense Organ	40.9	41.5	40.2	44.0	42.5	42.2	26.7	43.9	**42.6**
Dental	9.9	9.5	11.8	11.9	11.9	10.6	3.9	7.4	**8.2**
Dermatologic	19.9	16.8	20.1	21.5	23.3	20.1	13.6	22.8	**21.9**
Other	51.3	40.2	54.3	49.3	54.3	49.2	37.1	45.4	**46.8**

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

Individual Diagnosed Conditions by Race/Ethnicity

Exhibit 3-14 contains the percent distribution of diagnosed conditions by race/ethnicity among Veterans and is available in the supplemental materials *(Exhibit 3-14)*.

IMPLICATIONS A majority of Veteran patients in most racial/ethnic groups were diagnosed with conditions in the endocrine / metabolic / nutritional, cardiovascular, and musculoskeletal categories. Despite their younger age (Exhibit 3-6 and Exhibit 3-7), Black or African-American, NH/OPI, multi-race individuals, and Hispanics had similar or near similar rates of diagnosed conditions as White Veteran patients in endocrine / metabolic / nutritional or cardiovascular categories. Racial/ethnic differences in risk factors for conditions in these categories, and variations in prevention activities should be explored.

The musculoskeletal category was an important source of diagnosed conditions for a majority of racial/ethnic minorities. Inadequate pain control and the potential for opioid overuse are both important concerns for Veterans with musculoskeletal conditions.[36, 37] The higher diagnosed prevalence of musculoskeletal conditions among racial/ethnic Veteran patients suggests the potential for those issues to have greater relevance for racial/ethnic minority groups; further work should be done to evaluate the extent of these concerns.

The mental health category was also an important source of diagnosed conditions for a higher proportion of racial/ethnic minorities than for White Veterans. Care for mental health / substance use disorders is an area that VA has special expertise in, particularly for conditions related to military service. Healthcare systems outside of VA often have less coverage and services for care of mental health / substance use disorders, and when they do provide that coverage, they often have less focused expertise on treatment of issues related to service-connected disability.[38]

Several categories with lower diagnosed condition rates are nonetheless also important causes of disability (e.g., cancer) and impaired health related quality of life (e.g., dental issues).

36 Pletcher MJ, Kertesz SG, Kohn MA, Gonzales R. Trends in Opioid Prescribing by Race/Ethnicity for Patients Seeking Care in US Emergency Departments. *JAMA*. 2008;299(1):70-78.

37 Trafton JA, Lewis ET. Improving Opioid Prescribing Practices. *VA Health Services Research & Development Forum*. 2012 August. Available at: http://www.hsrd.research.va.gov/publications/forum/aug12/aug12-3.cfm.

38 Fredricks TR, Nakazawa M. Perceptions of Physicians in Civilian Medical Practice on Veterans' Issues Related to Healthcare. *J Am Osteopath Assoc*. 2015;115:360-8.

Conditions Diagnosed in ≥ 20% of a Racial/Ethnic Group

Eleven of the conditions were diagnosed in 20% (rounded) or more of one or more racial/ethnic groups *(Exhibit 3-15)*. The top three diagnosed conditions in rank order in each racial/ethnic group were: #1 hypertension; #2 lipid disorders; and #3 diabetes mellitus. The highest diagnosed condition rate for hypertension was among Blacks or African-Americans (55.7%). The highest diagnosed condition rate for lipid disorders was among Whites (50.2%). There was relatively less variation in the diagnosed condition rate for diabetes mellitus, which was diagnosed in 22-28% of each group. Spine and joint disorders were an important cause of disability, as were refraction (vision) disorders and hearing problems. Post-traumatic stress disorder (PTSD) and depression were more commonly diagnosed among AI/ANs than White Veteran patients (with PTSD diagnosed in 20.7% of AI/ANs, 12.1% of the overall Veteran VHA user population, and 11.1% of Whites).

EXHIBIT 3-15

CONDITIONS DIAGNOSED IN ≥ 20% OF A RACIAL/ETHNIC GROUP

Count	AI/AN 30,893	Asian 45,956	Black 873,325	NH/OPI 35,303	Multi-race 34,116	Hispanic 303,287	Unknown 206,346	White 4,122,845	TOTAL 5,652,071
CONDITIONS	%	%	%	%	%	%	%	%	%
Hypertension	43.9	39.3	55.7	51.8	48.7	44.5	31.0	51.7	51.0
Lipid Disorders	39.7	37.4	39.3	48.5	44.0	43.7	31.1	50.2	47.3
Diabetes Mellitus	26.1	22.1	26.2	28.3	24.9	26.7		23.6	23.8
Refraction Disorders			19.9	20.4	20.9	21.2			
Dermatologic Disorders – Other					19.6				
Spine Disorders – Lumbosacral	20.7		21.6	21.0	22.3	22.2			
Hearing Problems								20.3	17.6
Joint Disorders - Lower Extremity	19.5		21.9		20.3				
Depression, Possible – Other	19.7				20.6				
Overweight / Obesity						19.8			
PTSD	20.7								

Key: Grayed out cells indicate conditions in which the diagnosed prevalence in a group is < 20% (rounded).

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Veteran VHA users had higher diagnosed rates of many conditions compared with the broader U.S. population, including rates for the top three diagnosed conditions – hypertension, lipid disorders, and diabetes mellitus. Potential explanations for this finding include higher underlying rates of these disorders, and higher diagnosis rates. The U.S. Department of Health and Human Services estimated that approximately 8% of U.S. adults have undiagnosed hypertension, 8% have undiagnosed hypercholesterolemia, 3% have undiagnosed diabetes, and 15% have one or more of the three conditions undiagnosed.[39] In NHANES 1999-2006 data, the proportion of U.S. adults who had undiagnosed hypertension, hypercholesterolemia, or diabetes was similar across racial/ethnic groups. Given the systematic preventive screening in place in VHA, these rates of undiagnosed conditions are not likely to be higher than U.S. population estimates. Thus, compared with the broader U.S. adult population, Veteran VHA users appear to have a higher underlying prevalence of these disorders.

HYPERTENSION. In the National Health and Nutrition Examination Survey, United States, 2007-2010, the age-adjusted prevalence of hypertension among adults aged ≥ 18 years (age adjusted to the 2000 U.S. standard population) was 29.6% overall.[40] By race/ethnicity, the age-adjusted prevalence of hypertension among U.S. adults was: 28.6% among non-Hispanic Whites; 41.3% among non-Hispanic Blacks; and 27.7% among Hispanics. Compared to the U.S. population, the diagnosed rate of hypertension is much higher among Veteran VHA users, though the Black-White difference in those rates is significantly attenuated. Among U.S. adults with hypertension, the rates of blood pressure control (defined as an average systolic blood pressure <140 mmHg and an average diastolic blood pressure <90 mmHg) in 2007-2010 was: 48.0% overall; 52.6% among non-Hispanic Whites; 42.5% among non-Hispanic Blacks; and 34.4% among Hispanics – indicating a racial/ethnic disparity in hypertension control. Prior VA data, limited to Black-White comparisons, found durable disparities in blood pressure control. Given the high rates of diagnosed hypertension, and the known racial and ethnic disparities in hypertension control in the U.S. population, current rates of hypertension control should be systematically assessed within VHA for all racial/ethnic groups.

LIPID DISORDERS. AI/ANs, Asians, and Blacks had lower diagnosed rates of lipid disorders compared with Whites. This is similar to the Black-White findings reported in NHANES, which reported overall lower levels of hypercholesterolemia among U.S. adults (26.0%), and higher rates in Whites (26.9%), compared with Blacks (21.5%) and Mexican-Americans (21.8%).[39]

DIABETES. In the United States, 11.3% of adults aged 20 years and older had diabetes in 2010.[41] Non-Hispanic Blacks had the highest prevalence at 12.6% compared with non-Hispanic Whites at 7.1%. Social determinants of health are associated with increased diabetes prevalence in general U.S. populations.[42] Future research should investigate the role of these factors in diagnosed diabetes rates among Veteran VHA users.

39 Fryar CD, Hirsch R, Eberhardt MS, Yoon SS, Wright JD. Hypertension, high serum total cholesterol, and diabetes: Racial and ethnic prevalence differences in U.S. adults, 1999-2006. NCHS Data Brief, no. 36. Hyattsville, MD. National Center for Health Statistics. 2010. Available at: stacks.cdc.gov/view/cdc/5726/cdc-5726_DS1.pdf.

40 CDC – Gillespie CD, Hurvitz KA. Prevalence of Hypertension and Controlled Hypertension – United States, 2007-2010. *Morbidity and Mortality Weekly Report (MMWR).* 2013;62(03):144-8.

41 US Department of Health and Human Services, Centers for Disease Control and Prevention. National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United States, 2011. 2011. Available at: http://www.cdc.gov/diabetes/pubs/factsheet11.htm. Accessed July 20, 2015.

42 Gaskin DJ, Thorpe RJ, McGinty EE, Bower K, Rohde C, Young JG, et al. Disparities in Diabetes: The Nexus of Race, Poverty, and Place. *Am J Public Health*. 2014;104:2147-55.

Continued from previous page

SPINE DISORDERS and JOINT DISORDERS. There are cultural variations in how musculoskeletal disorders are viewed, and there are racial/ethnic variations in their management.[43,44,45] VA research and interventions should continue to focus in this area so that variations in care for these disorders reflect Veterans' informed choices.

PTSD and DEPRESSION. AI/ANs were the racial/ethnic group with the highest diagnosed rates of PTSD, and among the highest diagnosed rates of depression. Of note, AI/ANs are also the group that has the greatest proportion residing in rural and highly rural settings. These rural settings may be further from VA mental health services, and may also have limited mental health service availability in the private sector. Prior research found that VHA-Indian Health Service (HIS) dual users were more likely to receive primary care from IHS and to receive diagnostic and behavioral healthcare from VHA.[46]

43 Ibrahim SA, Siminoff LA, Burant CJ, Kwoh CK. Variation in perceptions of treatment and self-care practices in elderly with osteoarthritis: a comparison between African American and white patients. *Arthritis Rheum*. 2001;45(4):340-5.

44 Kramer BJ, Harker JO, Wong AL. Arthritis beliefs and self-care in an urban American Indian population. *Arthritis Rheum.* 2002;47(6):588-94.

45 Ibrahim SA. Racial and ethnic disparities in hip and knee joint replacement: a review of research in the Veterans Affairs Healthcare System. *J Am Acad Orthop Surg*. 2007;15 Suppl 1:S87-94.

46 Kramer BJ, Wang M, Jouldjian S, Lee ML, Finke B, Saliba D. Veterans Health Administration and Indian Health Service: healthcare utilization by Indian Health Service enrollees. *Med Care.* 2009;47(6):670-6.

Overall Top 20 Diagnosed Conditions by Race/Ethnicity

The overall top 20 diagnosed conditions are listed in *Exhibit 3-16*. This listing includes the 11 conditions with diagnosed condition rates of at least 20% (rounded) in one or more racial/ethnic groups, plus an additional 9 conditions that were each diagnosed in 12% or more of Veteran patients overall. This exhibit lists the difference between each racial/ethnic minority group and Whites in the percent diagnosed for each condition (note that for each racial/ethnic group, the percent diagnosed is listed in).

A higher diagnosed condition rate for a racial/ethnic group is indicated by a percent > 0, whereas a lower diagnosed rate for a racial/ethnic group is indicated by a negative percent. Among the overall top 20 diagnosed conditions, the only condition in which the diagnosed rate in a racial/ethnic group exceeded that for Whites by a margin of 10% was PTSD (bolded and boxed in the exhibit), diagnosed in 20.7% AI/ANs and in 11.1% of Whites. For several conditions and racial/ethnic groups, the diagnosed condition rate was lower than that for Whites by a margin of 10% or more (these are negative numbers that are bolded and highlighted).

EXHIBIT 3-16

DIFFERENCE BETWEEN EACH RACIAL/ETHNIC GROUP AND WHITE VETERAN VHA PATIENTS IN PERCENT DIAGNOSED, FOR OVERALL TOP 20 DIAGNOSED CONDITIONS IN FY13

	AI/AN – White	Asian – White	Black – White	NH/OPI – White	Multi-race – White	Hispanic – White	Unknown – White
Condition	%	%	%	%	%	%	%
Hypertension	-7.8	**-12.4**	4.0	0.2	-3.0	-7.1	**-20.7**
Lipid Disorders	**-10.5**	**-12.8**	**-10.9**	-1.7	-6.2	-6.5	**-19.1**
Diabetes Mellitus	2.5	-1.5	2.6	4.7	1.3	3.1	**-11.1**
Refraction Disorders	-0.3	-0.1	1.3	1.8	2.3	2.6	-6.6
Dermatologic Disorders - Other	-2.7	-4.5	-1.7	-1.2	0.7	-2.4	-7.7
Esophageal Disorders	-3.1	-8.6	-3.9	-3.1	-1.5	-3.4	-7.9
Spine Disorders - Lumbosacral	4.0	1.8	4.9	4.4	5.7	5.5	-1.7
Hearing Problems	-3.9	-1.7	**-12.6**	-3.6	-6.0	-6.0	**-9.8**
Eye Disorders – Other	-0.8	-0.9	0.6	2.1	1.2	-0.1	-8.5
Cataract	-2.2	-4.9	-1.5	0.6	-0.5	-2.1	**-11.3**
Joint Disorders - Lower Extremity	4.6	-0.1	7.0	4.2	5.5	4.5	-0.6
Depression, Possible - Other	4.3	-3.2	3.1	1.8	5.2	3.9	-3.7
Coronary Artery Disease	-5.7	**-9.9**	**-9.9**	-3.8	-5.0	-8.4	**-13.9**
Overweight/Obesity	0.6	-5.8	2.6	1.6	2.5	5.0	-1.2
Joint Disorders - Unspecified or Multiple Joints	1.6	-2.6	2.4	1.3	2.0	-0.4	-4.3
Tobacco Use Disorder	2.7	-6.7	2.7	-0.9	2.9	-3.8	-2.0
Residual Codes	-0.2	-1.5	3.6	1.3	2.1	1.0	-5.3
Male Genital Disorders	-3.8	-5.3	-2.9	-2.1	-2.3	-2.0	-8.6
PTSD	**9.6**	1.3	3.9	6.6	6.9	6.4	-4.3
Endocrine, Metabolic and Nutritional Disorders – Other	-0.3	-3.5	-0.6	0.2	0.2	1.3	-4.0

Key: Bolded and boxed cells indicate conditions in which the diagnosed prevalence in a group exceeded that in Whites by 10% (rounded) or more; bolded cells (without boxes) indicate conditions in which the diagnosed prevalence in a group was 10% (rounded) or lower than that in Whites.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS The diagnosed condition rate for racial/ethnic minority populations is lower than that for White Veteran patients. These racial/ethnic differences are in contrast to diagnosed rates in the U.S. populations, and most likely relates to the racial/ethnic variations in demographic characteristics of Veteran patients, with racial/ethnic minorities being younger and having a higher proportion of women.

Section V: Conclusions

The Veteran VHA user population is increasingly racially/ethnically diverse, with at least 23.5% of FY13 Veteran users being a racial/ethnic minority group member. This chapter systematically examined demographic characteristics, types and amount of VA services used, and rates of diagnosed health conditions among Veteran VA users by race/ethnicity. Racial/ethnic minority groups, compared with White Veteran patients, have a greater representation of women, younger Veterans, and Veterans with service-connected disabilities. With the exception of AI/AN Veterans, who were the most likely to be rural dwelling, most racial/ethnic minority groups were less likely than Whites to dwell in rural areas. Despite their younger age, Black or African-American, Hispanic, and multi-race Veteran patients had similar or greater use of multiple types of VA services compared with White Veteran patients. NH/OPI and AI/AN Veteran patients, compared with White Veteran patients, had much greater use of fee services, and somewhat higher use of telephone and emergency department visits. Asian Veteran patients had lower use of several types of services compared with White Veterans. All racial/ethnic minority groups had greater use of mental health/substance use disorder services compared with Whites.

The top three diagnosed conditions across racial/ethnic groups – hypertension, lipid disorders, and diabetes mellitus – are each a major risk factor for coronary heart disease, which is the leading cause of mortality for both men and women. Severity of each condition and rates of guideline-adherent management of these conditions were not examined in the current report. VHA efforts should continue to focus on preventing, detecting, and controlling these disorders. Associated health outcomes should be examined by race/ethnicity. Most racial/ethnic minority groups, compared with White Veteran patients, had lower diagnosed condition rates. This is likely due to the younger age distribution of racial/ethnic minorities within VA, though under-diagnosis may be correlated with race/ethnicity.

The findings in this chapter advance our understanding of Veteran racial/ethnic health and healthcare disparities. The VHA Blueprint for Excellence describes actions needed to transform VHA care from being provider-centric to being Veteran-centric; these activities include anticipating and meeting the unique needs of enrolled Veterans, and delivering high quality, Veteran-centered care. For diverse populations, Veteran-centered care includes delivery of culturally-sensitive and gender-sensitive care in all of the settings that VA delivers care. To meet these challenges, VA should monitor and report out quality and patient experience data by race/ethnicity, including conducting assessments of fee services. The Office of Health Equity-Quality Enhancement Research Initiative (OHE-QUERI) Partnered Evaluation Center, funded in 2015, will continue to fill some of these information gaps by evaluating diagnosed conditions, VA performance, and mortality for vulnerable Veteran patient populations. To facilitate ongoing measurement of VA-delivered care, tools for measuring parameters of interest by race/ethnicity should be incorporated into the next generation of the VA electronic health record user interface. VA research should identify causes of racial/ethnic disparities in Veterans health and healthcare for groups and conditions that have not been examined, and as this evidence-base develops, interventions to reduce health and healthcare disparities should be implemented and evaluated.

Chapter 4

Health and Healthcare for Women Veterans in VHA

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Section I: Significance & Background[1]

Since the American Revolution, when Deborah Sampson disguised herself as a man and took up arms, women have served in every United States military conflict.[2] Their roles have been diverse: nurses, doctors, pilots, military police, logistics experts, and intelligence officers, among many others. Even before the ban on women in combat roles was lifted in January 2013, women found themselves in combat situations in the course of their usual work – such as driving supply convoys and in many other settings--sometimes sustaining grave injuries, other trauma, or death in service to their country.

However, the number of women serving in the military has historically been restricted. It was not until 1968 that Congress rescinded the 2% cap on women in military service. In the 1970s, participation of women in the military increased substantially and by the start of the Gulf War in 1991, almost 11% of the active military were women.[3] By 2013, of the 1.4 million active duty military personnel, over 200,000 were women (15%).[4]

Returning from military service, women have been receiving clinical care through the Veterans Health Administration (VHA) for decades. However, reports by the U.S. General Accounting Office in the 1980s and early 1990s called attention to fundamental gaps in VHA care available to women.[5, 6] In a system historically designed with the needs of men in mind, basic gender-specific services and an environment of care sensitive to women's privacy needs were too often deficient. These reports, combined with Congressional testimony about highly publicized military sexual trauma events that disproportionately affected women,[7] led to legislation[8] in 1992 to establish VHA sexual trauma treatment benefits and demonstration Women Veteran Comprehensive Health Centers distributed around the country.

Since that time, with leadership from the national Women's Health Services (WHS) policy office in VA Central Office[9] and support from leaders in multiple local, regional and national offices, VHA has taken proactive steps to enhance the quality of care women Veterans receive. At every VHA facility, there is now a full-time Women Veterans Program Manager who advocates for the healthcare needs of women and who reports to top facility leadership. In late 2008, WHS launched a five-year plan to fundamentally redesign VHA's women's healthcare delivery system, with comprehensive primary care as a cornerstone of the new policy.[10] By FY2012, in addition to a full-time Women Veterans Program Manager, every healthcare system in the country had at least one Designated Women's Health Primary Care Provider; nearly two-thirds of women Veteran primary care patients saw a Designated Women's Health Primary Care Provider at least once in FY2012.[11] Efforts to enhance these

1 This chapter updates and builds upon information for FY09-FY12 previously included in a series of Sourcebooks developed by the Women's Health Evaluation Initiative (WHEI) for Women's Health Services in VA Central Office, replicating text where key background or implications still apply. See: Frayne SM, Phibbs CS, Saechao F, Maisel NC, Friedman SA, Finlay A, Berg E, Balasubramanian V, Dally SK, Ananth L, Romodan Y, Lee J, Iqbal S, Hayes PM, Zephyrin L, Whitehead A, Torgal A, Katon JG, Haskell S. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 3. Sociodemographics, Utilization, Costs of Care, and Health Profile. Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. February 2014. Available at: http://www.womenshealth.va.gov/WOMENSHEALTH/docs/Sourcebook_Vol_3_FINAL.pdf

2 Murdoch, M, et al. "Women and War. What Physicians Should Know." *J Gen Intern Med.*2006; 21(s3): S5-S10.

3 Murdoch 2006, ibid

4 U.S. Department of Defense. (2013). *2013 Demographics Report: Profile of the Military Community.* Washington D.C. Available at: http://download.militaryonesource.mil/12038/MOS/Reports/2013-Demographics-Report.pdf.

5 U.S. General Accounting Office (1982). Actions Needed to Insure that Female Veterans have Equal Access to VA Benefits (GAO/HRD-82).

6 U.S. General Accounting Office (1992). "VA healthcare for women. Despite progress, improvements needed. Actions needed to insure that female Veterans have equal access to VA benefits. GAO/HRD-982-2398." 2012.

7 Office of the Inspector General, Department of Defense. Report of Investigation: Tailhook 91 – Part 2., Events of the 35th Annual Tailhook Symposium. http://www.dtic.mil/dtic/tr/fulltext/u2/a269008.pdf

8 Public Law 102-585, Veterans Healthcare Act of 1992. http://www.gpo.gov/fdsys/pkg/STATUTE-106/pdf/STATUTE-106-Pg4943.pdf

9 http://www.womenshealth.va.gov/WOMENSHEALTH/index.asp

10 Veterans Health Administration (2010). Healthcare Services for Women Veterans (VHA Handbook 1330.01). Washington, DC, US Department of Veterans Affairs.

11 Maisel, NC, et al. "Readying the workforce: evaluation of VHA's comprehensive women's health primary care provider initiative." *Med Care.* 2015;53(4 Suppl 1): S39-46.

providers' proficiency in women's health include a national Women's Health Miniresidency program, with over 2,200 providers trained to date; meanwhile, VHA's Women's Health Fellowship programs build the next generation of VHA women's health providers. A communications plan with the tagline, "You Served, You Deserve the Best Care Anywhere," targets culture change across all VHA care providers. A range of other initiatives have targeted diverse aspects of care, including care coordination, reproductive health, mental health, and emergency services for women. WHS also partners with VHA's Office of Research & Development around research designed to build the evidence base informing women's healthcare.[12, 13, 14, 15, 16] Despite these numerous advances, gaps in gender awareness have been noted among some VHA staff[17] and unmet needs or attrition[18, 19] have been documented among some of the women Veterans VHA serves, making continued attention to potential gender disparities critical.

As a step toward understanding potential gender disparities in VHA, this chapter uses findings from fiscal year (FY) 2013 national VHA databases to describe gender differences in sociodemographic characteristics, utilization of care, and rates of medical conditions. Note that the gender differences presented in this report are not adjusted for age or other characteristics; therefore, it is not possible to determine whether differences between women and men are driven by gender, age, or other factors. However, the information in this chapter lays the foundation for future work examining measures of quality of care.

12 Yano, EM and Frayne, SM. "Health and healthcare of women Veterans and women in the military: research informing evidence-based practice and policy." *Wom Health Issues.* 2011;21(4 Suppl): S64-66.

13 Yano, EM, et al. "Using research to transform care for women Veterans: advancing the research agenda and enhancing research-clinical partnerships." *Wom Health Issues.* 2011;21(4 Suppl): S73-83.

14 Frayne, S, et al. "The VA women's health practice-based research network: amplifying women Veterans' voices in VA research." *J Gen Intern Med.* 2013;28(2): 504-509.

15 Yano EM, Frayne S, Hamilton AB, Washington DL, Bastian L, Mattocks K. spotlight on women's health: using research to accelerate implementation of comprehensive women's healthcare in VHA: VA HSR&D women's health CREATE, VA HSR&D cyber seminar, January 27, 2014. Also see: http://www.hsrd.research.va.gov/centers/create/womens_health.cfm

16 http://www.queri.research.va.gov/programs/womens_health.cfm

17 Vogt, DS, et al. "Gender awareness among Veterans administration health-care workers: existing strengths and areas for improvement." *Women and Health.* 2001;34(4): 65-83.

18 Washington, DL, et al. "Access to care for women Veterans: delayed healthcare and unmet need." *J Gen Intern Med.* 2011;26(Suppl 2): 655-661.

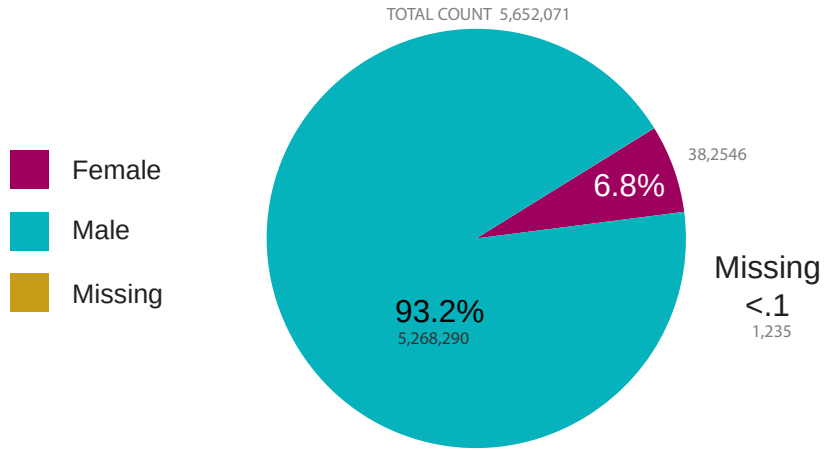
19 Hamilton AB, Frayne SM, Cordasco KM, Washington DL. Factors related to attrition from VA healthcare use: findings from the National Survey of Women Veterans. *J Gen Intern Med*. 2013;Jul;28 Suppl 2:S510-6.

Distribution of Veteran VHA Patients by Gender

Among the 2 million[20] women Veterans in the United States as of 2013, *Exhibit 4-1* shows that 382,546 women Veterans used VHA services in FY13. While this number has more than doubled since the turn of the millennium (159,630 women used VHA in FY2000[21]), women continued to be an extreme numeric minority in VHA, representing nearly 7% of VHA patients in FY13.

EXHIBIT 4-1

DISTRIBUTION OF GENDER AMONG VETERAN VHA PATIENTS, FY13



Note: The VHA databases available in FY13 did not include fields to distinguish between transgender and cisgender Veterans.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Since continued growth in the women Veteran population is expected, VHA must continue to strategically plan for capacity and services to meet the healthcare needs of women Veterans and to provide equitable, high quality care for women Veterans at all sites of care.

20 Department of Veteran Affairs, Office of the Actuary, Veteran Population Projection Model (VetPop) 2014.

21 Frayne, S. M., et al. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 1. Sociodemographic characteristics and utilization of VHA care. Women's health evaluation initiative, women Veterans strategic healthcare group, Veterans Health Administration, Department of Veterans Affairs, Washington DC. December 2010. Available at: http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2455

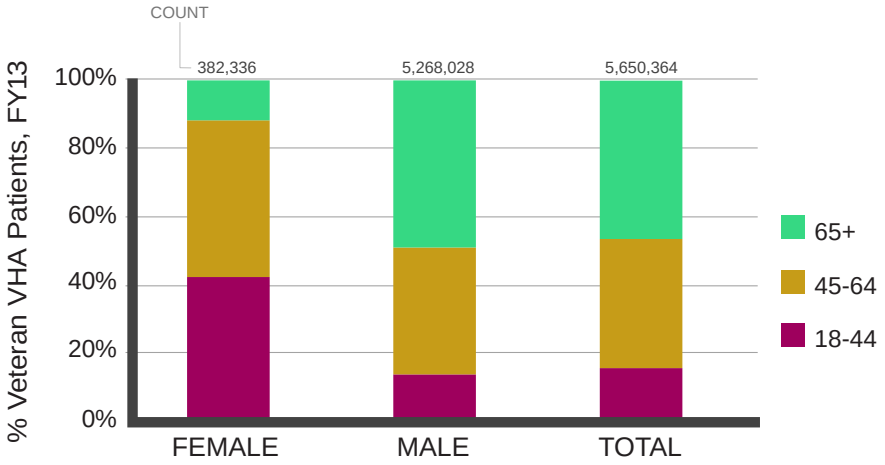
Section II: Sociodemographics

Age by Gender

Exhibit 4-2 indicates that, among Veteran VHA patients, the population of women was substantially younger than the population of men. In FY13, 42% of women vs 14% of men were less than 45 years old, and 88% vs 51% were less than 65 years old. The largest group of women were 45-64 years old, followed closely by those 18-44 years old. While only 12% of women were age 65+, nearly half of men were in this older age category. Overall, the average age of women Veteran VHA patients was 48 years and the average age of men Veteran VHA patients was 63 years.

EXHIBIT 4-2

PERCENT DISTRIBUTION OF AGE BY GENDER AMONG VETERAN VHA PATIENTS, FY13



Note: The VHA databases available in FY13 did not include fields to distinguish between transgender and cisgender Veterans.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Age distribution differs markedly by gender, with far more women than men in VHA falling in the less than 45 year old age category (42% vs. 14%). Women's diverse age distribution poses healthcare considerations for VHA.

With so many women in the youngest age group, VHA's ongoing efforts to ensure that providers have knowledge and skills relevant to the needs of young women, including reproductive healthcare, are critical.[22] For some VHA clinicians who have been caring for Veterans for a couple of decades, this may require a shift in perspective, from a focus on a largely male World War II era patient population that dominated their early clinical careers, to a current patient population far more enriched with women, many of whom are young, and who may have served in very different military conflicts in Iraq and Afghanistan. VHA's Women's Health Miniresidency explicitly addresses reproductive health and post-deployment issues.

The largest group of women Veteran VHA patients (46%) is 45-64 years old, likely representing the Vietnam and Gulf War 1 military cohorts. As this large wave of women enters menopause and approaches older age, a range of chronic diseases are likely to become more prevalent. VHA strategic planning efforts need to look ahead to this cohort's anticipated future more intensive healthcare demands as they age, including requirements for geriatrics and extended care services.

The current cohort of women age 65+, while small (12%), is likely to have healthcare needs distinct from those of men. More research is necessary to understand how gender influences decisions about whether to leave VHA upon becoming eligible for Medicare services, whether gender differences are observed in coordination of care for Veterans who are dual users of VHA and Medicare, and how roles as caregivers for other family members affect aging women and men differently.

22 Zephyrin LC, Katon J, Hoggatt KJ, Balasubramanian V, Saechao F, Frayne SM, Mattocks KM, Feibus K, Galvan IV, Hickman R, Hayes PM, Haskell SG, Yano EM. State of reproductive health in women Veterans – VA reproductive health diagnoses and organization of care. Women's health services, Veterans Health Administration, Department of Veterans Affairs, February 2014.

Race/Ethnicity by Gender

Among Veteran VHA patients in FY13, substantially more women than men belonged to a racial/ethnic minority group, (37% vs. 22%). Since Veterans from a racial/ethnic minority group tend to be younger, this likely reflects, in part, the younger average age of women in VHA.

Among women, 27% identified as Black/African American, 6% Hispanic, 1% American Indian/Alaska Native, 1% Asian, and 1% Native Hawaiian/Other Pacific Islander. A larger proportion of women than men were Black/African American (27% vs. 15%); smaller magnitude gender differences (but in the same direction) were seen for other racial/ethnic minority groups. The largest group of both women and men Veteran patients in FY13 was white (56% and 74%, respectively). For 7% of women and 3% of men, race/ethnicity information was not available in VHA data *(Exhibit 4-3)*.

EXHIBIT 4-3

PERCENT DISTRIBUTION OF RACE/ETHNICITY BY GENDER AMONG VETERAN VHA PATIENTS, FY13

Count	Female 382,546	Male 5,268,290	Total 5,650,836
Race/Ethnicity	%	%	%
American Indian/Alaska Native	0.8	0.5	0.6
Asian	1.1	0.8	0.8
Black/African American	27.1	14.6	15.5
Native Hawaiian/Other Pacific Islander	0.8	0.6	0.6
Multi-race	1.0	0.6	0.6
Hispanic	6.2	5.3	5.4
Unknown	6.6	3.4	3.6
White	56.4	74.2	73.0

Missing = 1,235

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Women in VHA are a gender minority, and a substantial number are also members of a racial/ethnic minority group giving them a dual minority status. As part of efforts to prevent disparities, VHA care that is not only gender sensitive[23, 24] but also culturally sensitive is important, to meet the needs of diverse subgroups of women.

23 Vogt DS, Stone ER, Salgado DM, et al. Gender awareness among Veterans Administration health-care workers: existing strengths and areas for improvement. *Women Health. 2001;34(4):65-83*.

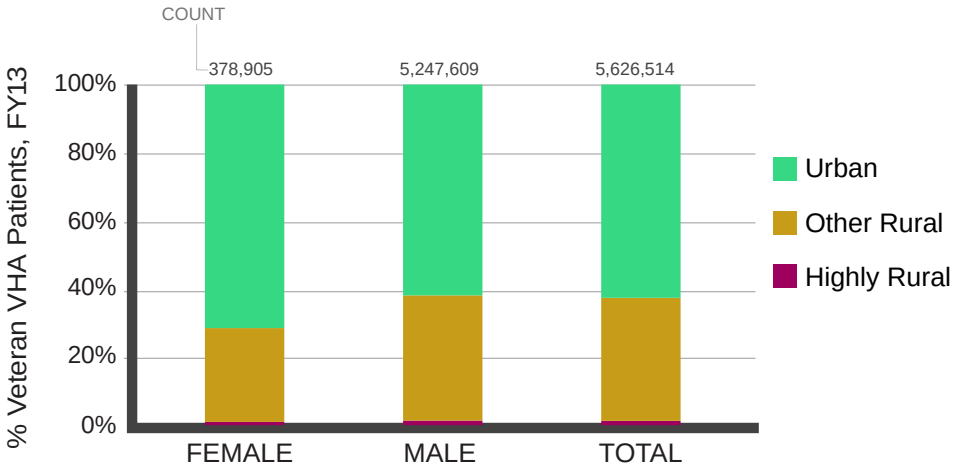
24 Vogt DS, Barry AA, King LA. Toward gender-aware healthcare: evaluation of an intervention to enhance care for female patients in the VA setting. *J Health Psychol. Jul 2008;13(5):624-638*.

Rural/Urban Status by Gender

Exhibit 4-4 compares the proportion of women and men Veteran VHA patients by their urban/rural status. In FY13, a higher proportion of women than men Veterans resided in urban areas (71% vs 62%); conversely, a lower proportion of women than men resided in highly rural or other rural areas (29% vs 38%).

EXHIBIT 4-4

PERCENT DISTRIBUTION OF RURAL/URBAN STATUS BY GENDER AMONG VETERAN VHA PATIENTS, FY13



Note: The VHA databases available in FY13 did not include fields to distinguish between transgender and cisgender Veterans.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS While a lower proportion of women than men live in rural areas, living in a remote area could have unique ramifications for the substantial group of women (more than one in four) who do. The challenge this poses for VHA is to ensure that women in the farthest reaches of the United States can equitably access high quality, gender-specific primary care and specialty care services. Innovations like telemedicine and outreach programs may help to meet this challenge.

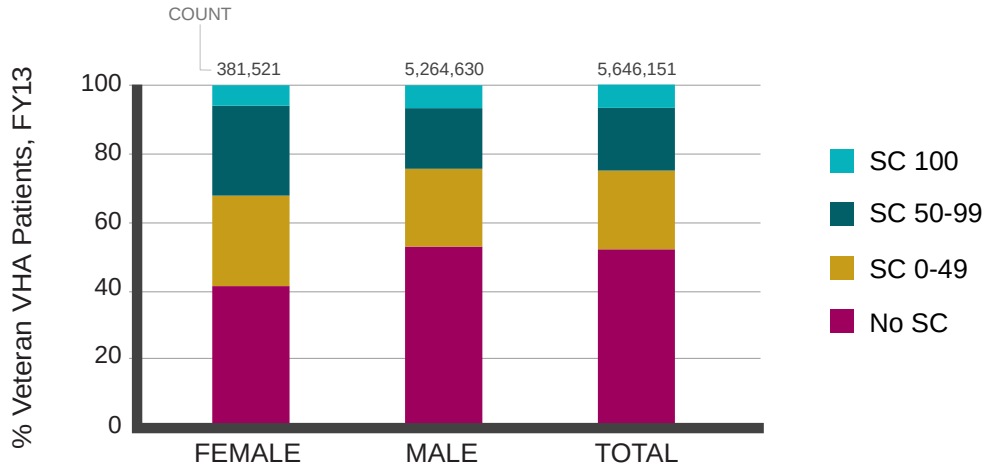
Service-Connected Disability Rating Status by Gender

A higher proportion of women Veteran patients than men had a service-connected (SC) disability rating: 59% of women vs 48% of men had any SC disability rating *(Exhibit 4-5)*. This could imply either that a higher proportion of women than men are applying for and being granted an SC disability rating, or that among Veterans who have an SC disability rating, women are more likely than men to be using VHA services.

Furthermore, a higher proportion of women than men (33% vs 25%) had an SC disability rating of 50 percent or higher.

EXHIBIT 4-5

PERCENT DISTRIBUTION OF SERVICE-CONNECTED DISABILITY RATING STATUS BY GENDER AMONG VETERAN VHA PATIENTS, FY13



Notes: SC disability rating indicates an injury or illness deemed to have been incurred or aggravated while serving in the armed forces. Disability is rated for severity from 0 to 100 percent; "0 percent" refers to a patient who does have SC disability status, but whose severity rating is 0 (zero) percent; this is distinct from a patient who has no SC disability status.

A service-connected (SC) disability rating can result from a variety of exposures including, but not limited to, combat; causes of SC disability are not included in this report. Proportion of Veterans with a SC disability rating refer to VHA patients, and not to all Veterans nationally.

Missing = 5,920

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS The typical profile of a Veteran VHA patient with a disability related to military service should no longer exclusively call to mind a man injured in combat. There are many women with illness or injury sustained while serving their country who must be included in the profile; indeed, more women than men Veteran patients carry a service-connected disability rating. More information is needed regarding the types of conditions for which women receive service-connected disability status, so that VHA can be sure its services are optimally aligned with their needs.

Section III: Utilization

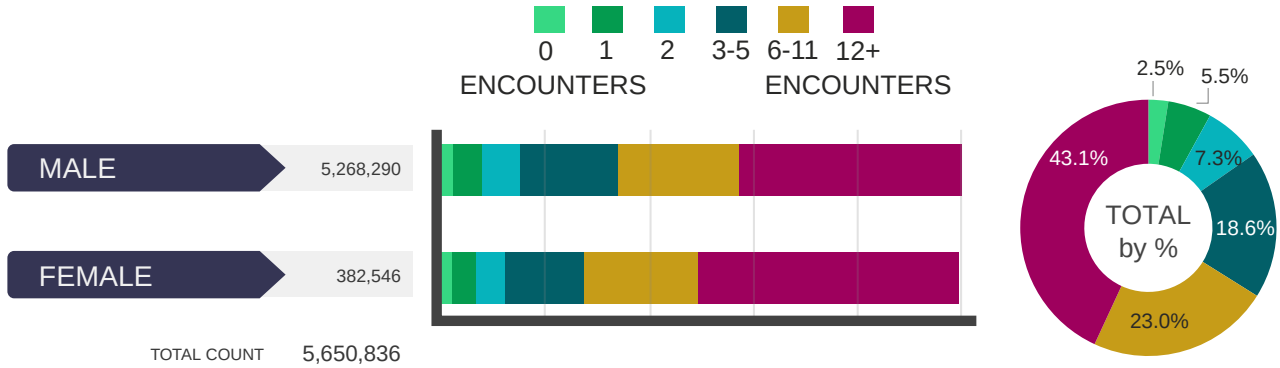
This section examines gender differences in women's use of any VHA outpatient care, specific types of VHA outpatient care (primary care, mental healthcare, emergency department care, telephone care), and care that VHA outsources (though the Non-VA [Fee] Medical Care system). Note that because some women and men Veteran VHA patients use healthcare services outside of VHA (e.g., reimbursed through Medicare, Medicaid, private insurance, etc.), the utilization presented in this report may underestimate the total amount of care Veterans receive from all of the healthcare sources they use, combined. Furthermore, when interpreting gender differences in utilization it is important to recognize that these analyses present raw comparisons of proportions, without comment on the statistical significance of those differences, and without adjustment for patient characteristics such as number of medical conditions, which can influence conclusions regarding between-group differences in use of VHA services.

VHA Outpatient Encounters by Gender

In FY13, nearly all women and men VHA patients had at least one VHA outpatient encounter (98% vs 97%) *(Exhibit 4-6)*. However, a higher proportion of women than men (72% vs 66%) had at least six outpatient encounters in FY13.

EXHIBIT 4-6

PERCENT DISTRIBUTION OF VHA OUTPATIENT ENCOUNTERS BY GENDER AMONG VETERAN VHA PATIENTS, FY13



Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

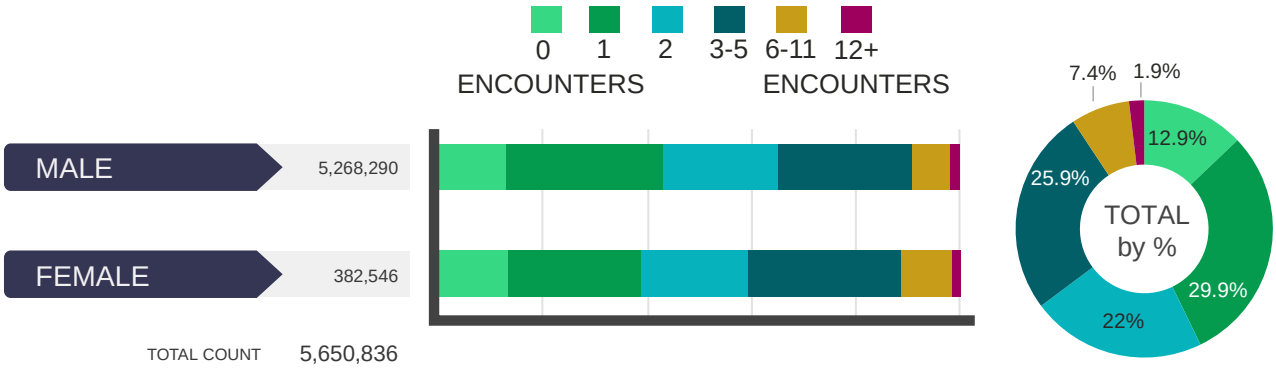
Source: VHA National Health Equity Report 2016

Primary Care Encounters by Gender

Most women and men Veteran VHA patients (87% of both groups) had at least one primary care encounter in FY13 *(Exhibit 4-7)*. However, a slightly higher proportion of women than men had over three primary care visits (41% vs 35%), and 6+ primary care visits (11% vs 9%). Note that these data do not distinguish between whether women received primary care in a general medical clinic or in a women's clinic setting.

EXHIBIT 4-7

PERCENT DISTRIBUTION OF PRIMARY CARE ENCOUNTERS BY GENDER AMONG VETERAN VHA PATIENTS, FY13



Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS VHA policy stresses the importance of connecting all patients with a primary care provider.[25] The finding that nearly 90% of women and men are receiving primary care services suggests success of this policy's implementation, although further investigation of the small group not receiving primary care is warranted, to determine whether any of them have unmet healthcare needs.

Women are disproportionately represented among heavy users of primary care (six or more visits in one year) despite the fact that they have a younger average age than men. This finding supports VHA policy requiring downward panel size adjustments for primary care providers who see women patients.[26] Although women use primary care services more heavily than do men, this does not prove that women are receiving sufficient care to meet their needs – that issue will require further study. This is especially important in light of women's heavy burden of illness,[27, 28, 29] the fact that higher rates of mental health issues add complexity to the care of substantial numbers of women,[30] and the fact that women have gender-specific preventive healthcare requirements (such as cervical cancer screening) that add time to visits.

These data do not elucidate the nature of the primary care that women and men receive in VHA. For example, some women receive primary care in separate women's clinics, but these separate clinics are not available at every VHA point of care[31]. Similarly, while VHA policy mandates availability of Designated Women's Health Primary Care Providers who are trained and proficient in women's healthcare,[32] only 63% of women Veteran primary care patients saw one of these providers at least once in FY12.[33] Ongoing workforce development efforts, including clinician training via VHA's women's health mini-residency program, are expected to continue to enhance women's access to providers with specialized women's health knowledge. Meanwhile, evaluation of innovations designed to tailor VHA's Patient Aligned Care Teams (PACT) to the needs of women are in process.[34] Finally, it is important to note that these data do not reflect other care that Veterans may receive in the community, e.g., through Medicare, Medicaid, private insurance, or self-pay.

25 Veterans Health Administration (2014). Patient Aligned Care Team (PACT) Handbook. PATIENT ALIGNED CARE TEAM (PACT) HANDBOOK (VHA Handbook 1101.10). Washington, DC, US Department of Veterans Affairs. Available at: http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2977

26 Veterans Health Administration (2010). Healthcare Services for Women Veterans (VHA Handbook 1330.01). Washington, DC, US Department of Veterans Affairs.

27 Frayne S, Chiu V, Iqbal S, et al. Medical Care Needs of Returning Veterans with PTSD: Their Other Burden. *J Gen Intern Med.* 2011;26(1):33-39.

28 Cohen BE, Maguen S, Bertenthal D, Shi Y, Jacoby V, Seal KH. Reproductive and other health outcomes in Iraq and Afghanistan Women Veterans using VA healthcare: Association with Mental Health Diagnoses. *Wom Health Issues.* 2012;22(5):e461-471.

29 Frayne SM, Parker VA, Christiansen CL, et al. Health Status Among 28,000 Women Veterans. The VA women's health program evaluation project. *J Gen Intern Med.* 2006;21(s3):S40-S46

30 Frayne SM, Yu W, Yano EM, et al. Gender and use of care: planning for tomorrow's Veterans Health Administration. *J Womens Health (Larchmt).* 2007;16(8):1188-1199.

31 Bean-Mayberry BA, Yano EM, Caffrey CD, Altman L, Washington DL. Organizational characteristics associated with the availability of women's health clinics for primary care in the Veterans Health Administration. *Mil Med.* 2007;172(8):824-828.

32 Veterans Health Administration (2010). Healthcare Services for Women Veterans (VHA Handbook 1330.01). Washington, DC, US Department of Veterans Affairs.

33 Maisel NC, Haskell S, Hayes PM, Balasubramanian V, Torgal A, Ananth L, Saechao F, Iqbal S, Phibbs CS, Frayne SM. Readying the workforce: evaluation of VHA's comprehensive women's health primary care provider initiative. *Med Care.* 2015;53(4 Suppl 1):S39-S46.

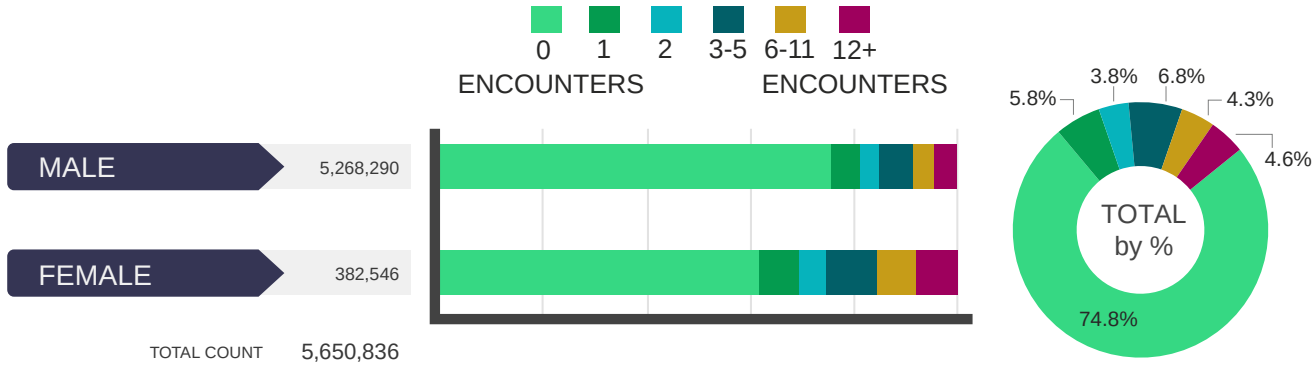
34 Yano EM, Haskell S, Hayes P. Delivery of Gender-Sensitive Comprehensive primary care to women Veterans: implications for VA's patient aligned care teams. *J Gen Intern Med.* 2014;29(Suppl2):S703-7.

Mental Health/Substance Use Disorder (SUD) Encounters by Gender

Among Veteran VHA patients, a higher proportion of women than men used any mental health/SUD services in FY13 (38% vs 24%) *(Exhibit 4-8)*. Women also used mental health services more heavily than did men: 15% vs 8% had six or more visits in FY13.

EXHIBIT 4-8

PERCENT DISTRIBUTION OF MENTAL HEALTH/SUBSTANCE USE DISORDER ENCOUNTERS BY GENDER AMONG VETERAN VHA PATIENTS, FY13



Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Availability of mental health/SUD services is clearly salient to a large number of women Veteran VHA patients: 38% of women (vs 24% of men) used such services in a one-year period (FY13). While VHA is a recognized leader in mental health/SUD care – particularly for conditions related to military service[35] – mental health workforce capacity projections will need to account for the rapidly expanding population of women Veterans with their more intensive mental health utilization patterns. Furthermore, given that the causes of mental health issues differ by gender (for example, rates of military sexual trauma and its sequelae are far more common in women than in men[36]), and given that healthcare preferences may differ by gender,[37] further inquiry is warranted regarding any additional adaptations to VHA mental health/SUD delivery systems that would better meet women's treatment needs.

35 Friedman MJ, Schnurr PP, McDonagh-Coyle A. Post-traumatic stress disorder in the military Veteran. *Psychiatr Clin North Am.* 1994;17(2):265-277.

36 Kimerling R, Street AE, Pavao J, et al. Military-related sexual trauma among Veterans Health Administration patients returning from Afghanistan and Iraq. *Am J Public Health.* 2010 Aug;100(8):1409-12.

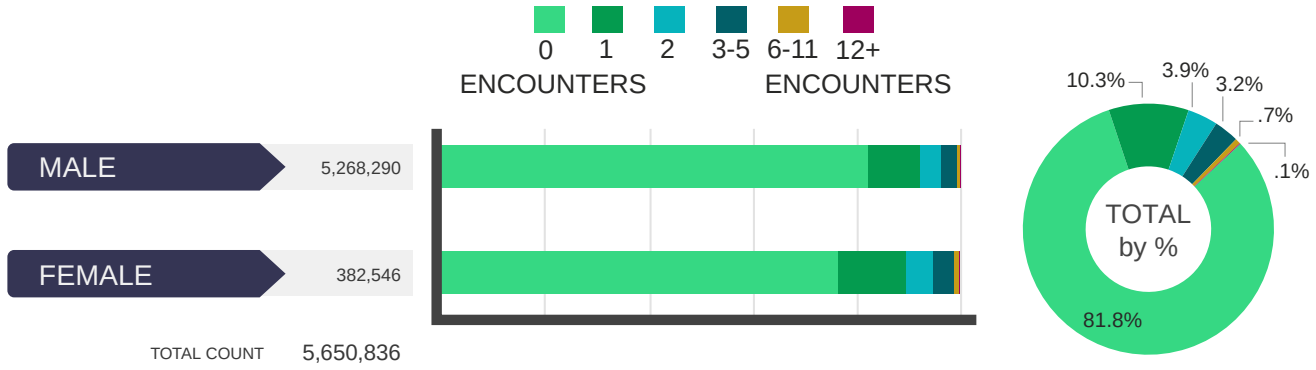
37 Kimerling R, Bastian LA, Bean-Mayberry BA, et al. Patient-centered mental healthcare for female Veterans. Psychiatr Serv. 2015;66(2):155-162.

Emergency Department Encounters by Gender

Among Veteran VHA patients, 24% of women and 18% of men had at least one emergency department visit in FY13 *(Exhibit 4-9)*. A similar proportion of women and men (10% vs 8%) had at least two emergency department visits during the year.

EXHIBIT 4-9

PERCENT DISTRIBUTION OF EMERGENCY DEPARTMENT ENCOUNTERS BY GENDER AMONG VETERAN VHA PATIENTS, FY13



Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Women appear to be relying on emergency department services more than men (24% vs 18% visited the emergency department), despite men's older age and higher rates of hospitalization.[38, 39] This is surprising given the high rates of primary care use among women. Further study is needed to ascertain whether this reflects missed opportunities for preventive care or disease management,[40] barriers to timely access to primary care services for women, shortfalls in coordination across systems of care, differences in mix of medical and mental health needs for emergency department care, or greater disease severity. Ensuring that gender-specific services are available for women in emergency departments VHA-wide is also key.[41]

38 Frayne SM, Phibbs CS, Friedman SA, et al. *Sourcebook: Women Veterans in the Veterans Health Administration. Volume 1. Sociodemographic Characteristics and Use of VHA Care*. Washington, DC: Women's Health Evaluation Initiative, Women Veterans Health Strategic Healthcare Group, Veterans Health Administration, Department of Veterans Affairs; 2010. Available at: http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2455

39 Frayne, SM, et al. "Gender and use of care: planning for tomorrow's Veterans Health Administration." *J Womens Health (Larchmt)* 207;16(8): 1188-1199.

40 Oster, A and Bindman, AB."Emergency department visits for ambulatory care sensitive conditions: insights into preventable hospitalizations." *Med Care* 2003;41(2): 198-207.

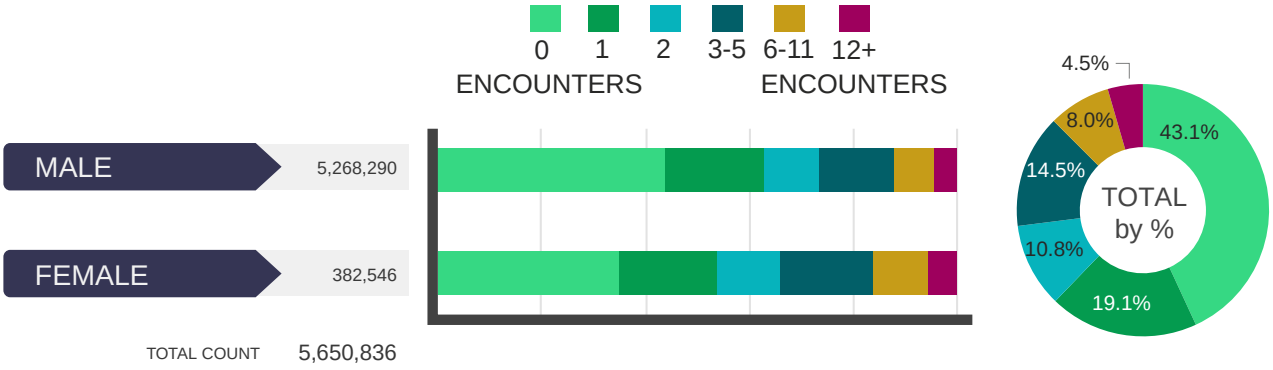
41 Cordasco, KM, et al. "An Inventory of VHA emergency departments' resources and processes for caring for women." *J Gen Intern Med*. 2013;28 Suppl 2: 583-590.

Telephone Encounters by Gender

Overall, 65% of women Veteran patients and 56% of men had at least one telephone visit during FY13 *(Exhibit 4-10)*. A substantial minority of women (16%) and men (12%) had a least six telephone encounters during the year.

EXHIBIT 4-10

PERCENT DISTRIBUTION OF TELEPHONE ENCOUNTERS BY GENDER AMONG VETERAN VHA PATIENTS, FY13



Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

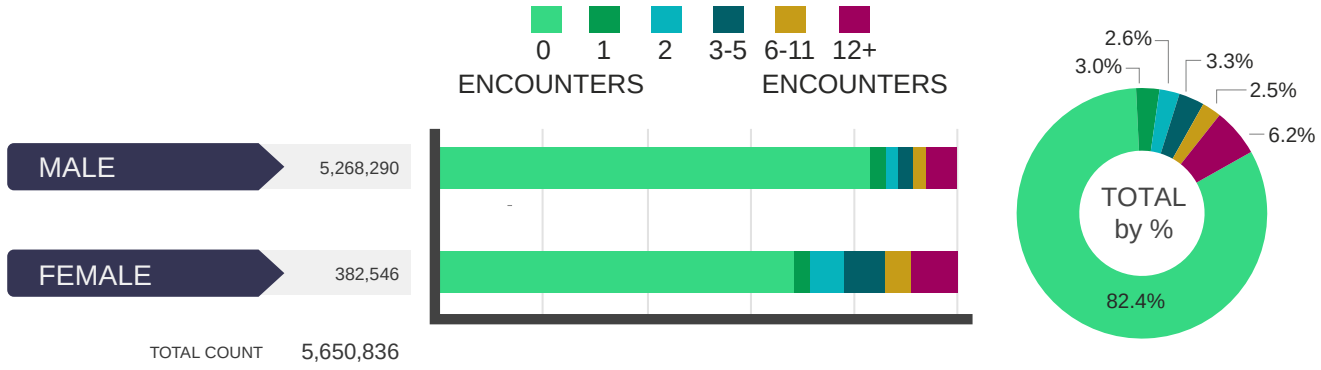
IMPLICATIONS Women appear to contact their care teams by telephone at somewhat higher rates than do men. This reinforces the importance of ensuring sufficient capacity of providers with time carved out to respond to telephone queries, especially in clinics with large numbers of women patients.

Fee Outpatient Services[42] by Gender

Among Veteran VHA patients, far more women than men (31% vs 17%) used Non-VA (Fee) Medical Care services in FY13 *(Exhibit 4-11)*. Women also used these services more heavily than did men: 22% of women vs 11% of men received 3 or more services through the Non-VA (Fee) Medical Care system in FY13.

EXHIBIT 4-11

PERCENT DISTRIBUTION OF FEE OUTPATIENT SERVICES BY GENDER AMONG VETERAN VHA PATIENTS, FY13



Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).
Source: VHA National Health Equity Report 2016

The specific types of care women receive through the Non-VA (Fee) Medical Care system have been examined elsewhere.[43] In particular, receipt of mammography care off-site does not account for all of the gender difference.[44]

42 Non-VA (Fee) Medical Care Outpatient Services estimate the total number of unique outpatient services that patients received through the Non-VA (Fee) Medical Care system in FY13. A "service" is based upon CPT procedure codes in the Non-VA (Fee) Medical Care files, e.g., a clinic visit, a lab test, a radiology study, a surgical procedure, a medication, or a supply. If a patient received multiple services on a single day, each service is counted separately. Non-VA (Fee) Medical Care "services" represent a different unit of care than "encounters:" each VHA encounter encompasses an entire clinical visit, which may include more than one service. Also note that fee care is organized by the fiscal year in which payment was made, rather than the year in which care was delivered.

43 Frayne SM, Phibbs CS, Friedman SA, Saechao F, Berg E, Balasubramanian V, Bi X, Iqbal S, Mattocks K, Haskell S, Zephyrin L, Torgal A, Whitehead A, Hayes PM. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 2. Sociodemographics and Use of VHA and Non-VA Care (Fee). Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. October 2012. Available at: http://www.womenshealth.va.gov/WOMENSHEALTH/docs/SourcebookVol2_508c_FINAL.pdf

44 Frayne SM, Phibbs CS, Saechao F, Maisel NC, Friedman SA, Finlay A, Berg E, Balasubramanian V, Dally SK, Ananth L, Romodan Y, Lee J, Iqbal S, Hayes PM, Zephyrin L, Whitehead A, Torgal A, Katon JG, Haskell S. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 3. Sociodemographics, Utilization, Costs of Care, and Health Profile. Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. February 2014. Available at: http://www.womenshealth.va.gov/WOMENSHEALTH/docs/Sourcebook_Vol_3_FINAL.pdf

IMPLICATIONS Far more women Veterans than men Veterans in VHA receive at least part of their care through the Non-VA (Fee) Medical Care system (31% vs 17%). With nearly one in three women Veterans in VHA using services through Non-VA (Fee) Medical Care, attention to measurement of the quality of this outsourced care and effective cross-system coordination of care are issues particularly salient to women. Further work is needed to understand whether women's greater use of Non-VA (Fee) Medical Care services reflects gender-specific care (e.g., maternity care services,[45] specialty gynecology services, or mammography) or gender-neutral services (e.g., dialysis or physical therapy). With passage of the Veterans Access, Choice, and Accountability Act in 2014,[46] it will be critical to examine whether practical aspects of implementation of this new benefit affect women and men differentially.

45 Mattocks KM, Frayne S, Phibbs CS, et al. Five-year trends in women Veterans' use of VA maternity benefits, 2008-2012. Wom Health Issues. 2014;24(1):e37-42.

46 H.R.3230 - Veterans Access, Choice, and Accountability Act of 2014. https://www.congress.gov/bill/113th-congress/house-bill/3230

Section IV: Conditions

Condition Categories by Gender

Exhibit 4-12 presents the 17 major domains of diagnosed medical conditions (diseases or symptoms), organized primarily by organ system; the top five domains for women and the top five domains for men are shown in bold face print.

Among women, the top five domains, in rank order, were:

#1 Musculoskeletal (57% of women),

#2 Endocrine/Metabolic/Nutritional (51%),

#3 Mental Health/SUD (46%),

#4 Cardiovascular (37%) and

#5 Sense Organ (32%).

Among men, the top five domains were similar except that Mental Health/SUD did not appear in the top five, and Gastrointestinal conditions did; specifically, the top five conditions were:

#1 Endocrine/Metabolic/Nutritional (65% of men),

#2 Cardiovascular (62%),

#3 Musculoskeletal (49%),

#4 Sense Organ (43%) and

#5 Gastrointestinal (35%).

Without adjusting for the fact that women Veterans in VHA are on average younger than men, domains for which the raw rate in women was at least five percentage points *higher* in women included (difference = Δ): Mental Health/SUD (46% vs 32%, Δ = +14%), Musculoskeletal (57% vs 49%, Δ = +8%), Infectious Disease (28% vs 21%, Δ = +7%), Reproductive Health (31% vs 24%, Δ = +7%), Breast (7% vs 0%, Δ = +6%), and Neurologic (30% vs 24%, Δ = +6%). Domains for which the rate in women was at least five percentage points lower in women than in men included: Cardiovascular (37% vs 62%, Δ = -25%), Endocrine/Metabolic/Nutritional (51% vs 65%, Δ = -14%), Sense Organ (32% vs 43%, Δ = -11%), and Cancer (5% vs 11%, Δ = -6%).

EXHIBIT 4-12

PERCENT DISTRIBUTION DOMAIN OF DIAGNOSED CONDITIONS BY GENDER AMONG VETERAN VHA PATIENTS, FY13*

	Female	Male	Total	
Count	382,546	5,268,290	5,650,836	Δ
CONDITION	%	%	%	%
Infectious Disease	28.0	20.8	21.3	+7%
Endocrine/Metabolic/Nutritional	**51.0**	**64.5**	63.6	-14%
Cardiovascular	**37.2**	**62.3**	60.6	-25%
Respiratory	31.7	27.1	27.4	
Gastrointestinal	31.0	**35.0**	34.7	
Urinary	14.7	16.5	16.4	
Reproductive Health	31.3	24.0	24.5	+7%
Breast	6.7	0.3	0.8	+6%
Cancer	5.0	10.6	10.2	-6%
Hematologic/Immunologic	9.4	10.5	10.4	
Musculoskeletal	**57.1**	**49.3**	49.8	+8%
Neurologic	29.7	23.9	24.3	+6%
Mental Health/SUD	**46.2**	32.3	33.3	+14%
Sense Organ	**31.9**	**43.3**	42.6	-11%
Dental	10.3	8.1	8.2	
Dermatologic	21.8	21.9	21.9	
Other	49.3	46.6	46.8	

Note: Percentages for the top five domains for women and the top five domains for men are shown in bold face text; the difference is shown for those domains for which the raw rate in women is at least five percentage points higher or at least five percentage points lower than the raw rate in men.

Missing = 1,235

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

Individual Condition by Gender

Exhibit 4-13 presents, for each domain, the conditions that are primarily mapped to that domain. If additional conditions are secondarily mapped to that domain, we comment on that in a footnote.[47] In this section, domains are presented in the following order:

A. Infectious Disease
B. Endocrine/Metabolic/Nutritional
C. Cardiovascular
D. Respiratory
E. Gastrointestinal
F. Urinary
G. Reproductive Health
H. Breast
I. Cancer
J. Hematologic/Immunologic
K. Musculoskeletal
L. Neurologic
M. Mental Health/SUD
N. Sense Organ
O. Dental
P. Dermatologic
Q. Other

Exhibit 4-13 is available in the supplemental materials.

From the 202 conditions listed in Exhibit 4-13, the following exhibit *(Exhibit 4-14)* focuses on the 50 conditions that have a frequency of at least 5% in women (rank ordered by frequency in women); it also shows the difference in condition frequency for women versus men, and shows in bold face text those conditions that are substantially more common in women than in men (i.e., $\Delta \geq 5\%$).

As Exhibit 4-14 shows, the top two specific conditions among women, along with the 7th most common condition, were cardiovascular risk factors: Hypertension and Lipid Disorders (both less common in women than men) as well as Overweight/Obesity (modestly more common in women than in men (Δ=3.9%). Tobacco Use Disorder was the 15th most common condition, and another major cardiovascular risk factor, Diabetes Mellitus, was 22nd in frequency for women.

Also very common specific conditions were mental health conditions, including Depression, Possible – Other (#3), Anxiety Disorders – Other (#9), PTSD (#11), Major Depressive Disorder (#17), and Bipolar Disorders (#48). While many women are enrolled in mental health specialty services in VHA, these conditions may also present in primary care settings, providing additional opportunities for intervention or referral. Depressive disorders and anxiety disorders are substantially more common in women than in men (with a difference ranging from 3.5%-10.9%), consistent with literature from the general population.[48] The raw rate of PTSD is also slightly higher in women than in men (Δ=4.2%).

Musculoskeletal and other painful conditions were also among the leading specific conditions in women, including Joint Disorders – Lower Extremity (#4), Spine Disorders – Lumbosacral (#5), Joint Disorders – Unspecified or Multiple Joints (#10), Headache (#12), Musculoskeletal Conditions – Other (#16), Joint Disorders – Upper Extremity (#21), Spine Disorders – Other/Unspecified (#23), Spine Disorders – Cervical (#25), Other Injuries and Conditions Due to External Causes (#26), Abdominal Pain (#36), Myalgia/Myositis - Unspecified (#48), and Chronic Pain Syndromes (#50). A number of these conditions were substantially more common in women than in men, such as Joint Disorders – Lower Extremity, Headache, and Musculoskeletal Conditions – Other.

Reproductive health conditions were also among the most frequent specific conditions in women, including Female Reproductive Organ Disorders – Other (#31), Menopausal Disorders (#35), and Menstrual Disorders (#42); these conditions are gender-specific, so gender comparisons are not applicable. Contraceptive Care Management was also highly ranked (#37), and more common in women than in men.

47 Please see Technical Appendix, Section A.6, for the mapping of each condition to its primary domain and, where applicable, to its secondary domain.

48 Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey replication. *Arch Gen Psychiatry.* 2005;62(6):593-602.

EXHIBIT 4-14

CONDITIONS WITH FREQUENCY OF AT LEAST 5% IN WOMEN, SORTED BY RANK ORDER IN WOMEN, AND DIFFERENCE IN FREQUENCY FOR WOMEN VERSUS MEN

Rank among women	Condition	Female 382,546	Male 5,268,290	% Δ
1	Hypertension	28.5	52.7	-24.1
2	Lipid Disorders	27.7	48.7	-21.0
3	Depression, Possible - Other	26.2	15.2	10.9
4	Joint Disorders - Lower Extremity	23.1	15.7	7.3
5	Spine Disorders - Lumbosacral	21.8	17.5	4.3
6	Dermatologic Disorders - Other	19.3	18.2	1.1
7	Overweight/Obesity	19.1	15.2	3.9
8	Refraction Disorders	17.4	18.8	-1.5
9	Anxiety Disorders - Other	17.0	8.5	8.6
10	Joint Disorders - Unspecified or Multiple Joints	16.3	15.1	1.2
11	PTSD	16.0	11.8	4.2
12	Headache	16.0	4.3	11.7
13	Esophageal Disorders	15.7	18.0	-2.3
14	Eye Disorders - Other	14.7	16.7	-2.0
15	Tobacco Use Disorder	13.8	14.8	-1.0
16	Musculoskeletal Conditions - Other	13.2	7.6	5.6
17	Major Depressive Disorder	13.1	5.4	7.7
18	Allergic and Other Chronic Sinusitis/Rhinitis	12.9	7.4	5.4
19	Thyroid Disorders	12.6	6.8	5.8
20	Respiratory System Infections - Other	11.8	6.3	5.5
21	Joint Disorders - Upper Extremity	11.2	9.6	1.6
22	Diabetes Mellitus	11.2	24.7	-13.6
23	Spine Disorders - Other/Unspecified	10.5	7.4	3.1
24	Psychosocial Factors - Other	8.9	6.2	2.8
25	Spine Disorders - Cervical	8.8	5.2	3.6
26	Other Injuries and Conditions Due to External Causes	8.6	6.8	1.8
27	Endocrine, Metabolic and Nutritional Disorders - Other	8.5	11.8	-3.3
28	Sleep Disturbance - Other	8.5	6.2	2.3
29	Cataract	8.4	17.2	-8.7
30	Dental Disorders - Other	8.2	5.9	2.2
31	Female Reproductive Organ Disorders - Other	7.8	0.2	7.7
32	Diarrhea/Constipation and Functional Bowel Disorders	7.7	4.3	3.4
33	Asthma	7.4	3.0	4.4
34	Anemia	7.4	7.3	0.1
35	Menopausal Disorders	7.1	<0.1	7.1

Rank among women	Condition	Female 382,546	Male 5,268,290	% Δ
36	**Abdominal Pain**	6.9	3.1	3.8
37	**Contraceptive Care Management**	6.7	0.1	6.6
38	**Dental Caries**	6.6	5.2	1.4
39	**Dyspnea, Cough and Other Respiratory Symptoms**	6.6	6.4	0.1
40	**Vitamin D Deficiency**	6.5	4.3	2.2
41	**Hearing Problems**	6.4	18.4	-12.0
42	**Menstrual Disorders**	6.2	<0.1	6.2
43	**Nervous System Symptoms/Disorders - Other**	6.0	6.0	-0.1
44	**Gastrointestinal System Disorders - Other**	5.8	4.8	1.0
45	**Urinary Tract Infection (Cystitis/ Urethritis/ Pyelonephritis)**	5.7	2.2	3.5
46	**Sleep Apnea**	5.7	8.8	-3.1
47	**Bipolar Disorders**	5.6	2.1	3.5
48	**Myalgia/Myositis - Unspecified**	5.6	1.1	4.5
49	**Chest Pain/Angina**	5.2	4.8	0.3
50	**Chronic Pain Syndromes**	5.1	3.5	1.6

Cell highlighting: Pink – cardiovascular; purple – mental health; green – reproductive health; orange – musculoskeletal/painful conditions.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Despite their younger average age, women have higher or similar rates of most diagnosed condition domains compared to men. This is consistent with prior literature finding that women Veterans in VHA have a burden of illness at least as great as that of men.[49]

Musculoskeletal conditions are the leading broad domain of diagnosed conditions contributing to the health profile of women Veterans, and are more common in women than in men. The high rate of musculoskeletal conditions, headaches and other painful conditions in women supports VHA's emphasis upon pain as "the 5th vital sign;" treatment of these conditions may require pharmacologic, non-pharmacologic, and/or team-based approaches to care. An emphasis upon programs that address pain and functional status are of particular relevance to women Veterans.

Mental Health/SUD conditions affect nearly half of women Veteran VHA patients and are far more common in women than in men (46% vs 32%). This corroborates findings reported above regarding women's high rate of utilization of mental health/SUD clinics. For those women Veterans with mental health comorbidity, clinicians may encounter added complexity in the management of medical conditions.[50] Women may develop PTSD due to combat trauma, military sexual trauma, or other types of trauma; as women are increasingly exposed to combat, some have theorized that rates of PTSD in women could rise.[51] Women Veteran VHA patients are 20-fold more likely than men Veterans to have experienced military sexual trauma;[52] among other implications, women may have particular needs around safety of the care environment, and some may benefit from access to specialized mental health services.

Cardiovascular conditions also fall in the top five domains, but in these unadjusted analyses are far less common in women than in men. However, Endocrine/Metabolic/Nutritional conditions are more common in women than in men; some of the specific conditions in this domain (e.g., Diabetes Mellitus, Lipid Disorders, and Overweight/Obesity) are risk factors for heart disease. With a large (and growing[53]) group of women in the middle age group who will be reaching their 60s over the coming decade, attention to cardiovascular risk factors is critical so as to prevent onset or progression of Cardiovascular disease in women Veterans, the leading cause of mortality in the general population of women.[54]

Reproductive Health conditions do not fall within the top five for women, but both Reproductive Health conditions and Breast conditions are more common in women than in men. Obstetric care, general and specialty gynecology services, and care for benign and malignant breast disease all fall into the spectrum of services women need, with attention to women's privacy needs. There is evidence that quality of gender-specific care is superior for women Veterans who see Designated Women's Health

49 Frayne SM, Parker VA, Christiansen CL, Loveland S, Seaver MR, Kazis LE, Skinner KM: Health status among 28,000 women Veterans. The VA women's health program evaluation project. *J Gen Intern Med.* 2006;21 Suppl 3:S40-6.

50 Weitlauf JC, Finney JW, Ruzek JI, et al. Distress and pain during pelvic examinations: effect of sexual violence. *Obstet Gynecol.* 2008;112(6):1343-1350.

51 Maguen, S, Ren, L, Bosch, JO, et al. Gender differences in mental health diagnoses among Iraq and Afghanistan Veterans enrolled in Veterans Affairs Healthcare. Am J Public Health. 2010;100:2450-2456.

52 Kimerling, R., et al. "Military-related sexual trauma among Veterans Health Administration patients returning from Afghanistan and Iraq." *Am J Public Health*. 2010 Aug;100(8):1409-12

53 Frayne SM, Phibbs CS, Saechao F, Maisel NC, Friedman SA, Finlay A, Berg E, Balasubramanian V, Dally SK, Ananth L, Romodan Y, Lee J, Iqbal S, Hayes PM, Zephyrin L, Whitehead A, Torgal A, Katon JG, Haskell S. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 3. Sociodemographics, Utilization, Costs of Care, and Health Profile. Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. February 2014. Available at: http://www.womenshealth.va.gov/WOMENSHEALTH/docs/Sourcebook_Vol_3_FINAL.pdf

54 Mosca L, Benjamin EJ, Berra K, et al., Effectiveness-Based Guidelines for the Prevention of Cardiovascular Disease in Women - 2011 update. A Guideline from the American Heart Association. Circulation 2011;123(11): 1243-62.

Continued from previous page
Primary Care Providers versus other primary care providers,[55] supporting the importance of VHA's comprehensive women's health primary care initiative.

The high rates of issues specific to reproductive-aged women, such as contraceptive care management and menstrual disorders, points to the importance of ensuring that VHA's primary care workforce remains current in these aspects of health; the Women's Health Mini-residency training program and the Designated Women's Health Primary Care Provider policy, along with newer innovations like gynecology SCAN-ECHO[56, 57] are meant to promote development of such a workforce. Primary care providers can prescribe contraceptives from VHA's formulary, or can refer women to gynecologists who can insert Intrauterine Devices or perform tubal ligations. Meanwhile, even specialist providers must keep pregnancy on their radar when treating women of child-bearing age, e.g., when prescribing medications or ordering radiological studies. Since some reproductive healthcare is provided to women through the Non-VA (Fee) Medical Care system,[58] coordination across systems of care is highly relevant for women.

Finally, reproductive health issues occur across the lifespan; Menopausal Disorders are also very common among women. These may respond to a biopsychosocial approach attentive to diverse issues such as bone health, cardiovascular risk, sleep disturbances, and sexual function.

55 Bean-Mayberry, B., et al. "Associations between provider designation and female-specific cancer screening in women Veterans." *Med Care.* 2015;53(4 Suppl 1): S47-54.

56 http://www.hsrd.research.va.gov/research/abstracts.cfm?Project_ID=2141701777

57 Cordasco KM, Zuchowski JL, Hamilton AB, Kirsh S, Veet L, Saavedra JO, Altman L, Knapp H, Canning M, Washington DL. Early lessons learned in implementing a women's health educational and virtual consultation program in VA. *Med Care*. 2015 Apr 1; 53(4 Suppl 1):S88-92.

58 Frayne SM, Phibbs CS, Friedman SA, Saechao F, Berg E, Balasubramanian V, Bi X, Iqbal S, Mattocks K, Haskell S, Zephyrin L, Torgal A, Whitehead A, Hayes PM. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 2. Sociodemographics and Use of VHA and Non-VA Care (Fee). Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. October 2012. Available at: http://www.womenshealth.va.gov/WOMENSHEALTH/docs/SourcebookVol2_508c_FINAL.pdf

Section V: Conclusions[59]

This chapter updates and complements prior evaluations conducted by Women's Health Services, designed to assess and continuously improve services provided to women Veterans nationally. Among WHS's ongoing evaluations are WATCH,[60] the Women's Health Evaluation Initiative (WHEI),[61, 62, 63] and DAWC,[64, 65, 66] as well as reports examining Reproductive Health,[67] Cardiovascular Health,[68] Emergency Department Care,[69] and a National Survey of Women Veterans,[70] among numerous others. With VHA's commitment to accelerating research on the health and healthcare of women Veterans – as illustrated by VHA's support of multiple initiatives including the Women's Health Research Network,[71, 72, 73] Women's Health CREATE,[74, 75, 76] EMPOWER QUERI,[77] Women Veteran Cohort Study,[78] the Women's Health Sciences Division of the National Center for PTSD,[79] and the national Women's Health Fellowship program – the evidence base informing high quality care for women is rapidly expanding, positioning VHA to avert risk of gender disparities in care.

59 Some implications were previously reported in Sourcebook Volume 3; implications have been updated as needed.

60 Haskell S. Women's Assessment Tool for Comprehensive Health: The WATCH Self- Assessment National Roll-Up. Invited Presentation at National VA HSR&D CyberSeminar: Spotlight on Women's Health, May 16, 2013.

61 Frayne SM, Phibbs CS, Friedman SA, Berg E, Ananth L, Iqbal S, Hayes PM, Herrera L. *Sourcebook: Women Veterans in the Veterans Health Administration. Volume 1. Sociodemographic Characteristics and Use of VHA Care*. Women's Health Evaluation Initiative, Women Veterans Health Strategic Healthcare Group, Veterans Health Administration, Department of Veterans Affairs, Washington DC. December 2010. Available at: http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2455

62 Frayne SM, Phibbs CS, Friedman SA, Saechao F, Berg E, Balasubramanian V, Bi X, Iqbal S, Mattocks K, Haskell S, Zephyrin L, Torgal A, Whitehead A, Hayes PM. *Sourcebook: Women Veterans in the Veterans Health Administration. Volume 2. Sociodemographics and Use of VHA and Non-VA Care (Fee)*. Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. October 2012. Available at: http://www.womenshealth.va.gov/WOMENSHEALTH/docs/SourcebookVol2_508c_FINAL.pdf

63 Frayne SM, Phibbs CS, Saechao F, Maisel NC, Friedman SA, Finlay A, Berg E, Balasubramanian V, Dally SK, Ananth L, Romodan Y, Lee J, Iqbal S, Hayes PM, Zephyrin L, Whitehead A, Torgal A, Katon JG, Haskell S. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 3. Sociodemographics, Utilization, Costs of Care, and Health Profile. Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. February 2014. Available at: http://www.womenshealth.va.gov/WOMENSHEALTH/docs/Sourcebook_Vol_3_FINAL.pdf

64 Maisel NC, Haskell S, Hayes PM, Balasubramanian V, Torgal A, Ananth L, Saechao F, Iqbal S, Phibbs CS, Frayne SM. Readying the workforce: evaluation of VHA's comprehensive women's health primary care provider initiative. *Med Care.* (2015) 53(4 Suppl 1):S39-S46

65 Bean-Mayberry B, Bastian L, Trentalange M, et al. Associations between provider designation and female-specific cancer screening in women Veterans. *Med Care.* 2015;53(4 Suppl 1):S47-54.

66 *Bastian LA, Trentalange M, Murphy TE, et al. Association between women Veterans' experiences with VA outpatient healthcare and designation as a women's health provider in primary care clinics. Wom Health Issues. 2014;24(6):605-612.*

67 Zephyrin LC, Katon J, Hoggatt KJ, Balasubramanian V, Saechao F, Frayne SM, Mattocks KM, Feibus K, Galvan IV, Hickman R, Hayes PM, Haskell SG, Yano EM. State of Reproductive Health In Women Veterans – VA Reproductive Health Diagnoses and Organization of Care. Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, February 2014.

68 Whitehead AM, Davis MB, Duvernoy C, Safdar B, Nkonde-Price C, Iqbal S, Balasubramanian V, Frayne SM, Friedman SA, Hayes, PM, Haskell, SG. The State of Cardiovascular Health in Women Veterans. Volume 1: VA Outpatient Diagnoses and Procedures in Fiscal Year (FY) 2010. Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, October, 2013.

69 Cordasco, KM, et al. "An Inventory of VHA Emergency Departments' Resources and Processes for Caring for Women." *J Gen Intern Med*. 2013;28 Suppl 2: 583-590.

70 Washington DL, Bean-Mayberry B, Hamilton AB, Cordasco KM, Yano EM. Women Veterans' healthcare delivery preferences and use by military service era: findings from the National Survey of Women Veterans. *J Gen Intern Med.* 2013;28 Suppl 2:S571-576.

71 Yano, EM and Frayne SM. "Health and healthcare of women Veterans and women in the military: Research informing evidence-based practice and policy." *Wom Health Issues.* 2011;21(4 Suppl): S64-66.

72 Yano, EM., et al. "Using research to transform care for women Veterans: Advancing the research agenda and enhancing research-clinical partnerships." *Wom Health Issues* 2011;21(4 Suppl): S73-83.

73 Frayne, S, et al. "The VA women's health practice-based research network: amplifying women Veterans voices in VA research." *J Gen Intern Med*. 2013;28(2): 504-509.

74 http://www.hsrd.research.va.gov/centers/create/womens_health.cfm

75 Yano EM, Frayne S, Hamilton AB, Washington DL, Bastian L, Mattocks K. Spotlight on Women's Health: Using Research to Accelerate Implementation of Comprehensive Women's Healthcare in VHA: VA HSR&D Women's Health CREATE, VA HSR&D Cyber Seminar, January 27, 2014.

76 Yano EM. Advances in VA Women Veterans' Research, VA HSR&D Cyber Seminar, January 20, 2015.

77 http://www.queri.research.va.gov/programs/womens_health.cfm

78 Haskell SG, Mattocks K, Goulet JL, et al. The burden of illness in the first year home: Do male and female VA users differ in health conditions and healthcare utilization. *Wom Health Issues.* 2011;21(1):92-97.

79 http://www.ptsd.va.gov/about/divisions/womens-health/

Chapter 5

Health and Healthcare for Older Veterans in VHA

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Section I: Significance & Background

The Department of Veteran Affairs (VA's) commitment to serve Veterans continues throughout each Veteran's lifespan. In 2014, 45% of Veterans were age 65 and older, and the percentage is projected to increase over the next decade.[1] This older adult population is heterogeneous. Although some Veterans maintain health and function well into their 80s and 90s, many Veterans experience age-associated sensory, cognitive and physical decline. As a group, Veterans age 65 and older face an increased burden of chronic disease and associated polypharmacy, functional decline, and geriatric syndromes such as falls and cognitive impairment. These older Veterans are also more likely to rate their health as fair or poor[2]. At the same time, the barriers to care faced in general by older adults (e.g., frailty, transportation issues, social isolation) may set older adult Veterans apart from younger Veterans in terms of patterns of access to care and utilization of services. These aging and access challenges also may serve to exacerbate difficulties faced by Veterans experiencing disability or homelessness, or who are members of ethnic and racial minorities. Understanding the distinct characteristics and healthcare needs of older adult Veterans, and planning services to best address these needs, is a VA priority.

The likelihood of decline increases in older ages. Persons over age 85 are at particularly high risk for institutionalization and other poor outcomes.[3] In the United States, this population has increased over the last decade from 400,000 in 2000 to 1.3 million in 2010. This burgeoning population is particularly important for the VA: in 2010, Veterans accounted for 68% of men who were age 85 and older.[2]

Functional disability, highlighted as an important health outcome in the VA's Blueprint for Excellence, increases in prevalence with aging and is an important component of health that influences levels of need and access to services.[4] Functional limitations are associated with increased risk of decline, death, resource use, and poorer outcomes from medical interventions.[3, 5, 6, 7, 8] Overall, Veterans living in the community have higher rates of disability than non-Veterans. For the over 19 million Veterans age 18 and older in the community, 29% have a disability. The comparable rate in the non-Veteran population is 13%.[9] Although the challenges of disability are experienced by Veterans in all age groups, disability does increase with age. Of those community-dwelling Veterans with disabilities, 34% are age 18-64, and 66% are age 65 and older.[9] These proportions are projected to increase as the cohort of Vietnam-era patients, who are disproportionately represented among Priority 1a enrollees, will be aging into the 65 and older population. The effect of disability extends beyond restricted access and poor health outcomes: Veterans age 18-64 with disabilities are more likely to live in poverty compared to similar age Veterans without disability (17.3% vs. 7.5%).[9]

Understanding the interaction of age-associated sensory, cognitive, physical and functional decline in the populations that are a traditional focus of equity measures will be increasingly important over the coming decades, as the older adult population is expected to become more diverse in the coming years. In 2010, 20% of persons age 65 and older were a race or ethnicity other than non-Hispanic White and this number is projected to

1 Department of Veterans Affairs, Veterans Benefits Administration Annual Benefits Reports, 1985-2014; Office of Policy & Planning, Office of the Actuary, Veteran Population Projection Model (VetPop), 2014. Prepared by the National Center for Veterans Analysis and Statistics.
2 http://www.agingstats.gov/docs/PastReports/2012/OA2012.pdf. Accessed August, 2015
3 Saliba D, Elliott M, Rubenstein LZ, et al. The vulnerable elders survey (VES-13): A tool for identifying vulnerable older people in the community. *J Am Geriatr Soc*. 2001;49(12):1691-9.
4 Iezzoni LI. Eliminating health andhealthcare disparities among the growing population of people with disabilities. *Health Affairs*. 2011;30(10):1947-1954.
5 Min L, Yoon W, Mariano J, et al**.** The vulnerable elders-13 survey predicts 5-year functional decline and mortality outcomes among older ambulatory care patients. *J Am Geriatr Soc*. 2009;57(11):2070-6. PMID: 19793154
6 Min L, Ubhayakar N, Saliba D, et al. The vulnerable elders survey-13 predicts hospital complications and mortality in older adults with traumatic injury. *J Am Geriatr Soc.* 2011;59(8):1471-6. PMID: 21718276
7 McGee HM, O'Hanlon A, Barker M, et al. Vulnerable older people in the community: Relationship between the vulnerable elders survey and health service use. *J Am Geriatr Soc*. 2008;56: 8-15.
8 Spyropoulou D, Athanasios GP, Leotsinidis M., Kardamakis D. Completion of radiotherapy is associated with the vulnerable elders survey-13 score in elderly patients with cancer. *J Geriatr Oncology.* 2014;5:20-5.
9 http://disabilitycompendium.org/compendium-statistics/Veterans. Accessed August, 2015.

increase to 42% by 2050, with the largest increases among older adults who identify as Hispanic or Asian. This increase includes the oldest old, and it is projected that, by 2050, 33% of adults older than 85 will be from racial or ethnic groups other than non-Hispanic white.[10, 11]

Age is an increasingly important factor for other Veteran populations with recognized access and health challenges. The number of older Veterans at risk for homelessness is projected to increase over the next decade.[12] One factor contributing to this projected increase is military era: the largest group of homeless Veterans are those who served in the Vietnam War.[13] Members of this "Baby Boomer" generation started turning 65 in 2011, and aging- associated declines in sensory, cognitive and physical function can only exacerbate the challenges faced by this population.

With increasing levels of functional dependency and disability, the need for long-term services and supports will likely increase. Less than 15% of the older adult population has private insurance to cover community or institutional-based long-term services and supports.[14] A limited range of long-term services and supports are available for those persons who qualify for Medicaid, however, this varies widely depending on state of residence. As a result, Veterans with these needs may increasingly turn to the VA for assistance. The VA provides, if clinically needed, institutional long-term services and supports for Veterans who are at least 70% service-connected (SC), 60% SC and unemployable, or SC for a condition that makes long-term services and supports necessary. It also provides community based long-term services and supports for all Veterans who have a clinical need for services.

This chapter begins to describe additional characteristics of Veterans age 65 and older who received VA services in 2013. This type of analysis aims to contribute to laying the groundwork for meeting the first strategy of the VA's Blueprint for Excellence, namely to "operate a healthcare network that anticipates and meets the unique needs of enrolled Veterans, in general, and the service disabled and most vulnerable Veterans, in particular." Specifically, this chapter highlights differences in the socio-demographics, health diagnoses, and outpatient utilization across patient age groups. Information on how these patterns vary with age, and identification of important gaps in our understanding of these patterns, will be the foundation for subsequent work examining variations in quality of care for Veteran patients of different age groups. In this chapter, we focus on describing the characteristics of older adult patients age 65 and older, relative to patients age 45-64, and patients age 18-44. For specific characteristics, we highlight differences within the population of older patients, in particular for the oldest old (age 85 and older). All tables in this chapter include: (a) three mutually-exclusive age groups covering the entire Veteran VHA population (18-44; 45-64; and 65+); (b) for the 65 and older group, three subgroups as defined by age (65-74; 75-84; 85+); (c) the total for the three mutually exclusive age groups (18-44; 45-64; and 65+).

10 The Next Four Decades: The Older Population in the United States: 2010 to 2050. https://www.census.gov/newsroom/releases/archives/aging_population/cb10-72.html

11 http://www.agingstats.gov/docs/PastReports/2012/OA2012.pdf. Accessed August, 2015.

12 Culhane D, Metraux S, Byrne T, Stino M, & Bainbridge J. The age structure of contemporary homelessness. *Analyses of Social Issues and Public Policy.* 2013;12(1):228-244.

13 National Coalition for Homeless Veterans. Background and Statistics: FAQ About Homeless Veterans. Accessed August, 2015.

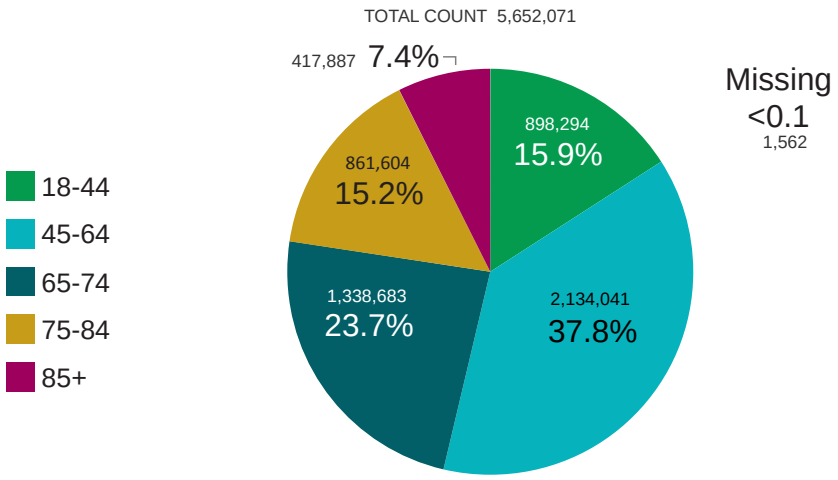
14 Brown JR, Goda GS, McGarry K. Long-term care insurance demand limited by beliefs about needs, concerns about insurers and care available from family. *Health Affairs.* 2012;31(6):1294-1302.

Distribution of Veteran VHA Patients by Age

Overall, 46.3% of Veteran VHA patients were age 65 and older in 2013, 37.8% were age 45-64, and 15.9% were 18-44 *(Exhibit 5-1)*. Among older adult patients, 23.7% were 65-74, 15.2% were 75-84, and 7.4% were 85 and older.

EXHIBIT 5-1

DISTRIBUTION OF AGE AMONG VETERAN VHA PATIENTS, FY13



Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS The proportion of the older adults in the VA Veteran patient population reflects the percent of older Veterans who live in the community. This is despite having access to other Medicare providers.

Demographic changes, both in the VA and in the US overall, create an urgent need for understanding and addressing the health challenges of an aging society that uses VA services despite having access to other healthcare providers. Longer life spans and aging "Baby Boomers" (adults born between 1946 and 1964) will combine to double the population of Americans age 65 years or older during the next 25 years.[15]

15 Centers for Disease Control and Prevention. The State of Aging and Health in America 2013. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2013.

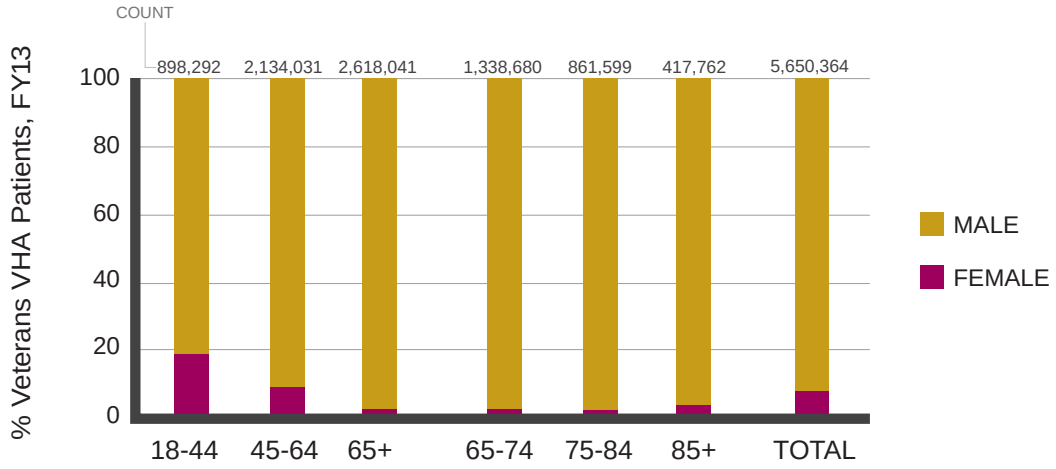
Section II: Sociodemographics

Gender by Age

The overall Veteran patient population was predominantly male (93.2%), but the composition of the patient population differed dramatically across age groups *(Exhibit 5-2)*. Whereas women were only 1.7% of patients age 65 and older, they constituted 8.2% of patients 45-64 years of age and 18.1% of patients age 18-44.

EXHIBIT 5-2

PERCENT DISTRIBUTION OF GENDER BY AGE AMONG VETERAN VHA PATIENTS, FY13



Note: The VHA databases available in FY13 did not include fields to distinguish between transgender and cisgender Veterans.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS VA care for older patients will need to adapt to address the healthcare needs of both men and women Veterans. As the younger cohorts age, VA needs to expand the availability and range of services to address the health concerns of older women.

Race/Ethnicity by Age

In 2013, among Veteran patients overall, non-Hispanic Whites were the majority racial/ethnic group *(Exhibit 5-3)*. Among older Veterans age 65 and older, 85.0% were non-Hispanic White, whereas non-Hispanic Whites were 63.4% of patients age 45-64 and 60.5% of patients age 18-44. The younger age cohorts had greater racial/ethnic diversity: In the 45-64 year age group, 22.1% were Black/African American, 5.3% were Hispanic, 0.7% were Asian, 0.7% were Native Hawaiian/Other Pacific Islander, and 0.6% were American Indian/Alaskan Native while in the 18-44 year age group, 18.9% were Black/African American, 10.2% were Hispanic, 1.7% were Asian, 0.8% were Native Hawaiian/Other Pacific Islander, and 0.8% were American Indian/Alaska Native.

EXHIBIT 5-3

PERCENT DISTRIBUTION OF RACE/ETHNICITY BY AGE AMONG VETERAN VHA PATIENTS, FY13

	Age at Beginning of FY13						
	18-44	45-64	65+	65-74	75-84	85+	Total
Count	898,294	2,134,041	2,618,174	1,338,683	861,604	417,887	5,650,509
Race/Ethnicity	%	%	%	%	%	%	%
American Indian/Alaska Native	0.8	0.6	0.4	0.5	0.3	0.2	0.6
Asian	1.7	0.7	0.6	0.5	0.5	0.8	0.8
Black/African American	18.9	22.1	8.9	10.9	7.4	5.7	15.5
Native Hawaiian/Other Pacific Islander	0.8	0.7	0.5	0.6	0.5	0.5	0.6
Multi-race	1.0	0.7	0.4	0.5	0.4	0.3	0.6
Hispanic	10.2	5.3	3.7	3.9	3.8	3.0	5.4
Unknown	6.2	6.5	0.4	0.5	0.3	0.4	3.6
White	60.5	63.4	85.0	82.6	86.8	89.1	73.0

Missing = 1,562

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS This distribution for older adults reflects the composition of a pre-All-Volunteer Force and societal demographics. Although the younger groups have greater diversity when viewed by percentages, it is important to note that a significant number (15%) of current older Veterans do not self-report as non-Hispanic White. In 2011, the median age of Asian Veterans and of American Indian, Alaskan Native Veterans (AI/AN) was 57.[16] In addition, it is important to view these data from a life-course trajectory.[17] These proportions are expected to shift significantly as more diverse Veteran and All-Volunteer Force populations age, pointing to the need to ensure that future long-term services and supports be designed to meet the needs of a more culturally diverse population. Addressing the healthcare needs of patients who may face healthcare disparities due to both age- and racial/ethnic factors, may require additional efforts to develop and deliver culturally-sensitive care models.

Racial/ethnic differences in care may have particular impact for select care settings and may interact with functional limitations or chronic conditions to decrease access to appropriate services. For example, further research is needed to explore possible disparities in inpatient hospitalization rates by race/ethnicity to understand whether racial/ethnic minority older adults are disproportionately represented in the inpatient population. Another avenue for future research is understanding whether racial/ethnic differences exist in access to long-term services and supports.

16 U.S. Census Bureau, American Community Survey, Public Use Microdata Sample, 2011, as cited by the National Center for Veterans Analaysis and statistics http://www.va.gov/vetdata/docs/SpecialReports/Minority_ Veterans_2011.pdf.

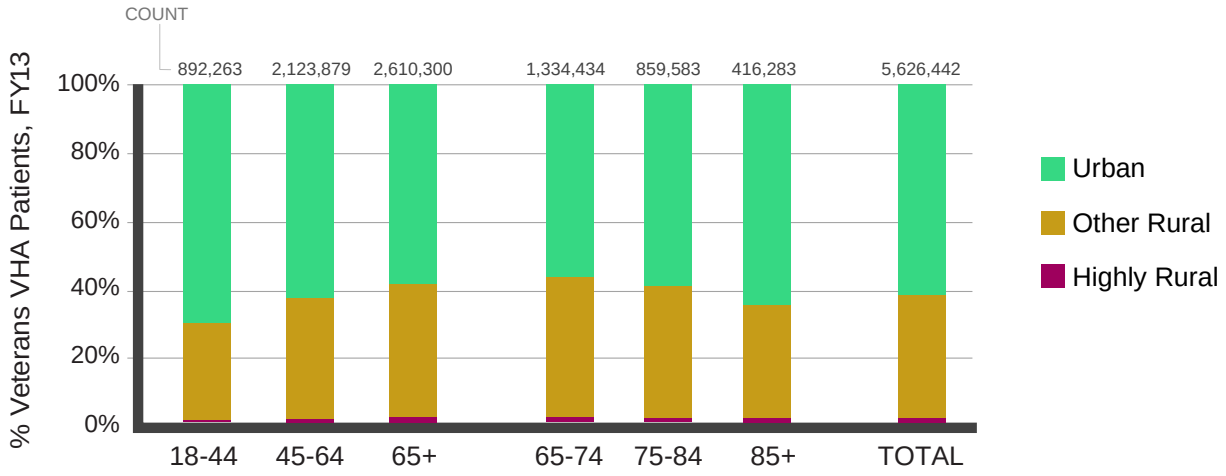
17 Wilmouth JM, London AS. Chapter 28 Aging Veterans: Needs and Provisions in Handbook of Sociology of Aging, Settersen RA and Angel JL editors. Pages 445-461. Springer, LLC 2011.

Rural/Urban Status by Age

Overall, the majority of Veteran patients lived in urban areas, however older (age 65+) Veteran patients were more likely to live in rural locations (40.7%) compared to their younger counterparts (36.8% among 45-64 year olds; 29.4% among 18-44 year olds) *(Exhibit 5.4)*.

EXHIBIT 5-4

PERCENT DISTRIBUTION OF RURAL/URBAN STATUS BY AGE AMONG VETERAN VHA PATIENTS, FY13



Missing = 25,629

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Rural Veterans face unique healthcare delivery challenges including transportation barriers, poverty and limited access to health professions and community-based programs.[18, 19, 20] Older rural Veterans may be especially vulnerable to these challenges because of social isolation, frailty and disability. Past studies have documented that older rural Veterans' healthcare needs have not been adequately met.[21] Older rural Veterans may face additional challenges when health problems in later life are compounded by circumstances that require a substantial outlay of social or emotional resources. For example, when older rural Veterans develop Alzheimer's disease or other serious neurocognitive or mental health conditions, or when they develop progressive or debilitating manifestations of their underlying chronic illnesses, they or their caregivers often do so with little to no access to formal

18 Basu J, Mobley L. Illness severity and propensity to travel along the urban-rural continuum. *Health and Place.* 2007;13:381-399.
19 Chan L, Hart L, Goodman D. Geographic access to healthcare for rural medicare beneficiaries. *Journal of Rural Health.* 2006;22(2):140-146.
20 Gillanders W, Buss T. Access to medical care among the elderly in rural northeastern Ohio. *Journal of Family Practice.* 1993;37:349-355.
21 Weeks W, Kazis L, Shen Y, Cong Z, Ren X, Miller D et al. Differences in health-related quality of life in rural and urban Veterans. *Am J Public Health.* 2008;24:337-344.

Continued from previous page
supports.[22] Innovative healthcare delivery strategies are needed to address the physical and mental health needs of older rural Veterans. For example, the VA is engaged in work to partner with the Indian Health Service to increase access to home-based primary care for frail older Veterans living on reservations. This program aims to bring the highly successful home-based primary care program to a particularly vulnerable rural population.[23] Other studies suggest that care coordination home telehealth could be a feasible, appropriate and cost-effective approach to serving medically-complicated older Veterans in rural settings.[24] Further work is needed to evaluate the efficacy and quality of programs such as these among older rural Veterans, especially those with severe physical and/or cognitive impairments.

22 Kosberg J, Kaufman A, Burgio L, Leeper J, Fei Sun M. Family caregiving to those with dementia in rural Alabama: racial similarities and differences. *Journal of Aging and Health.* 2007;1:3-21.

23 Kramer BJ, Creekmur B, Cote S, Saliba D. Improving access to institutional long-term care for american indian Veterans. *J Am Geriatr* Soc. 2015;63(4):789-96.

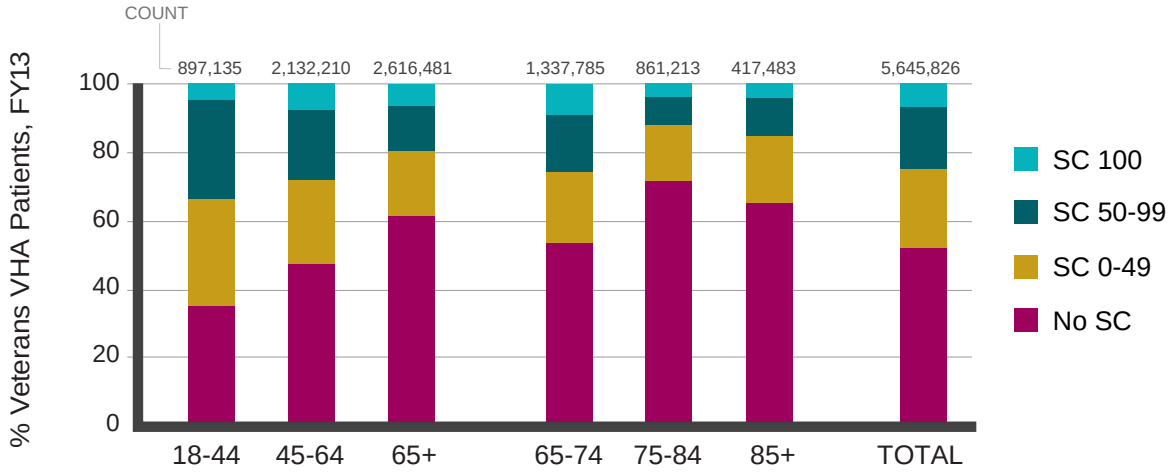
24 Luptak M et al. The care coordination home telehealth (CCHT) rural demonstration project: a symptom-based approach for serving older Veterans in remote geographical settings. *Rural and Remote Health.* 2010;10:1375.

Service-Connected Disability Rating Status[25] by Age

The majority of age 65+ patients did not have a service-connected disability during FY13 (60.9%), compared to only 34.3% and 46.9% of their counterparts age 18-44 and 45-64, respectively *(Exhibit 5-5)*. *Among those with documented service-connection status*, a higher proportion of patients age 45-64 had 50% or greater service connection (53.7%) compared to 51.9% of patients 18-44 and 50.6% of patients 65 and older.

EXHIBIT 5-5

PERCENT DISTRIBUTION OF SERVICE-CONNECTED DISABILITY RATING STATUS BY AGE AMONG VETERAN VHA PATIENTS, FY13



Missing = 6,245

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

25 Service-connected (SC) disability rating indicates an injury or illness deemed to have been incurred or aggravated while serving in the armed forces. Disability is rated for severity from 0 to 100 percent; "0 percent" refers to a patient who does have SC disability status, but whose severity rating is 0 (zero) percent; this is distinct from a patient who has no SC disability status. A SC disability rating can result from a variety of exposures including, but not limited to, combat; causes of SC disability are not included in this report. The proportion of Veterans with a SC disability rating refers to VHA patients and not to all Veterans nationally.

IMPLICATIONS The reasons for the differences in service-connection assessment are likely varied, but the differences in service connection across age groups, though not large in magnitude, may signal that younger Veterans are more likely to use VA services if they have a service-connected disability, whereas older patients may need care for a variety of conditions that are not necessarily related to their military service. This may reflect a survival effect. In addition, growth in the number of persons receiving disability is highest among Gulf War Veterans. It may also reflect changes in policies surrounding assignment of service-connected status as well as disparities in approaches to case finding for particular conditions over time.[26]

Temporal policy changes and differences in case finding hinder the interpretation of these findings. Further work to understand how the need for service-connected care varies across the life course is needed.

26 Congressional Budget Office. Veterans Disability Compensation: Trends and Policy Options. Publication no. 4617 August 2014

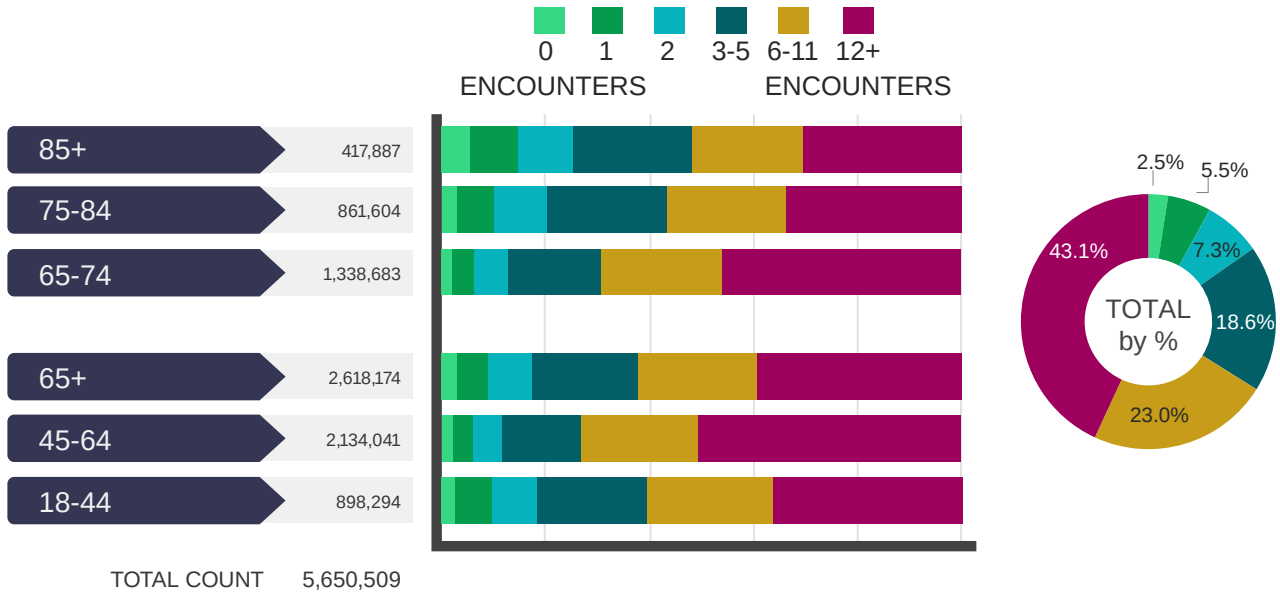
Section III: Utilization

VHA Outpatient Encounters[27] by Age

Most patients, regardless of age, had outpatient encounters in FY13 (>94% across all age groups) *(Exhibit 5-6)*. High outpatient utilization (12+ encounters in FY13) was most common among 45-64 year olds (50.6%) compared to either younger (36.4%) or older (39.3%) patients.

EXHIBIT 5-6

PERCENT DISTRIBUTION OF VHA OUTPATIENT ENCOUNTERS BY AGE AMONG VETERAN VHA PATIENTS, FY13



Missing = 1,562.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Among the oldest old (patients age 85 and older), about 5% had no outpatient encounters, which may reflect exclusive use of inpatient care or long-term care. High utilization among the 45-64 year age group may reflect use of care related to the onset of chronic conditions in a population not yet covered by Medicare.

These data do not include details on the use of inpatient care or long-term services and supports. These data also do not allow for a full assessment of the types, intensity, or costs of care patients are using. Some types of care that may be particularly important for aging patients (i.e., long-term care) are not captured in these tables. Future analyses could consider relationship of the number of outpatient visits to service-connected status.

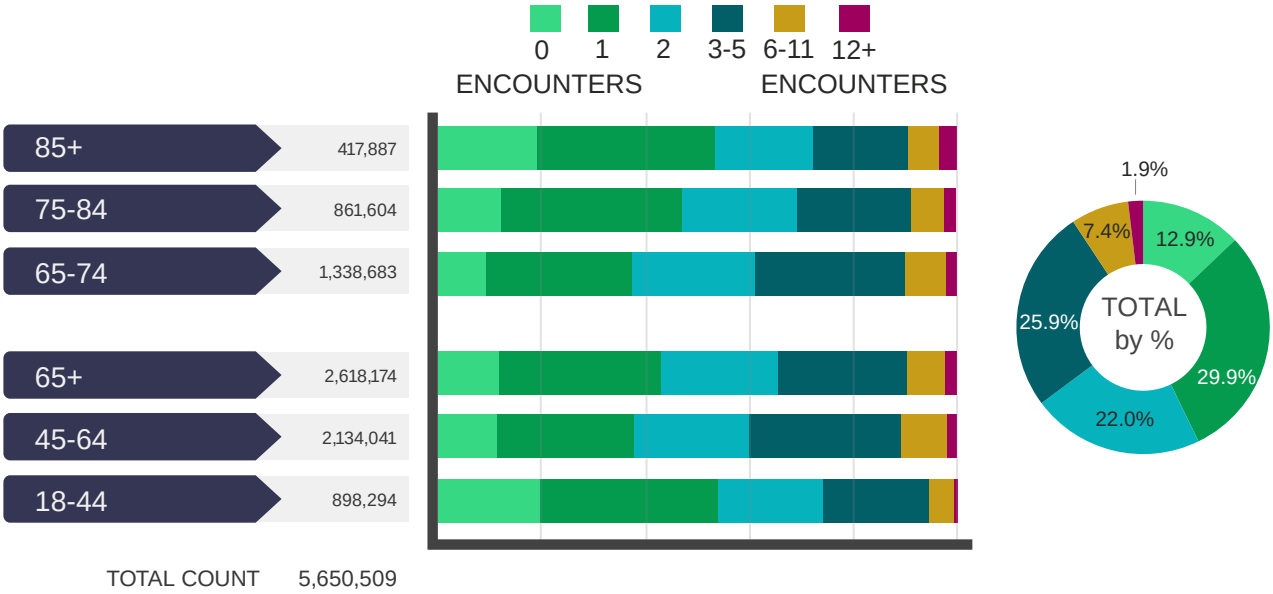
27 Patients in the "None" group used no VHA outpatient services, but used other types of VHA care (e.g., inpatient care, Non-VA [Fee] Medical Care, pharmacy, etc.)

Primary Care Encounters by Age

Younger patients were more likely than older patients to have no primary care visits (19.7% of patients age 18-44 had no primary care visits, compared to 11.4% among patients age 45-64 and 11.7% among patients age 65 and older); notably, in the oldest-old age group (age 85 and older), 19.0% had no primary care visits. High utilization of primary care (12+ visits) increased across older age groups *(Exhibit 5-7)*.

EXHIBIT 5-7

PERCENT DISTRIBUTION OF PRIMARY CARE ENCOUNTERS BY AGE AMONG VETERAN VHA PATIENTS, FY13



Missing = 1,562.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS About one-fifth of the younger and oldest-old patients had no primary care, which may reflect fundamental differences in the reasons for using VA care across the age groups (e.g., specialty services for younger patients and long-term services and supports for older patients). Efforts to increase access or acceptability of primary care for these patients require a better understanding of what types of care these patients are using or may need.

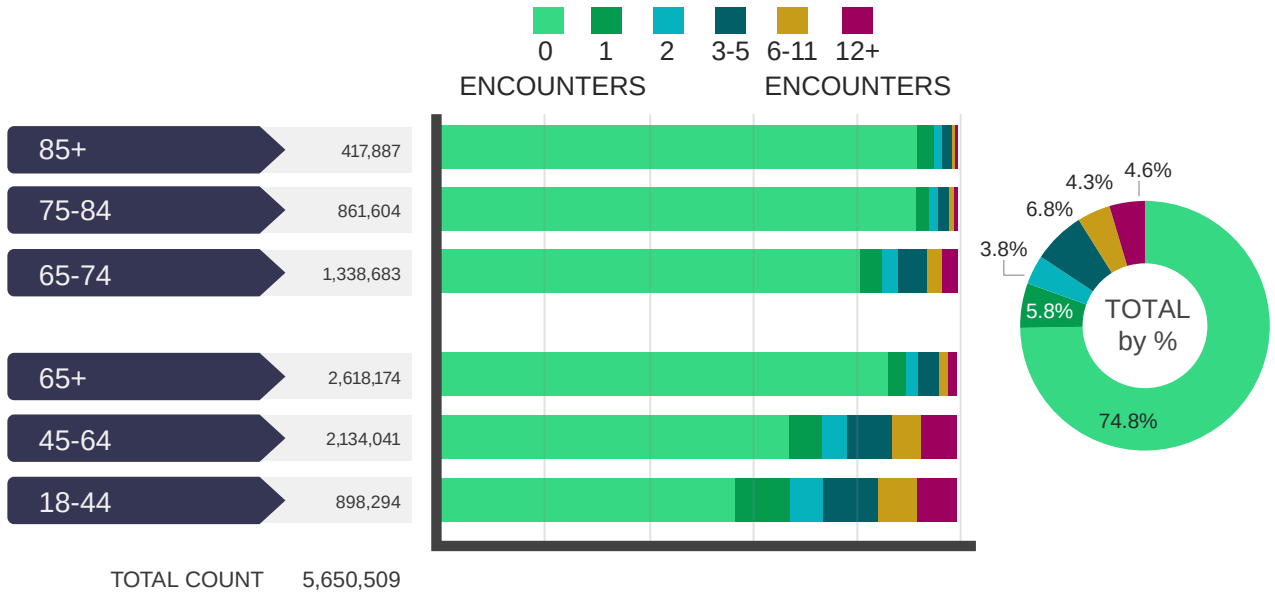
A more detailed assessment of the care patients are receiving (e.g., an evaluation of use of specific types of services) was beyond the scope of this chapter. Assessments of need for care, and determinations of where there are gaps in access, will require more information and research on the specific needs of patients across the life course, particularly among older adult patients.

Mental Health/Substance Use Disorder Encounters[28] by Age

Older adult patients age 65 and older were less likely to have any mental health/substance use disorder (MH/SUD) outpatient visits (13.4%) compared to younger patients (32.4% for patients age 45-64 and 42.7% among patients age 18-44) *(Exhibit 5-8)*. In the oldest age groups (75-84 and age 85 years and older), only 7.9% and 7.6%, respectively, had any MH/SUD visits. High MH/SUD utilization (12+ visits) decreased with age (7.6% among 18-44 year olds, 6.9% among 45-64 year olds, and 1.7% among patients age 65 and older).

EXHIBIT 5-8

PERCENT DISTRIBUTION OF MENTAL HEALTH/SUBSTANCE USE DISORDER ENCOUNTERS BY AGE AMONG VETERAN VHA PATIENTS, FY13



Missing = 1,562.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

28 Not all patients receiving mental health care services have a mental health condition; for example, patients receiving smoking cessation counseling, bereavement care, or screening for a mental health condition may be seen in mental health clinics.

IMPLICATIONS Recognizing and appropriately managing depression and other mental health disorders, in primary care or in specialty settings, are critical for both mental and physical health. The pattern of lower MH/SUD utilization among older Veterans, relative to their younger counterparts, may reflect the true prevalence of these conditions. For example, NHANES data show lower depression prevalence in older adults compared to younger community dwelling populations. The prevalence of schizophrenia are generally lower in community dwelling older adults when compared to younger adults. Incidence is concentrated in younger ages.

The differences in MH/SUD utilization may also reflect differences in detection rates or in preferences for place of treatment. Approximately 10% of older adults seen in primary care settings have clinically significant depression,[29] and prevalence is higher in persons with chronic illness, social isolation, or loss. Comorbid depression has shown a strong association with increased morbidity and mortality, delayed recovery, poor adherence to treatment, and negative prognosis among those with medical illness.[30] The observed pattern may also reflect unmeasured care preferences for MH/SUD treatment among older Veterans. Studies have shown that few older adults with late-life depression see a mental health specialist.[31, 32] Older adult patients who seek help for depression are likely to go to their regular primary care physician rather than a mental health specialist.[33] Alternatively, the observed pattern may reflect what has been extensively reported in the literature, namely that among older adults, late-life depression is often undetected, undiagnosed, untreated, or undertreated.[34]

The data on MH/SUD utilization reflects care delivered in mental health settings and, importantly, does not reflect care for MH/SUD conditions that are delivered in other settings, such as primary care or long-term services and supports. Other significant cognitive and behavioral challenges, including dementia associated behaviors, may not be treated in specialty mental health. Whether the levels of specialty care utilization match the underlying MH/SUD needs are unclear; other evaluations of MH/SUD utilization should incorporate data on utilization of care for MH/SUD conditions in other settings and data on the underlying prevalence of these conditions among patients.

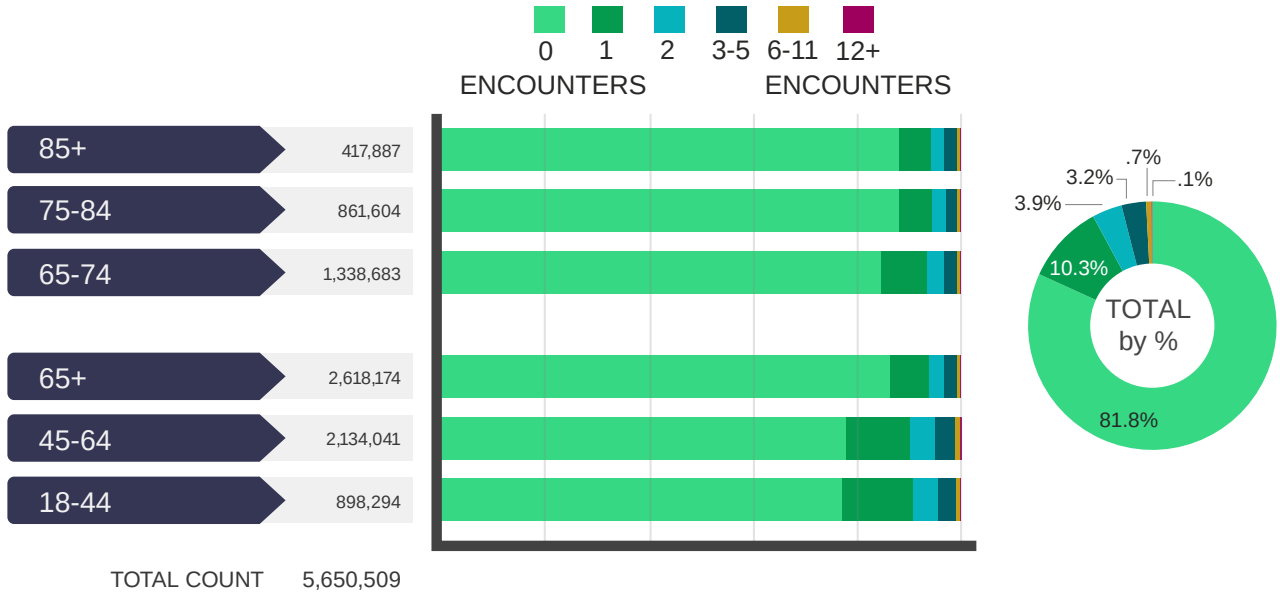
29 Lyness JM, Caine ED, King DA, Cox C, Yoediono Z. Psychiatric disorders in older primary care patients. *J Gen Intern Med.* 1999;14(4):249-54.
30 Park M, Unutzer J. Geriatric depression in primary care. *Psychiatr Clinics of North America.* 2011;34(2):469-487.
31 Shapiro S, Skinner EA, Kessler LG et al. Utilization of health and mental health services. Three ECA Sites. *Arch Gen Psychiatry.* 1984;41:971-978.
32 Goldstron ID, Burns BJ, Kessler LG et al. Mental health services use by elderly adults in a primary care setting. *J Gerontol.* 1987;42:147-153.
33 German PS, Shapiro S, Skinner EA. Mental health of the elderly: use of health and mental health services. *J Am Geriatr Soc.* 1985;33:246-252.
34 Unutzer J. Diagnosis and treatment of older adults with depression in primary care. *Biol Psychiatry.* 2002;52(3):285-292.

Emergency Department Encounters[35] by Age

Any use of emergency department visits was more common among younger patients (22.8% for 18-44 year olds, 22.0% for 45-64 year olds vs 13.6% for 65 and older) *(Exhibit 5-9)*. Frequent use of the emergency department (2+ encounters in FY13) was more common among younger patients (9.2% among 18-44 year olds and 9.8% among 45-64 year olds, compared to 6.2% among 65 and older).

EXHIBIT 5-9

PERCENT DISTRIBUTION OF EMERGENCY DEPARTMENT ENCOUNTERS BY AGE AMONG VETERAN VHA PATIENTS, FY13



Missing = 1,562.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS The relatively lower rates of emergency department utilization among older patients may reflect that they are successfully accessing primary care or other outpatient care and are thus less likely to progress to a state or condition where they need to access urgent care. Conversely, it is also possible that older patients may be less likely to seek urgent care, at least at a VA facility, when they need it.

These data do not include emergency department use in non-VA settings and thus may not necessarily reflect actual need.[36] The interpretation of these emergency department utilization data is particularly complicated for older patients who are eligible for Medicare. Medicare coverage may be associated with an increased tendency to use emergency departments closer to place of residence. An analysis of

35 In some cases, emergency department care may include some urgent care visits.

36 Hynes DM, Koelling K, Stroupe K, Arnold N, Mallin K, Sohn M, Weaver FM, Manheim L, Kok L. Veterans' access to and use of medicare and Veterans Affairs healthcare. *Medical Care.* 2007;45(3):214-223.

Continued from previous page
2006 data reported by the VHA Office for Policy and Planning found that among dual-eligible Veterans, the average age for those who used only Medicare was 75 years.[37] Access to emergency department services is likely impacted by factors that may be particular barriers in older patients (e.g, access to transportation and frailty). Future studies should assess whether decreased emergency department utilization among older adults reflects a beneficial impact of routine outpatient care or barriers to receiving needed urgent care.

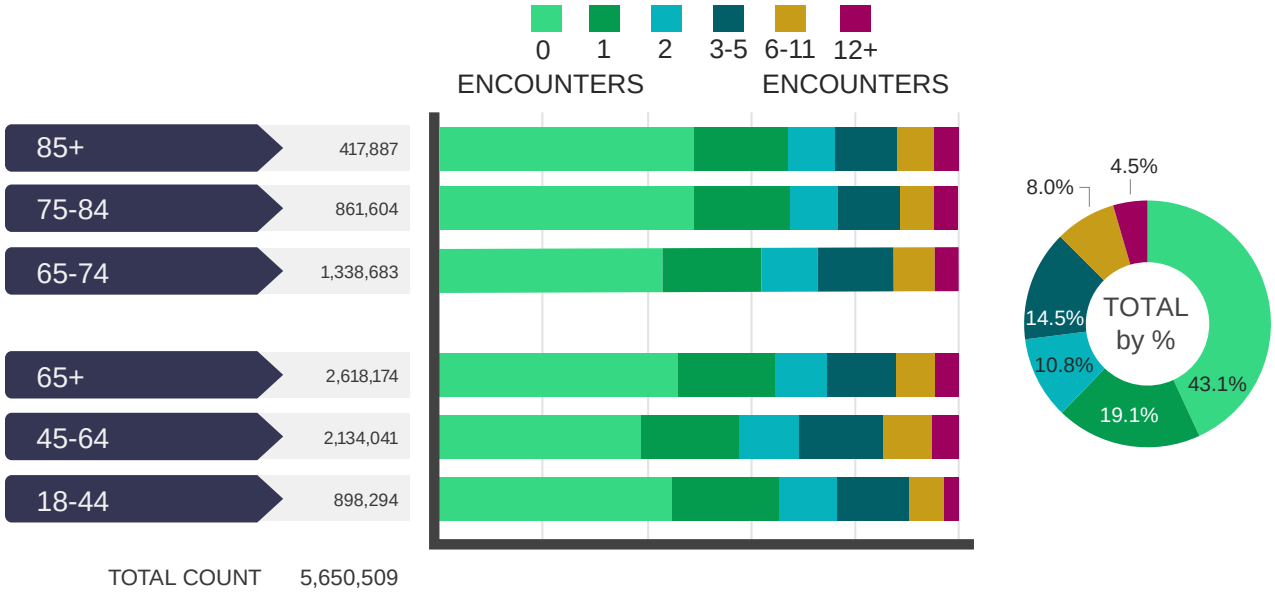
37 Vandenberg P, Uppal G, Barker A, Flemming D. The Impact of the Affordable Care Act on VA's Dual Eligible Population. VA HSR&D Forum. www.hsrd.research.va.gov/publications/forum, May, 2013; pages 1-2. Accessed August 2015.

Telephone Encounters[38] by Age

Use of telephone visits was higher among patients in the middle age group, 45-64 year olds (61.2%), compared to younger patients (55.1%) and older patients (54.0%) *(Exhibit 5-10)*. Frequent use of telephone visits (12+ in FY13) was only slightly more common in the middle age group (5.1%) compared to the 65 and older group (4.6%).

EXHIBIT 5-10

PERCENT DISTRIBUTION OF TELEPHONE ENCOUNTERS BY AGE AMONG VETERAN VHA PATIENTS, FY13



Missing = 1,562.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Lower rates of telephone visits, compared with encounter rates for other types of care, may reflect differences in older patients' comfort with technology-driven care. Addressing gaps in the use of telephone visits is particularly important for older patients who, relative to their younger counterparts, are more likely to reside in rural areas and who may have other barriers to accessing face-to-face care (e.g., lack of transportation and physical frailty).

These data capture patients' use of telephone visits, but not other types of telehealth. Telephone visits, and telehealth, may increase access to healthcare for older adults who are frail, have physical health impediments, have limited social support to help them access care, and are more rurally-based. Exploring older patients' perspectives on telephone visits and telehealth, and examining ways to improve the use of telephone visits and telehealth uptake among older patients, is an important area for program development, implementation and evaluation.

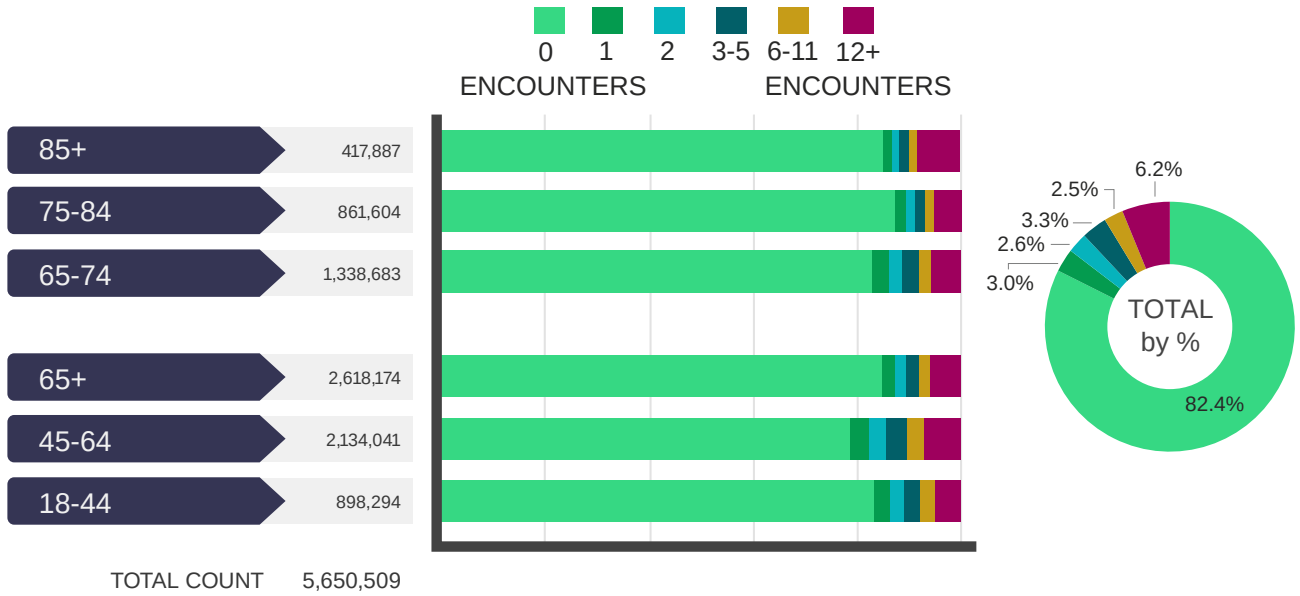
38 Telephone encounters include only encounters over the phone with a clinician, but not formal telehealth encounters.

Fee Outpatient Services[39] by Age

Any use of fee outpatient services was more common among 45-64 year olds (21.1%) compared to younger (16.7%) or older (15.1%) patients *(Exhibit 5-11)*. Frequent use (12+ encounters) was also more common among 45-64 year olds (7.1%) compared to younger (4.9%) or older (5.9%) patients.

EXHIBIT 5-11

PERCENT DISTRIBUTION OF FEE OUTPATIENT SERVICES BY AGE AMONG VETERAN VHA PATIENTS, FY13



Missing = 1,562.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

39 Non-VA (Fee) Medical Care Outpatient Services estimate the total number of unique outpatient services that patients received through the Non-VA (Fee) Medical Care system in FY13. A "service" is based upon CPT procedure codes in the Non-VA (Fee) Medical Care files, e.g., a clinic visit, a lab test, a radiology study, a surgical procedure, a medication, or a supply. If a patient received multiple services on a single day, each service is counted separately. Non-VA (Fee) Medical Care "services" represent a different unit of care than "encounters", where each VHA encounter encompasses an entire clinical visit, which may include more than one service. Also note that fee care is organized by the fiscal year in which payment was made, rather than the year in which care was delivered.

IMPLICATIONS The relatively higher use of fee outpatient services by middle-aged patients may reflect an increased need for care in a population that is starting to experience the onset of chronic health conditions but does not yet have access to services through Medicare. Coordination of VA and non-VA care is a challenge, and this challenge has become even more important with implementation of the Veterans Access, Choice and Accountability Act of 2014.

These data reflect fee outpatient service use only and do not capture the use of other types of VA outpatient encounters or use of Medicare services, which is likely to be substantial among patients 65 and older.

Section IV: Conditions

Categories of Diagnosed Conditions[40] by Age

For most categories, rates of diagnosed conditions in the listed categories varied across age groups (i.e., the difference between the maximum and minimum rates across the three main age groups differed by at least 10 percentage points) *(Exhibit 5-12)*. Among the domains with sizable differences across age groups, for seven domains the rates increased with increasing age (endocrine, cardiovascular, urinary, reproductive health, cancer, hematologic/immunologic, and sense organ). For three domains, the rates were highest in the middle age group (gastrointestinal, musculoskeletal, and other). For one domain (MH/SUD) the rate was highest in the youngest age group.

40 Please see Technical Appendix, Section A.6, for the mapping of each condition to its primary domain and, where applicable, to its secondary domain.

EXHIBIT 5-12

PERCENT IN DIAGNOSED CONDITIONS CATEGORIES BY AGE AMONG VETERAN VHA PATIENTS, FY13

	Age at Beginning of FY13						
Count	18-44 898,294	45-64 2,134,041	65+ 2,618,174	65-74 1,333,683	75-84 861,604	85+ 417,887	Total 5,650,509
Condition	%	%	%	%	%	%	%
Infectious Disease	19.2	25.2	18.7	20.3	16.9	17.6	21.3
Endocrine/ Metabolic/ Nutritional	32.8	65.8	72.4	75.5	72.5	62.5	63.6
Cardiovascular	21.0	60.6	74.2	73.5	76.3	72.2	60.6
Respiratory	21.6	29.5	27.7	29.6	26.7	23.9	27.4
Gastrointestinal	22.8	39.4	35.0	37.7	33.1	29.9	34.7
Urinary	6.3	14.2	21.7	19.2	23.4	26.2	16.4
Reproductive Health	14.1	21.6	30.5	29.4	32.4	30.1	24.5
Breast	1.1	1.0	0.4	0.5	0.4	0.4	0.8
Cancer	1.0	7.3	15.7	14.3	17.6	16.2	10.2
Hematologic/ Immunologic	3.7	9.4	13.6	11.6	14.8	17.2	10.4
Musculoskeletal	52.5	56.4	43.5	47.2	40.4	38.0	49.8
Neurologic	22.4	23.6	25.5	22.8	26.6	31.8	24.3
Mental Health/ SUD	47.6	42.1	21.1	28.1	14.1	13.3	33.3
Sense Organ	20.8	40.8	51.4	50.1	51.9	55.0	42.6
Dental	8.1	10.7	6.2	8.5	3.9	3.8	8.2
Dermatologic	15.5	22.9	23.2	25.1	21.4	20.8	21.9
Other	48.2	55.0	39.6	45.3	34.2	32.8	46.8

Missing = 1,562

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Higher rates of many health conditions (e.g., cardiovascular disease, cancer, and urinary conditions including renal failure or nephropathy) among older patients are perhaps to be expected. In comparing across age groups, the frequency in each domain or condition category reflects not only differences in true prevalence, but also variation in utilization of VA care for specific conditions across the age groups and differences in documentation of these conditions across age groups.

Individual Conditions by Age

Rates of diagnosed conditions do not reflect true disease or condition category prevalence among patients. Rather, these figures represent the proportion of patients in each age group who have one or more documented diagnoses within a particular domain or condition category. In addition, we do not have data on the prevalence or diagnosis rates of these conditions in Veterans who do not use VA care or in the general population, limiting our ability to make comparisons across populations. Other studies have reported on assessments of multimorbidity, which is common among Veterans: in 2010, 32% of 18-64 Veterans had over three chronic conditions, and 35% of Veterans age 65 and older had three more chronic conditions. The combination of these conditions can be important for understanding healthcare-related burden and costs. For example, the combination of conditions that was the most costly in the Veterans age 65 and older in 2010 was diabetes, hypertension, and spinal cord injury.[41]

Exhibit 5-13 contains diagnosed conditions by age among Veteran VHA patients and is available in the supplemental materials *(Exhibit 5-13)*.

Infectious Disease The rates of diagnosed infectious disease were 19.2% among patients 18-44, 25.2% among patients 45-64, and 18.7% among patients 65 and older. Among the specific conditions captured in this category, rates of diagnosed mycoses increased with age, whereas rates of diagnosed hepatitis C were highest in the middle age group (5.4% for patients age 45-64 vs. 0.4% for patients 18-44 and 0.8% for patients 65 and older) *(Exhibit 5-13)*.

Endocrine/Metabolic Rates of diagnosed endocrine/metabolic/nutritional conditions increased with age (32.8% for patients 18-44, 65.8% for patients 45-64, and 72.4% for patients 65 and older). Within the group of patients 65 and older, rates were slightly lower among the oldest old, patients 85 and older (62.5%). The pattern primarily reflected the increased rates of diagnosed diabetes mellitus and lipid disorders across older age groups. Rates of diagnosed overweight/obesity, in contrast, were greatest among patients in the middle age group, age 45-64 (19.7% vs. 14.4% for patients 18-44 and 12.3% for patients 65 and older) *(Exhibit 5-13)*.

Cardiovascular Rates of diagnosed cardiovascular disease increased with age: 21.0% for patients 18-44, 60.6% for patients 45-64, and 74.2% for patients 65 and older. Among specific conditions, the most frequently diagnosed conditions overall were hypertension (14.0%, 51.6%, and 63.2% for patients age 18-44, 45-64, and 65 and older, respectively) and other coronary artery disease (0.6%, 11.3%, and 25.0% across the three age groups) *(Exhibit 5-13)*.

Respiratory Rates of diagnosed respiratory disease were 21.6% for patients 18-44, 29.5% for patients 45-64, and 27.7% for patients 65 and older. The most frequently diagnosed conditions varied across age groups, with rates of diagnosed chronic obstructive pulmonary disease being relatively high for the middle-aged and older patients and allergic and other respiratory system infections or chronic sinusitis/rhinitis more frequent among younger patients *(Exhibit 5-13)*.

Gastrointestinal Rates of diagnosed gastrointestinal conditions were 22.8% for patients 18-44, 39.4% for patients 45-64, and 35.0% for patients 65 and older. The high rates of diagnosed conditions in the gastrointestinal domain among patients in the middle age group are due in part to differences in the rates of colorectal polyps, which likely reflects increased screening for the middle age group, consistent with current screening guidelines *(Exhibit 5-13)*.

Urinary Rates of diagnosed urinary conditions were 6.3% among patients 18-44, 14.2% for patients 45-64, and 21.7% for patients 65 and older. For middle-aged and older patients, the condition with the highest diagnosis rate was renal failure or nephropathy, whereas for younger patients, urinary tract infections were the most frequently diagnosed condition *(Exhibit 5-13)*.

41 Yoon J, Zulman D, Scott JY, Maciejewski ML. Costs associated with multimorbidity among VA patients. *Med Care*, 2014;52(3):S31-36.

Reproductive Health Rates of reproductive health conditions were 14.1% for patients 18-44, 21.6% for patients 45-64, and 30.5% for patients 65 and older. The high rates of reproductive health conditions largely reflect male genital disorders (including benign prostate disease) and sexual dysfunction *(Exhibit 5-13)*.

Breast Rates of diagnosed breast conditions were 1.1% for patients 18-44, 1.0% for patients 45-64, and 0.4% for patients 65 and older. The low rates of diagnosed conditions of the breast reflect the relatively low proportion of women among Veterans overall and among older Veterans in particular *(Exhibit 5-13)*.

Cancer Rates of diagnosed cancer were 1.0% for patients 18-44, 7.3% for patients 45-64, and 15.7% for patients 65 and older. The most frequently diagnosed condition in this domain was prostate cancer (2.5% for patients 46-64 and 8.3% for patients 65 and older) *(Exhibit 5-13)*.

Hematology/Immunologic Rates of diagnosed hematologic/immunologic conditions were 3.7% for patients 18-44, 9.4% for patients 45-64, and 13.6% for patients 65 and older. The most frequently diagnosed condition was anemia (2.3% for patients 18-44, 6.1% for patients 45-64, and 9.9% for patients 65 and older) *(Exhibit 5-13)*.

Musculoskeletal Rates of musculoskeletal conditions were 52.5% for patients 18-44, 56.4% for patients 45-64, and 43.5% for patients 65 and older. The high rates of conditions in the musculoskeletal domain in the middle and younger age groups reflect spine and joint disorders. In these two age groups, musculoskeletal disorders may reflect injuries that are more common in younger or recently-deployed patients and more chronic conditions that arise in working populations, including workers in primarily sedentary occupations *(Exhibit 5-13)*.

Neurologic Rates of diagnosed neurologic conditions were 22.4% for patients 18-44, 23.6% for patients 45-64, and 25.5% for patients 65 and older. Rates of diagnosed traumatic brain injury were highest for patients 18-44 (5.0% vs. 1.3% for patients 45-64 and 0.5% for patients 65 and older). Among the oldest old, patients 85 and older, 12.1% had diagnosed dementia, and 5.6% had diagnoses of other cognitive disorders *(Exhibit 5-13)*.

Mental Health/Substance Use Disorder Rates of diagnosed mental health/substance use disorder (MH/SUD) conditions were 47.6% for patients 18-44, 42.1% for patients 45-64, and 21.1% for patients 65 and older. The high rates of conditions in the MH/SUD domain in the youngest age group is consistent with prevalence data (for both the general population and for patient populations) and is also consistent with the high rates of MH/SUD utilization noted previously. The low documented rates of these conditions for patients 65 and older may belie the health impact of these conditions for older adults. Under-ascertainment or under-documentation of mental health conditions and SUD among older adults is a concern *(Exhibit 5-13)*.

Sense Organs Rates of diagnosed sense organ conditions were 20.8% for patients 18-44, 40.8% for patients 45-64, and 51.4% for patients 65 and older. Patients age 65 and older had high diagnosis rates for a number of sense organ conditions, including cataract (23.6%) and hearing problems (25.5%). Among middle- aged and younger patients, the most frequently diagnosed sense organ conditions were refraction disorders (8.7% for patients 18-44 and 21.9% for patients 45-64) *(Exhibit 5-13)*.

Dental Rates of diagnosed dental conditions were 8.1% for patients 18-44, 10.7% for patients 45-64, and 6.2% for patients 65 and older. The relatively low diagnosis rates for dental conditions (e.g., diagnosis rates of dental caries of 5.2% for patients 18-44, 6.9% for patients 45-64, and 4.0% for patients 65 and older) likely reflect patients opting to receive dental care outside the VA, which our data do not capture *(Exhibit 5-13)*.

Dermatologic Rates of diagnosed dermatologic conditions were 15.5% for patients 18-44, 22.9% for patients 45-64, and 23.2% for patients 65 and older *(Exhibit 5-13)*.

Other Rates of diagnosed conditions in the "Other" domain were 48.2% for patients 18-44, 55.0% for patients 45-64, and 39.6% for patients 65 and older. The high rates of conditions in the "Other" domain among middle-aged patients appear to be largely due to the high rates of sleep apnea and tobacco use disorder *(Exhibit 5-13)*.

Section V: Conclusions

The "Baby Boomers" (those born between 1946 and 1964) started turning 65 in 2011, and the number of older adults will increase dramatically during the 2010–2030 period. The older adult population in 2030 is projected to be twice as large as its counterparts in 2000, growing from 35 million to 72 million, and will represent nearly 20 percent of the total U.S. population.[42] The number of Veterans with service-connected disability has increased 60% since 1990, and much of this growth has been among Veterans with service-connected disability ratings of 50% of higher.[43]

The VA has shown that well-designed programs can improve the health status of older Veterans and decrease costs. Ensuring access to preventive and specialty health services among older adult Veterans may require tailoring the structure of VA care to extend its reach to Veterans who may not be able to travel regularly to a medical center. Such initiatives to date have included home-based primary care and care-coordination home telehealth. Home-based primary care is associated with better access, quality and cost for clinically complex Veterans.[44] Care-coordination home telehealth has been shown to reduce hospital admissions while maintaining high patient satisfaction.[45]

As the proportion of Veterans with service connected disability and disability from chronic disease and aging increases, the need for long-term services and supports is expected to increase. Although these services are vitally important for maintaining autonomy, dignity and quality of life, current payment sources are limited. Specifically, very few adults have private long-term care insurance and the primary payment sources are out of pocket and Medicaid programs. The high costs and potentially extended time of service needs makes full financing from out of pocket an option for very few. At the same time, Medicaid programs are facing significant budget pressures at the state level where large variations are seen in the range and depth of supports available. It is therefore expected that increasing numbers of Veterans with long-term services and supports needs will turn to the VA for assistance for both institutional and community-based long-term services and supports Efforts to forestall disability from chronic conditions and to enhance services that reduce the need for institutional long-term services and supportss will both meet the preferences of individuals and position the VA to better meet the needs of this population.

Data on conditions among older adult Veterans may reflect trends in and estimates of disease prevalence among a general population of older adults. Extant literature describes that 88 percent of older adults have one or more chronic illnesses, with one-quarter of this group having four or more conditions.[46] Among older adults age 65 years or more, degenerative arthritis, particularly osteoarthritis, affects 50%, hypertension 40%, urinary incontinence up to 30%, heart disease 30%, diabetes mellitus 15%, and significant vision impairment up to 15%.[47]

Finally, the demographic data across the different age groups suggests that increasing gender and racial/ethnic diversity will be an increasingly relevant and important consideration to factor into the health and healthcare of future older adult Veterans.

Our current report does not address functional status for older populations or among other groups. This limitation is important for several reasons. Functional limitation may reflect disparities in access to services that

42 http://www.agingstats.gov/docs/PastReports/2012/OA2012.pdf. Accessed August, 2015.
43 Department of Veterans Affairs, Veterans Benefits Administration Annual Benefits Reports, 1985-2014; Office of Policy & Planning, Office of the Actuary, Veteran Population Projection Model (VetPop), 2014. Prepared by the National Center for Veterans Analysis and Statistics.
44 Edes, T et al. Better access, quality and cost for clinically complex Veterans with home-based primary care. *JAGS.* 2014;62:1954-1961.
45 Darkins A et al. Care coordination/home telehealth: the systematic implementation of health informatics, home telehealth, and disease management to support the care of Veteran patients with chronic conditions. *Telemedicine and e-Health.* 2008;14(10):1118-1126.
46 Wolf JL, Starfield B, Anderson G. Prevalence, expenditures, and complications of multiple chronic conditions in the elderly. *Arch Intern Med.* 2002;162(20):2269-2276.
47 Unutzer J, Katon W, Sullivan M, Miranda J. Treating depressed older adults in primary care: narrowing the gap between efficacy and effectiveness. *Milbank Q.* 1999;77(2):225-256.

forestall or prevent decline. In addition, access itself may be significantly limited by functional impairment.[48] VA's Blueprint for Excellence highlights measuring this component of health as a transformational action to deliver high quality Veteran-centered care.

The key limitations to these data for examining differences across age groups are that these utilization data do not capture long-term care, that older patients may be disproportionately represented among inpatient or hospitalized populations whose utilization is not captured, and that the data on conditions and domains do not reflect prevalence but rather the frequency of documenting conditions among patients who elect to use VA care. The distinction between prevalence and rates of diagnosed conditions is particularly important in making comparisons across age groups because the conditions most likely to be documented are the conditions that lead a patient to present for care, and the reasons for seeking VA care likely differ with age. Some conditions, such as MH/SUD or sexual dysfunction, are likely to be under-diagnosed and under-documented, and these data may therefore seriously under-estimate the impact of these conditions overall and among older patients in particular. These data also do not capture multi-morbidity, which can present significant cost, access and quality of life burdens for older and functionally limited Veterans.

There are several important gaps in these data for older Veterans. Most importantly, as outlined above, future work needs to explore functional status, access to long-term services and supports, and multi-morbidity. In addition, the current data only shows patterns of diagnoses and healthcare utilization which may or may not reflect disparities in access or in unmet need. Future work should explore disease clusters, hospital use and overall costs and utilization by population groups. To understand truly the health status of and possible disparities for older Veterans, VA data should be combined with Medicare and Medicaid utilization data. In addition, the current data presentation lacks detail on reproductive health conditions among men. It would be useful in subsequent presentations to break down the figures for benign prostate disease as distinct from other genital disorders. For high impact conditions that are likely to be under-reported or under-documented, such as sexual dysfunction or MH/SUD conditions, primary data collection to collect data on prevalence, or other assessments of need for care, are needed.

48 Iezzoni LI. Eliminating health and healthcare disparities among the growing population of people with disabilities. *Health Aff (Millwood)*. 2011;30(10):1947-1954.

Chapter 6

Health and Healthcare for Veterans in VHA in Rural Areas

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Gina Capra, MPA

Nancy Maher, PhD

Section I: Significance & Background

Over one third of the Veterans served by the Veterans Health Administration reside in rural areas; in FY13 this included over 2.1 million Veteran VHA patients, or approximately 37% of the patient population *(Exhibit 6-1)*.[1] These rural Veterans often face issues in accessing high quality health care both within and outside of VA including geographical (e.g., drive time), financial, cultural, temporal, and digital (connectivity) barriers.[2] Even more importantly, these access barriers can lead to disparities in quality of care and health outcomes as well as impacts to perceptions, utilization, and satisfaction with the healthcare system.[2] For example, rural residents have been shown to have consistently lower health-related quality of life scores across a variety of disease categories than their urban counterparts.[3, 4] Additionally, rural residents have been found to be less likely to receive recommended treatment across several illnesses including stroke,[5] myocardial infarction,[6] and breast cancer,[7] to name a few. Further, rural residents often have lower rates of utilization, including preventive health services,[8] and those with the longest travel times are most likely to be lost to attrition.[9]

These examples highlight just a few of the ways in which barriers to health care access in rural areas leads to differential outcomes and it helps exemplify the importance of exploring and addressing these issues. Further, these examples and findings help explain some of the key issues to serving our rural Veterans who face similar issues as the rural population in general. To continue the discussion on this issue, this chapter provides a brief overview of the current state of health among rural Veterans by utilizing data for the entire VHA Veteran population during FY13 and provides overall rates of diagnosed medical conditions by Urban/Rural/Highly Rural (URH) codes.[10] Additionally, this chapter uses literature from rural health research more broadly in an attempt to explain some of the factors and determinants of these issues.

1 These numbers refer to Veterans who used any VHA care in FY2013 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY2013 VHA patients" (Data source: WHEI Master Database).

2 Fortney JC, Burgess JF, Bosworth HB, Booth BM, Kaboli PJ. A re-conceptualization of access in the 21st century healthcare. *J Gen Intern Med.* 2011;26(suppl 2),639-647.

3 Weeks WB, Kazis LE, Shen Y, Cong Z, Ren XS, Miller D, Lee A, Perlin JB. Differences in health-related quality of life in rural and urban Veterans. *Am J Public Health.* 2004;94(10),1762-1767.

4 Weeks WB, Wallace AE, Wang S, Lee A, Kazis LE. Rural-urban disparities in health-related quality of life within disease categories of Veterans. *Journal of Rural Health*. 2006;22(3),204-211.

5 Leira EC, Hess DC, Torner JC, Adams HP. Rural-urban differences in acute stroke management practices: A modifiable disparity. *JAMA, Neurology.* 2008;65(7),887-891.

6 Baldwin LM, Chan L, Andrilla CH, Huff ED, Hart LG. Quality of care for myocardial infarction in rural and urban hospitals. *Journal of Rural Health*. 2010;26(1),51-57.

7 Haggstrom DA, Quale C, Smith-Bindman R. Differences in the quality of breast cancer care among vulnerable populations. *Cancer.* 2005;104(11),2347-2358.

8 Casey MM, Call KT, Klingner JM. Are rural residents less likely to obtain recommended preventive healthcare services? *Am J Prev Med.* 2001;21(3),182-188.

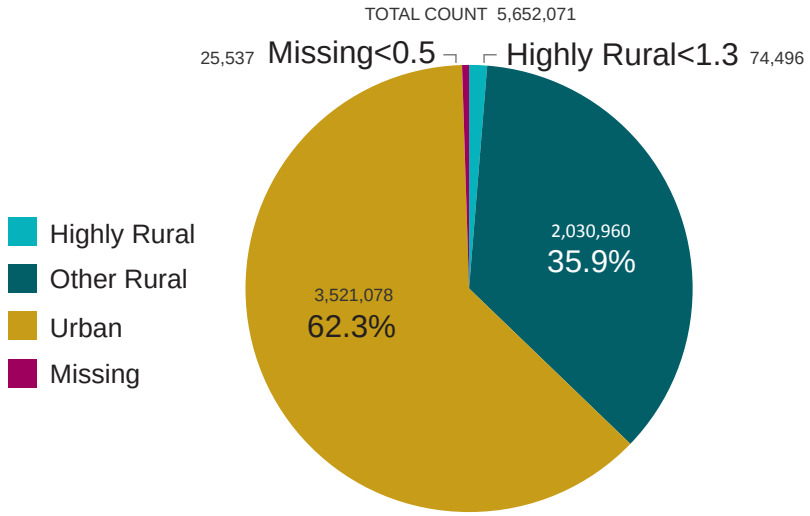
9 Friedman SA, Frayne SM, Berg E, Hamilton AB, Washington DL, Saechao F, Maisel NC, Lin JY, Hoggatt KJ, Phibbs CS. Travel time and attrition from VHA care among women veterans: How far is too far? *Medical Care.* 2015;533(4 Suppl 1),S15-S22.

10 In FY13 (and prior), VA defined rurality by using the three-category URH scheme, which gave each Veteran the designation of urban, rural, or highly rural based on U.S. Census Bureau information and Veteran residence. This classification system was updated in FY15 to the US Department of Agriculture (USDA) and Department of Health and Human Services (HHS) Rural-Urban Commuting Area (RUCA) methodology to allow for increased consistency across federal agencies in the definition of rural designation and to allow for improved accuracy in the planning and deployment of resources by the Veterans Health Administration. (See: West AN, Lee RE, Shambaug-Miller MD, et.al. Defining "rural" for Veterans' health care planning. Journal of Rural Health. 2010;26(4):301-309.)

Distribution of Veteran VHA Patients by Rural/Urban Status

EXHIBIT 6-1

DISTRIBUTION OF RURAL/URBAN STATUS AMONG VETERAN VHA PATIENTS, FY13



Note: Categories for the URH codes are as follows: "highly rural" applies to Veterans who have an address in an county with <7 residents per square mile, "rural" applies to Veterans who have an address in any other non-urban location, and "urban" applies to Veterans who have addresses in areas with 50,000 or more people.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

Section II: Sociodemographics

The demographic profile of rural vs urban Veterans can be seen below. In general, rural and highly rural Veterans were predominately male and Caucasian, which is similar to the population distribution more generally in rural areas.[11] However, as the presence of women and minorities in the military continues to grow, the demographic profile of rural Veterans will also reflect these changes.[12]

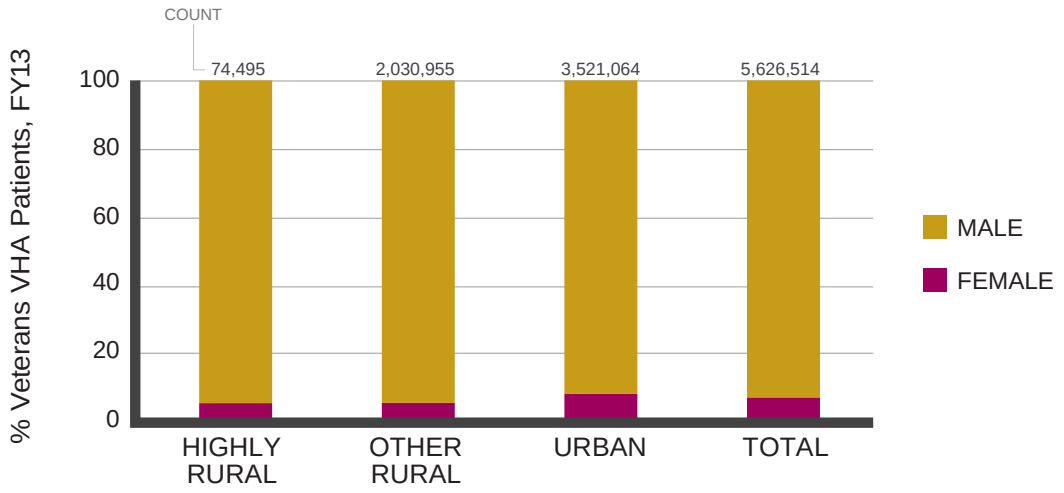
Additionally, rural and highly rural Veterans tended to be older than their urban counterparts, which mirrors larger rural population trends, where younger people tend to leave rural areas as young adults while older adults are more likely to migrate to rural areas.[11] It will be important for rural health care systems, strategic planners, and service providers to prepare for the challenges of this aging demographic.

Gender by Rural/Urban Status

Of the Veterans residing in rural areas, a large majority, 94.9%, were male. This pattern is slightly higher than urban Veterans, where 92.3% were male *(Exhibit 6-2)*.

EXHIBIT 6-2

PERCENT DISTRIBUTION OF GENDER BY RURAL/URBAN STATUS AMONG VETERAN VHA PATIENTS, FY13



Missing = 25,557
Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).
Source: VHA National Health Equity Report 2016

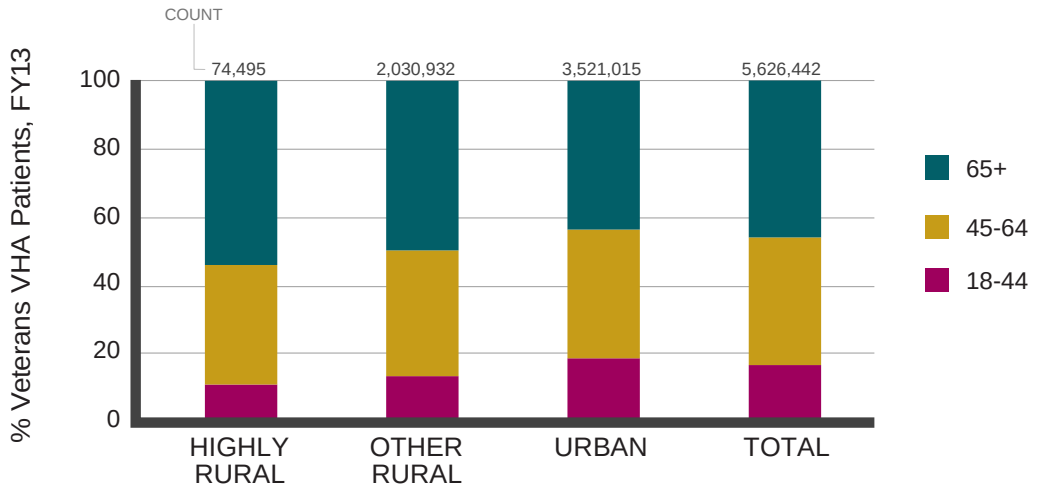
11 Johnson K. (2006). Demographic trends in rural and small town America. Durham, NH: University of New Hampshire, Carsey Institute.
12 United States Department of Agriculture (USDA). (2013). Rural Veterans at a glance. *Economic Brief*, 25, 1-6.

Age by Rural/Urban Status

Rural and highly rural Veterans tended to be older than their urban counterparts. As seen in *Exhibit 6-3*, 50.4% of rural or highly rural Veterans were age 65 or older, while 44.0% of urban Veterans fell into this age category. Additionally, only 12.5% of rural or highly rural Veterans were aged 18-44, while nearly 17.9% of urban Veterans fell into the youngest age category.

EXHIBIT 6-3

PERCENT DISTRIBUTION OF AGE BY RURAL/URBAN STATUS AMONG VETERAN VHA PATIENTS, FY13



Missing = 25,557
Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).
Source: VHA National Health Equity Report 2016

Race/Ethnicity by Rural/Urban Status

Overall, a large majority of enrolled Veterans were White (73.1%), but this majority was even higher in rural and highly rural Veterans where 85.3% of the Veteran population was White versus 65.8% for urban Veterans *(Exhibit 6-4).* This also equates to lower minority numbers in rural areas. For example, 20.3% of the urban Veteran population was Black or African American while only 7.4% of the rural and highly rural Veterans identified as Black or African American.

EXHIBIT 6-4

PERCENT DISTRIBUTION OF RACE/ETHNICITY BY RURAL/URBAN STATUS AMONG VETERAN VHA PATIENTS, FY13

Count	Highly Rural 74,496	Other Rural 2,030,960	Urban 3,521,078	TOTAL 5,626,534
Race/Ethnicity	%	%	%	%
American Indian/Alaska Native	2.5	0.7	0.4	0.6
Asian	0.2	0.2	1.1	0.8
Black/African American	0.8	7.7	20.3	15.5
Native Hawaiian/Other Pacific Islander	0.4	0.5	0.7	0.6
Multi-race	0.6	0.5	0.6	0.6
Hispanic	5.1	2.2	7.2	5.4
Unknown	4.0	3.0	3.9	3.6
White	86.4	85.2	65.8	73.1

Missing = 25,537

Note: The FY13 Veteran VHA cohort includes all Veteran patients regardless of where they live. However, in crosstab of rural/urban residence by race/ethnicity, individuals with missing URH values, 0.5% of the FY13 Veteran patients, are not included. Zip codes from American Samoa, Guam, and the Philippines had missing values on the rural/urban variable; therefore they are not included here. Individuals from Puerto Rico and the US Virgin Islands are included.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

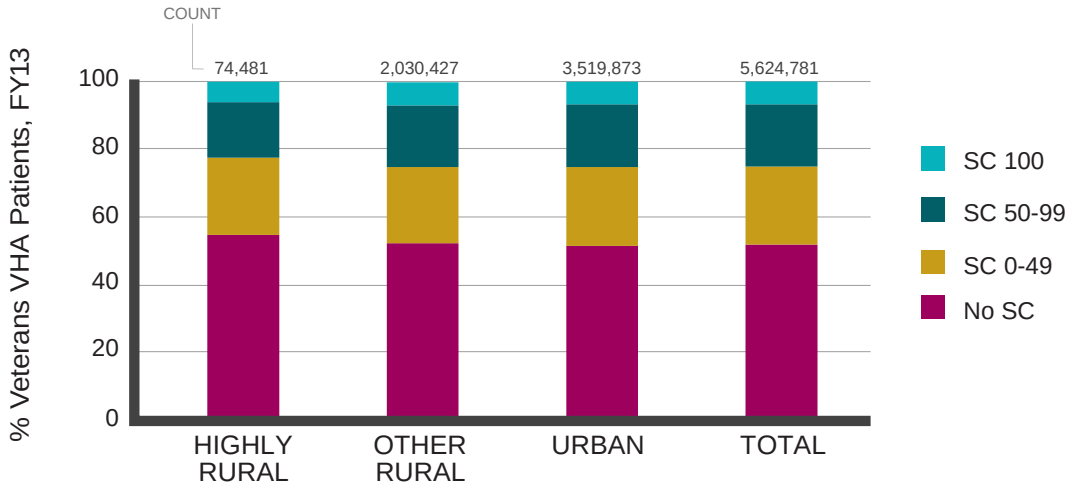
Source: VHA National Health Equity Report 2016

Service-Connected Rating Status by Rural/Urban Status

Rural and urban Veterans were largely similar in their distribution of service-connected status category *(Exhibit 6-5)*. However, there tended to be a higher percentage of highly rural Veterans who had no service connection (54.3% versus 51.0%) and slightly fewer highly rural Veterans with a service connection rating between 50-99 (16.5%) compared with their rural (18.4%) and urban (18.7%) counterparts.

EXHIBIT 6-5

PERCENT DISTRIBUTION OF SERVICE-CONNECTED STATUS BY RURAL/URBAN STATUS AMONG VETERAN VHA PATIENTS, FY13



Missing = 25,290
Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).
Source: VHA National Health Equity Report 2016

Section III: Utilization

Past research has suggested that rural populations utilize health services less often than urban populations, for example, lower rates of preventive health services use.[13] Rural location and the associated travel burden can also lead to differences in treatment patterns.[14] However, as a whole, the utilization rates reported here for Veteran VHA patients do not appear to be vastly different between rural and urban Veterans. While this suggests that broadly there are not large differences between these groups in general utilization numbers, it is important to note that these numbers reflect only the number of visits in a few general categories, and do not control for other factors that may influence utilization. It is possible that there are important differences in utilization by specific illness category, by specific services, type of care, or other more specific measures, all of which should be examined in future evaluations.

VHA Outpatient Encounters by Rural/Urban Status

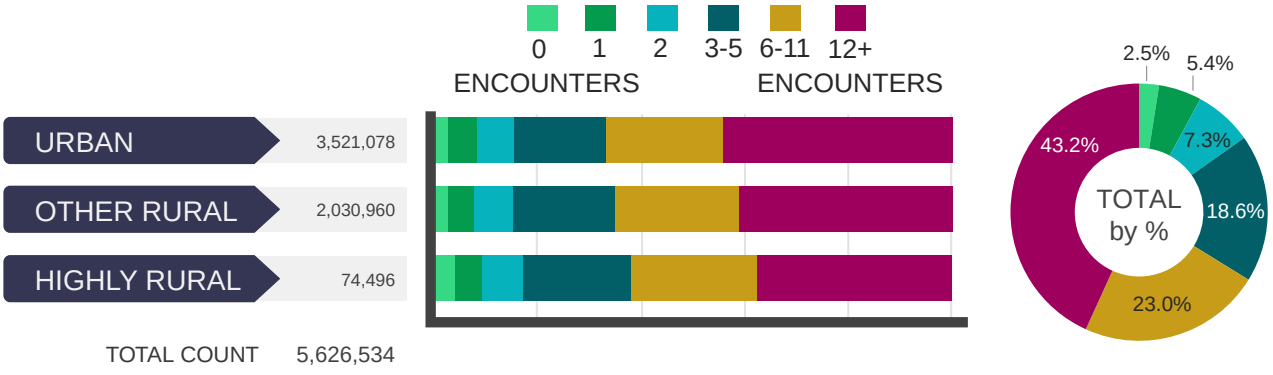
Highly rural Veterans were most likely to have had no outpatient visits during the year (3.8% versus 2.5% in rural and 2.4% in urban Veterans) and they were the least likely to have 12+ encounters in the past year (37.7% versus 41.2% in rural and 44.5% in urban Veterans) *(Exhibit 6-6)*. However, when considering the middle ranges of encounters, in several instances highly rural and rural Veterans were more likely to fall into those categories than their urban counterparts (e.g. 3-5 encounters and 6-11 encounters).

13 Casey, MM, Call KT, Klingner JM. Are rural residents less likely to obtain recommended preventive healthcare services? *Am J Prev Med.* 2001;21(3),182-188.

14 Meden T, Larkin CS, Hermes D, Sommerschield S. Relationship between travel distance and utilization of breast cancer treatment in rural Northern Michigan. *JAMA.* 2002;287(1),111.

EXHIBIT 6-6

PERCENT DISTRIBUTION OF OUTPATIENT ENCOUNTERS BY RURAL/URBAN STATUS AMONG VETERAN VHA PATIENTS, FY13



Missing = 25,537.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

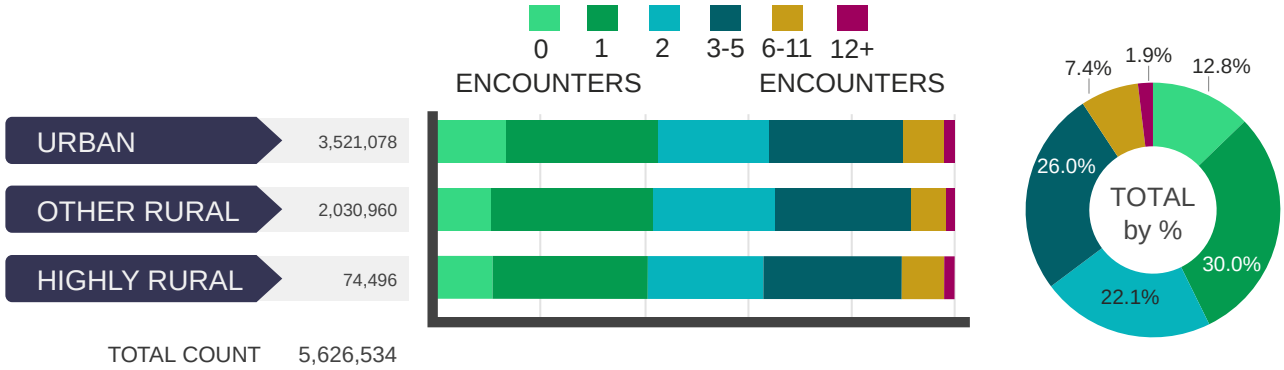
IMPLICATIONS This finding broadly suggests that those living furthest from VA facilities are the most likely to go without an outpatient visit during a given year and the least likely to have 12+ encounters. However, this finding does not reflect variations in illness categories in this encounter data by rural/urban status.

Primary Care Encounters by Rural/Urban Status

There were only small differences in trends among primary care encounters between rural and urban Veterans. An interesting finding is that urban Veterans were most likely to have had no annual follow up (13.9% versus 10.9% rural and 11.3% highly rural) in the past year *(Exhibit 6-7)*.

EXHIBIT 6-7

PERCENT DISTRIBUTION OF PRIMARY CARE ENCOUNTERS BY RURAL/URBAN STATUS AMONG VETERAN VHA PATIENTS, FY13



Missing = 25,537.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

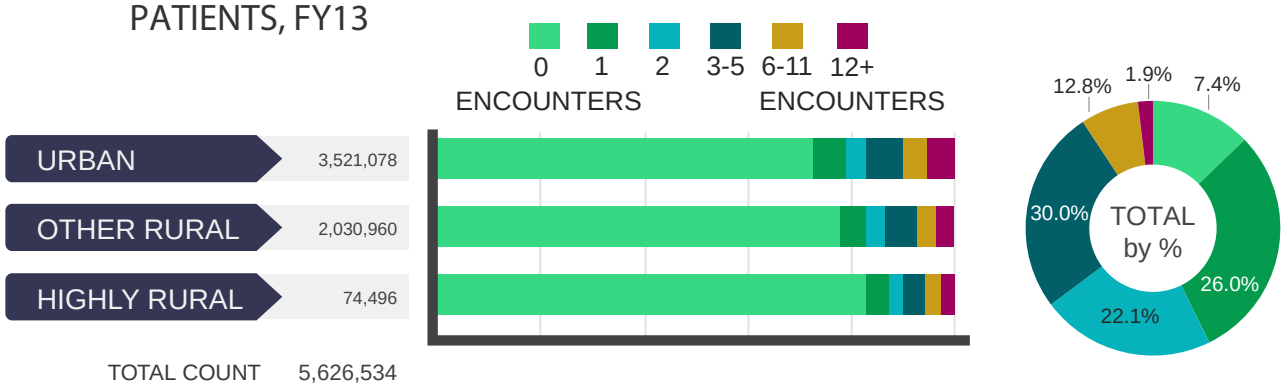
IMPLICATIONS Rates of primary care follow-up are actually quite high in VA compared to national rates outside the VA, which likely reflects the systems VA has put into place to promote retention in VA primary care. However, utilization will be an interesting area to monitor as the Veteran Choice Program increases access to a broader network of community based providers which may result in changes to the rural/urban utilization dynamics.

Mental Health/Substance Use Disorder Encounters by Rural/Urban Status

The large majority of enrolled Veterans did not have any Mental Health or Substance Use Disorder visits during FY13 *(Exhibit 6-8)*. This was especially true for highly rural Veterans of which 83.0% had no encounters, and rural Veterans, of which 77.9% had no encounters (versus 72.8% of urban patients having no encounters).

EXHIBIT 6-8

PERCENT DISTRIBUTION OF MENTAL HEALTH/SUBSTANCE USE DISORDER ENCOUNTERSBY RURAL/URBAN STATUS AMONG VETERAN VHA PATIENTS, FY13



Missing = 25,537.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

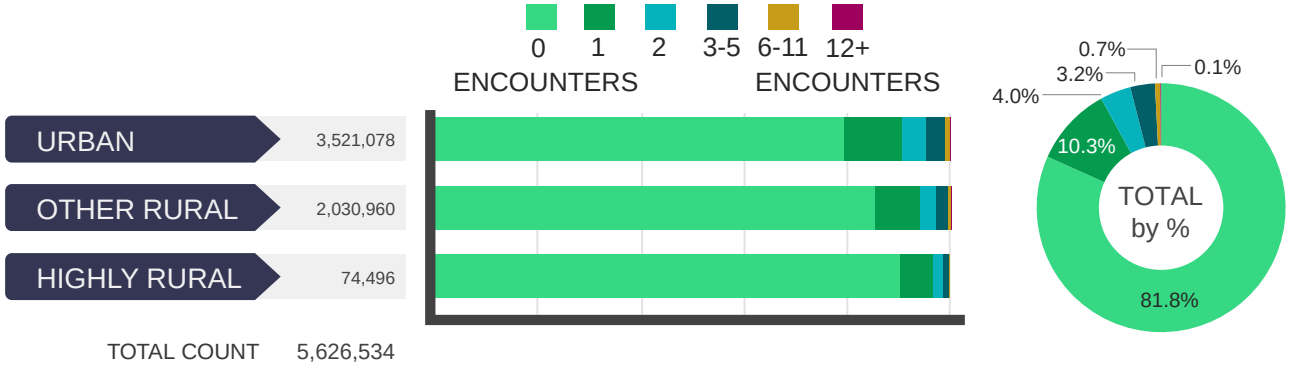
IMPLICATIONS This finding, in combination with the lower rates of diagnosed mental health conditions described in the section below, could suggest that rural Veterans are seeking care and/or being diagnosed less often than their urban counterparts, rather than that rural Veterans have fewer mental health issues.

Emergency Department Encounters by Rural/Urban Status

Rural and highly rural Veterans were less likely to utilize VA emergency department services than urban Veterans *(Exhibit 6-9)*.

EXHIBIT 6-9

PERCENT DISTRIBUTION OF EMERGENCY DEPARTMENT ENCOUNTERS BY RURAL/URBAN STATUS AMONG VETERAN VHA PATIENTS, FY13



Missing = 25,537.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

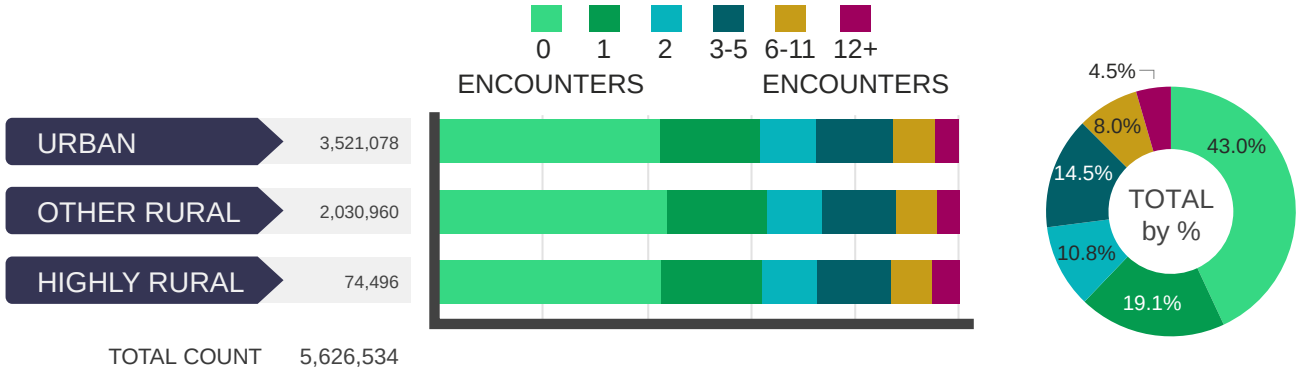
IMPLICATIONS Differences in VA emergency department use by rural/urban status can largely be explained by the proximity to VA emergency departments. Most rural and highly rural Veterans live considerable distances from VA medical centers where emergency departments are located, and therefore they would be expected to have lower VA emergency department utilization rates. However, without information on non-VA community emergency department utilization, it cannot be determined how rural and urban Veterans use emergency department services overall, or whether their emergency department use leads to differences in outcomes.

Telephone Encounters[15] by Rural/Urban Status

There was a slightly higher rate for the highest number of telephone encounters (12+) among highly rural Veterans (5.4%) compared to the telephone encounter rates for rural (4.4%) and urban (4.6%) populations *(Exhibit 6-10)*. However, in general, rates of telephone encounters by rural/urban status were largely the same.

EXHIBIT 6-10

PERCENT DISTRIBUTION OF TELEPHONE ENCOUNTERS BY RURAL/URBAN STATUS AMONG VETERAN VHA PATIENTS, FY13



Missing = 25,537.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Overall, it appears as though use of telephone visits to address concerns which do not require an in-person visit are utilized similarly regardless of rural/urban location. However, this data does not reflect telehealth utilization rates, which are higher in rural areas than in urban areas.[16] Further, understanding that rural Veterans use telehealth more frequently than urban Veterans suggests an important emphasis going forward will be to find ways to overcome connectivity issues in rural communities.

15 Telephone encounters include only encounters over the phone with a clinician, but not formal telehealth encounters.

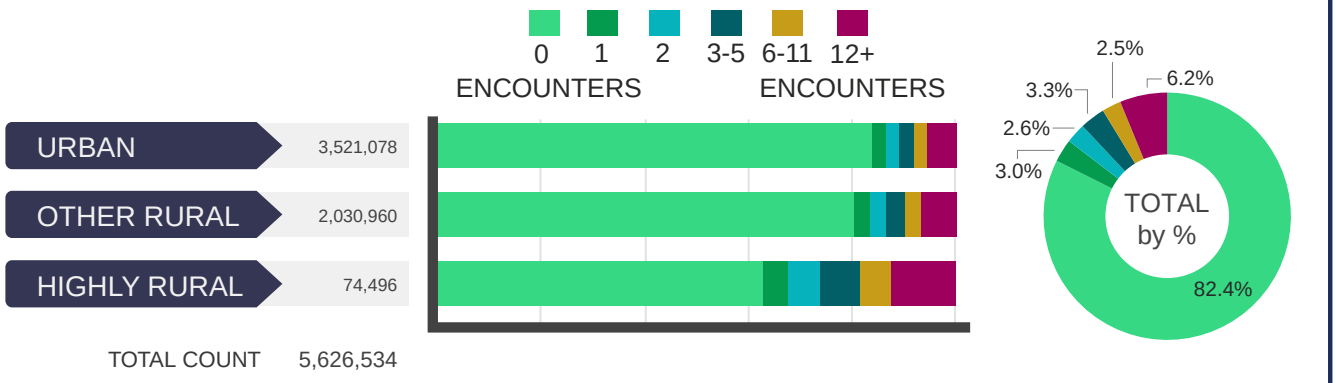
16 VHA Support Services Center (VSSC). Telehealth workload cube. Retrieved July 7, 2015.

Fee Outpatient Services[17] by Rural/Urban Status

Rural and urban Veterans were most likely to have no fee-based outpatient service use in the past year, with 80.6% and 83.9% respectively *(Exhibit 6-11)*. However, highly rural Veterans had higher rates of fee service use across all other service use categories. For example, 12.4% of highly rural Veterans used 12+ fee based services in the past year, while a smaller percent of rural and urban Veterans (6.8% and 5.7%, respectively) had that level of fee-based service use.

EXHIBIT 6-11

PERCENT DISTRIBUTION OF FEE OUTPATIENT SERVICES ENCOUNTERS BY RURAL/URBAN STATUS AMONG VETERAN VHA PATIENTS, FY13



Missing = 25,537.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Veterans living in highly rural areas were the most likely to receive fee-based care. This is not surprising given the long distances to VA facilities for many of these Veterans. Use of fee outpatient services is likely to increase with the implementation of the Veterans Access, Choice and Accountability Act of 2014 which is intended to improve access by utilizing non-VA community providers. The supply of community providers in rural communities is a long standing issue in the delivery of care to rural populations and will likely remain a significant access issue into the future.

17 Fee services include Non-VA community care that was reimbursed by VA.

Section IV: Conditions

Diagnosed Conditions Categories by Rural/Urban Status

The five leading categories of diagnosed conditions were the same among highly rural, rural, and urban Veterans. Endocrine, metabolic, and nutritional disorders were the most common diagnosed conditions across all three geographic classifications; cardiovascular illnesses were the second most common category of diagnosed conditions, followed by musculoskeletal, sense organ, and gastrointestinal categories *(Exhibit 6-12)*. It is not surprising that these categories of diagnosed conditions are largely similar among rural and urban Veteran populations, as many of the issues facing rural health are less about rates of morbidity than about disparities in health outcomes and quality of life as impacted by access to care and other social determinants of health.

EXHIBIT 6-12

PERCENT IN DIAGNOSED CONDITIONS CATEGORIES BY RURAL/URBAN STATUS AMONG VETERAN VHA PATIENTS, FY13

Count	Highly Rural 74,496	Other Rural 2,030,960	Urban 3,521,078	TOTAL 5,626,534
Condition	%	%	%	%
Infectious Disease	17.3	19.4	22.4	21.3
Endocrine/Metabolic/ Nutritional	63.1	67.4	61.7	63.7
Cardiovascular	60.4	64.3	58.6	60.7
Respiratory	28.6	28.7	26.7	27.5
Gastrointestinal	35.0	36.5	33.7	34.7
Urinary	15.6	16.3	16.5	16.4
Reproductive Health	23.7	24.7	24.5	24.6
Breast	0.7	0.6	0.8	0.8
Cancer	10.7	10.6	10.0	10.2
Hematologic/Immunologic	8.9	10.1	10.7	10.4
Musculoskeletal	50.2	50.9	49.2	49.9
Neurologic	23.1	24.1	24.5	24.3
Mental Health/SUD	27.3	31.5	34.4	33.3
Sense Organ	41.3	43.5	42.2	42.6
Dental	6.8	7.5	8.7	8.2
Dermatologic	22.4	22.0	21.8	21.9
Other	45.8	46.7	46.9	46.8

Missing = 25,537

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

Individual Diagnosed Conditions by Rural/Urban Status

Exhibit 6-13 contains individual diagnosed conditions by rural and urban status and is available in the supplemental materials *(Exhibit 6-13)*.

Similarly and as expected, there were also not vast differences between rural and urban Veterans in the rates of individual conditions within these categories *(Exhibit 6-13)*. For some conditions, rural Veterans had lower diagnosis rates, while for other conditions, rural Veterans had a slightly higher percent diagnosed. Again, this is reflective of trends among rural and urban populations more generally, where there is little evidence to show stark differences in rates of morbidity or chronic conditions.[18] Instead, a more compelling issue is the potential for differences in health outcomes or treatments among these conditions as a reflection of differences in care received that is dependent on geographic location. Those types of comparisons are beyond the scope of this report, but should continue to be a part of the rural health services research agenda.

Infectious Disease

For HIV/AIDs, rural and highly rural Veterans had lower overall rates of diagnosed infection (0.1% and 0.2% respectively) compared to urban Veterans, who had rates of 0.6%. Rural and highly rural Veterans also had lower rates of Mycoses than their urban counterparts, with 3.9% (highly rural), 5.7% (rural) and 6.5% (urban) diagnosed, respectively *(Exhibit 6-13)*.

IMPLICATIONS Although the count data provided here suggest lower rates of HIV/AIDs in rural populations, it is likely the case that there are other explanations for this difference. For example, studies have shown that rural residents are less likely to have HIV testing in the prior year,[19] which could lead to overall fewer diagnoses. Similarly, rurality has been shown to be associated with delayed care entry for HIV,[20] suggesting that instead of these data indicating differences in overall disease rates, they may instead point to differences in care seeking behavior.

18 Eberhardt MS & Pamuk ER. The importance of place of residence: Examining health in rural and non-rural areas. *Am J Public Health.* 2004;94(10),1682-1686.

19 Ohl ME & Perencevich E. Frequency of human immunodeficiency virus (HIV) testing in urban vs. rural areas of the United States: Results from a nationally-representative sample. *BMC Public Health.* 2011;11(681),1-7.

20 Ohl M, Tate J, Duggal M, Skanderson M, Scotch M, Kaboli P, Vaughan-Sarrazin M, & Justice A. Rural residence is associated with delayed care entry and increased mortality among veterans with immunodeficiency virus infection. *Medical Care,* 2010;48(12),1064-1070.

Endocrine/Metabolic/Nutritional

Slight differences were seen between rural and urban Veterans in rates of endocrine/metabolic/ nutritional disorders. In FY13, Veterans who fell into the rural classifications had diabetes rates of approximately 25% whereas their urban counterparts were 23.1%. Rural Veterans had higher rates of lipid disorders (51.9% versus 44.8% for urban Veterans) and thyroid disorders (8.6%, 7.7% and 7.0%, for highly rural, rural, and urban Veterans, respectively). However, highly rural Veterans had lower rates of overweight/obesity (11.5%) than both their rural (15.8%) and urban counterparts (15.4%). This trend was also seen with Vitamin D Deficiency, where rates ranged from 3.2% in highly rural Veterans, to 4.3% in rural Veterans and up to 4.6% in urban Veterans *(Exhibit 6-13)*.

IMPLICATIONS Prior research has suggested that rural populations have higher crude prevalence rates of diabetes, suggesting that many risk factors such as poverty, obesity, and tobacco use play a role in this trend.[21, 22] The tables presented above show a slightly higher prevalence of diabetes among rural Veterans than among urban Veterans, but this trend does not extend to the highly rural Veteran population. Additionally, highly rural Veterans actually had lower rates of diagnosed overweight/ obesity than both rural and urban Veterans, which could suggest why they had lower rates of diabetes. Overall it is unclear why highly rural Veterans do not follow the predicted population pattern of higher rates of diagnosed diabetes than urban populations. This difference could be artificial due to the rurality classification used in the FY13 enrollment files or it could suggest behavioral or lifestyle differences between geographic locations.

Cardiovascular

Within the category of cardiovascular diseases, rural Veterans tended to have higher rates of both hypertension and coronary artery disease than both their highly rural and urban counterparts. In the case of hypertension, 54.4% of the rural population had this diagnosis compared to 49.2% of highly rural Veterans and 49.3% of urban Veterans. For coronary artery disease, 18.2% of rural Veterans had the diagnosis in FY13, compared to 15.9% of highly rural and 14.7% of urban patients *(Exhibit 6-13)*.

IMPLICATIONS These data suggest that rural patients have higher rates of hypertension and coronary artery disease than their urban counterparts. This is important because historically rural patients have also had higher death rates from cardiovascular disease than their urban counterparts.[21] Further, it is often harder for these rural patients to obtain services to help treat or recover from cardiovascular illness, such as cardiac rehabilitation, due to limited access to locally available rehabilitation care and travel burden.[23] Going forward, this suggests an important avenue where home-based models of care delivery may help address this gap in treatment provision for rural Veterans.[23]

21 Eberhardt MS & Pamuk ER. The importance of place of residence: Examining health in rural and non-rural areas. *Am J Public Health.* 2004;94(10),1682-1686.

22 O'Connor A & Wellenius G. Rural-urban disparities in the prevalence of diabetes and coronary heart disease. *Public Health,* 2012;126(10),813-820.

23 Wakefield B, Drwal K, Scherubel M, Klobucar T, Johnson S, & Kaboli PJ. Feasibility and effectiveness of remote, telephone-based delivery of cardiac rehabilitation. *Telemedicine Journal and e-Health.* 2014;20(1),32-38.

Respiratory

While many of the rates of pulmonary illness did not differ between rural and urban patients, there were higher rates of chronic obstructive pulmonary disease (COPD) among highly rural (11.4%) and rural (11.3%) Veterans compared to urban Veterans (8.1%) *(Exhibit 6-13)*.

IMPLICATIONS Similar to rural population rates more generally,[24] COPD impacts rural Veterans at higher rates than urban Veterans. Additionally, those rural Veterans who have COPD have been found to have higher rates of mortality from the illness compared to their urban counterparts.[25] Efforts to understand the risk factors driving the higher rate of COPD in rural Veterans could help point to appropriate interventions.

Gastrointestinal

Among the gastrointestinal conditions, rural Veterans had the highest rates of esophageal disorders (20.3%) compared to both their highly rural (18.3%) and urban (16.4) counterparts. Additionally, rural and highly rural Veterans had slightly higher rates of colorectal polyps (6.5% and 6.4% respectively), compared with urban patients (5.7%). Lastly, rural and highly rural Veterans had slightly lower rates of hepatitis C (1.8% and 1.6%, respectively) than urban Veterans (3.0%) *(Exhibit 6-13)*.

IMPLICATIONS Although it is unclear why rural Veterans might have higher rates of esophageal disorders than their urban counterparts, it is possible that differences in social factors or life stressors are contributing to differing rates of gastrointestinal disorders.[26] This is an area where further exploration is needed. For the differing rates in colorectal polyps, it is not entirely clear which factors could be driving these rates, although there have been some studies which suggest that rural residents are at increased risk for colon cancer.[27] However, it is likely that differences in screening rates between urban and rural residents can explain at least part of the association in cancer rates.[28] Going forward it will be important to understand how increasing screening rates might change this relationship. Lastly, for hepatitis C, it makes sense to see a higher rate in urban, as this particular illness is largely spread through injection drug use (which also occurs at a higher rate in urban areas).[29]

24 Eberhardt MS & Pamuk ER. The importance of place of residence: Examining health in rural and non-rural areas. *Am J Public Health.* 2004;94(10),1682-1686.

25 Abrams T, Vaughan-Sarrazin M, Fan VS, & Kaboli PJ. Geographic isolation shows higher risk for chronic obstructive pulmonary-disease related mortality: A cohort study. *Office of Rural Health Issue Brief*. 2012;1-3.

26 Chang L, Toner BB, Fukudo S, Guthrie E, Locke GR, Norton NJ, & Sperber AD. Gender, age, society, culture, and the patient's perspective on the functional gastrointestinal disorders. *Gastroenterology.* 2006;130(5),1435-1446.

27 Kinney AY, Harrell J, Slattery M, Martin C, & Sandler RS. Rural-urban differences in colon cancer risk in blacks and whites: The North Carolina colon cancer study. *Journal of Rural Health.* 2007;22(2),124-130.

28 Cole AM, Jackson JE, & Doescher, M. Urban-rural disparities in colorectal cancer screening: Cross-sectional analysis of 1998-2005 data from the Centers for Disease Control's behavioral risk factor surveillance study. *Cancer Medicine.* 2012;1(3),350-356.

29 Hellard M, McBryde E, Davis RS, Rolls DA, Higgs P, Aitken C, Thompson A, Doyle J, Pattison P, & Robins G. (2015). Hepatitis C transmission and treatment as prevention - the role of the injecting network. *International Journal of Drug Policy, (epub ahead of print)*.

Urinary

Few differences were seen between rural and urban Veterans in the renal-urinary category. Only a slight difference was found among those with renal failure or nephropathy, with 6.0% of highly rural Veterans having this condition, compared to 6.8% of rural and 7.1% of urban Veterans *(Exhibit 6-13)*.

IMPLICATIONS Currently, it appears as though differences between rural and urban Veterans on urinary conditions are small. Additionally, research has suggested that treatment and health outcomes for rural populations with renal disease are comparable to urban populations.[30, 31]

Reproductive Health

In FY13, rates of reproductive health issues were relatively low across the entire Veteran population. Only two conditions in this category had noteworthy difference between rural and urban Veterans, including male genital disorders (with rates at 13.4% of rural and highly rural Veterans compared to 11.8% in urban Veterans) and sexual dysfunction (5.9% in highly rural, 7.5% in rural, and 7.6% in urban, respectively). Female specific disorders were largely similar across geographic categories *(Exhibit 6-13)*.

IMPLICATIONS The differences noted above are relatively small and are likely due in part to differences in demographic distributions between the populations, since this data does not control for the larger proportion of older males in rural areas.

Breast

Rates of breast conditions were low across the entire population and did not show any notable differences between rural and urban Veterans *(Exhibit 6-13)*.

IMPLICATIONS The rates of breast conditions between rural and urban Veteran populations appear to be very similar. However, research suggests that rural populations often face disparities in breast cancer screening[32] and treatment provision.[33] Therefore, efforts to explore issues related to breast conditions should consider potential differences in treatment patterns by rurality to ensure rural Veterans are receiving high quality care.

30 Axelrod DA, Guidinger MK, Finlayson S, Schaubel DE, Goodman DC, Chobanian M, & Merion RM. Rates of solid-organ wait-listing, transplantation, and survival among residents of rural and urban areas. *JAMA.* 2008;299(2),202-207.

31 O'Hare AM, Johansen KL, & Rodriguez RA. Dialysis and kidney transplantation among patients living in rural areas of the United States. *Kidney International.* 2006;69,343-349.

32 Doescher MP & Jackson EJ. Trends in cervical and breast cancer screening practices among women in rural and urban areas of the United States. *Journal of Public Health Management & Practice.* 2009;15(3),200-209.

33 Haggstrom DA, Quale C, & Smith-Bindman R. Differences in the quality of breast cancer care among vulnerable populations. *Cancer.* 2005;104(11),2347-2358.

Cancer

There were no notable differences between rural and urban Veterans in cancer diagnoses *(Exhibit 6-13)*.

IMPLICATIONS Rates of diagnosed cancer between rural and urban populations were similar. However, more importantly, rural patients often face more significant barriers to receiving the same cancer treatment as their urban peers, due to barriers such as travel and cost.[34] Perhaps as a product of this increased burden of accessing care, rural cancer patients often have worse outcomes following a cancer diagnosis, including higher mortality than urban patients.[35, 36] These issues highlight the importance of exploring differences between rural and urban populations in how care is delivered, and subsequent impacts on the quality of care.

Hematology / Immunology

There were slightly lower rates of diagnosed anemia among highly rural Veterans, with highly rural rates at 5.5%, rural at 6.9% and urban at 7.6% *(Exhibit 6-13)*.

IMPLICATIONS Others have found that rates of anemia typically increase with age.[37] Given that rural populations also tend to be older than their urban counterparts, future evaluations should explore the causes for the differences in diagnosed anemia rates that we observed.

Musculoskeletal

Rural and urban Veterans had similar rates of diagnoses for most musculoskeletal disorders *(Exhibit 6-13)*.

IMPLICATIONS Despite higher rates of unintentional injuries in rural populations,[38] there are similar rates of musculoskeletal disorders in general among rural and urban Veterans.

34 Baldwin LM, Cai Y, Larson EH, Dobie SA, Wright GE, Goodman DC, Matthews B, & Hart LG. Access to cancer services for rural colorectal cancer patients. *Journal of Rural Health.* 2008;24(4),390-409.

35 Eberhardt MS & Pamuk ER (2004). The importance of place of residence: Examining health in rural and nonrural areas. *Am J Public Health.* 2004;94(10),1682-1686.

36 Weaver KE, Geiger AM, Lingyi L, Case LD. Rural-urban disparities in health status among US cancer survivors. *Cancer.* 2013;119(5),1050-1057.

37 Guralnik JM, Eisenstaedt RS, Ferrucci L, Klein HG, & Woodman RC. Prevalence of anemia in persons 65 years and older in the United States: Evidence for a high rate of unexplained anemia, *Blood.* 2004;104(8),2263-2268.

38 Eberhardt MS & Pamuk ER (2004). The importance of place of residence: Examining health in rural and nonrural areas. *Am J Public Health.* 2004;94(10),1682-1686.

Neurological

There were also no notable differences among the rural and urban Veteran population for the conditions included in the neurological category *(Exhibit 6-13)*.

IMPLICATIONS Although disparities in treatment among neurological disorders such a stroke have been identified as an issue in the literature,[39] there were no observable differences between the rate of neurological conditions occurring among rural and urban Veterans. However, given rural/urban disparities in care for conditions such as stroke, future evaluations should explore rural/urban populations differences in health outcomes related to all neurological disorders.

Mental Health / Substance Use Disorder

Across many of the mental health diagnoses, highly rural Veterans had the lowest rates of diagnosed conditions. For example, for major depressive disorder, 4.0% of highly rural Veterans, 5.3% of rural, and 6.3% of urban Veterans had this diagnosis. This was also the case for the depression, possible-other (13.1% highly rural, 15.6% rural and 16.3% urban), PTSD (10.8% highly rural, 12.1% each in rural and urban), anxiety disorders-other (6.0% highly rural, 8.8% rural, and 9.3% in urban), adjustment disorders (1.4% highly rural, 2.2% rural, 2.8% urban), bipolar disorders (1.5% highly rural, 1.9% rural, and 2.6% urban), alcohol use disorders (5.6% highly rural, 6.0% rural, and 7.7% urban), and drug use disorders (2.1% highly rural, 3.0% rural, and 5.2% urban) *(Exhibit 6-13).*

IMPLICATIONS This lower rate of diagnosed mental health disorders among highly rural Veterans is consistent with other research which found the rates of these conditions to be lower in rural areas.[40] However, as suggested by the mental health/substance use disorder utilization section (Exhibit 6-13), it is likely that these mental health diagnoses are lower due to differences in treatment seeking behaviors and access to mental health care, rather than to lower morbidity in rural areas. Several studies have documented rural disparities in mental health care access and treatment seeking, such as those which have shown that rural populations have higher rates of depressive symptoms[41, 42] and higher rates of suicide.[43] Moreover, higher rates of stigma in seeking mental health treatment are found in the most rural areas,[40] further exacerbating this issue. In addition, research has also suggested that the amount and type of treatment provided to those living in rural areas often differs significantly from that for urban residents.[44] Additional work is needed to identify and implement interventions to address mental health care for rural populations.

39 Leira EC, Hess DC, Torner JC, & Adams HP. Rural-urban differences in acute stroke management practices: A modifiable disparity. *JAMA, Neurology.* 2008;65(7),887-891.

40 Wallace AE, Weeks WB, Wang S, Lee AF, & Kazis LE. Rural and urban disparities in health-related quality of life among veterans with psychiatric disorders. *Psychiatr Serv.* 2006;57(6),851-856.

41 Dobalian A, Tsao JC, & Radcliff TA. Diagnosed mental and physical health conditions in the United States nursing home population: Differences between urban and rural facilities. *Journal of Rural Health.* 2003;19(4),477-483.

42 Hoyt DR, Conger RD, Valde JG, & Weihs K. (1997). Psychological distress and help seeking in rural America. *Am J Community Psychol.* 1997;25(4),449-470.

43 Eberhardt MS & Pamuk ER. The importance of place of residence: Examining health in rural and nonrural areas. *Am J Public Health.* 2004;94(10),1682-1686.

44 Petterson SM. Metropolitan-nonmetropolitan differences in amount and type of mental health treatment. *Arch Psychiatr Nurs.* 2003;17(1),12-19.

Sense Organs

Among conditions of the sense organs, the highly rural Veterans had lower rates of refraction disorders (15.0%) compared to both rural (18.9%) and urban (18.8%) Veterans. This trend was also seen among glaucoma rates, with 5.1% highly rural, 7.0% rural and 8.3% urban Veterans receiving this diagnosis. Rural Veterans had the highest rates of cataract diagnoses at 17.6% (compared to 15.4% in highly rural and 16.1% in urban). Lastly, rural and highly rural Veterans had higher rates of hearing problems (approximately 19%) compared to urban Veterans (16.7%) *(Exhibit 6-13)*.

IMPLICATIONS While it is unclear why there might be lower rates of glaucoma and refraction disorders among rural Veterans, the association seen with higher rates of hearing problems in rural Veterans could be reflective of the overall demographic profile of rural Veterans, as older populations have higher rates of hearing loss.[45] Hearing loss continues to be an issue of concern to the entire Veteran population (due to increased noise exposure during military service), and efforts to address additional modifiable risks for hearing loss should focus on additional exposures experienced by rural populations, including occupational and other civilian exposures.[46] Similarly, the higher rate of cataracts among rural Veterans likely also reflects the aging rural population, as older populations typically have higher rates of cataracts.[47] For this reason, efforts to ensure adequate access to surgeries and treatment for cataracts in rural Veterans will continue to be an important issue.

Dental

Across all dental diagnoses, highly rural Veterans had lower rates than their rural and urban counterparts. For example, 4.4% of highly rural Veterans had dental caries, while 4.9% of rural and 5.5% of urban Veterans had caries *(Exhibit 6-13)*.

IMPLICATIONS Although research has suggested that those living in rural areas have higher rates of unmet dental needs, including fewer visits, more caries, and higher rates of lost teeth,[48] this trend is not seen in this data. This could be due to a number of factors including the small number of Veterans who receive VA dental care, and differences in rates of coverage for dental procedures outside of VA. However, due to the importance of oral health continued efforts to evaluate this area will be an important focus for VA going forward.

45 Agrawal Y, Platz EA, & Niparko JK. Prevalence of hearing loss and differences by demographic characteristics among US adults: Data from the National Health and Nutrition Examination Survey, 1999-2004. *JAMA, Internal Medicine,* 2008;168(14),1522-1530.
46 Saunders GH & Griest SE. Hearing loss in veterans and the need for hearing loss prevention programs. *Noise & Health.* 2009;11(42),14-21.
47 Congdon N, et al. Prevalence of cataract and Pseudophakia/Aphakia among adults in the United States. *JAMA, Ophthalmology.* 2004;122(4),487-494.
48 Vargas CM, Dye BA, & Hayes KL. Oral health status of rural adults in the United States. *JADA.* 2002;133(12),1672-1681.

Dermatologic

Rates of dermatologic issues were similar among rural and urban Veterans *(Exhibit 6-13)*.

IMPLICATIONS Rates of dermatologic issues appear to be largely similar by rural/urban status; however some research has suggested that rural residents may be less likely to take part in skin protective behaviors, such as using sunscreen.[49] Efforts to prevent skin cancers and other skin disorders could focus on these protective behaviors.

Other

Among the other issues included in this data, highly rural and rural Veterans had lower rates of housing insufficiency (1.3% for rural and highly rural compared to 4.2% in urban) *(Exhibit 6-13)*.

IMPLICATIONS While these data suggest that rural residents are not at higher risk for homelessness, this could be due in part to the measurement issues which often fail to appropriately account for homelessness in rural areas.[50] Further, differences in reasons for homelessness between rural and urban populations are of importance. For example, rural homeless populations tend to have issues with housing due to economic reasons or lack of adequate housing stock, instead of due to mental health or substance abuse issues.[51] Additionally, rural homeless populations tend to be more educated, younger, and are more likely to be women with children and single women.[52] Although this data suggests that rural Veterans are not at higher risk for homelessness, issues surrounding measurement of homelessness in rural areas as well as consideration of differential barriers to achieving stable housing will be important areas of focus going forward.

49 Zahnd WE, Goldfard J, Scaife SL, & Francis ML. Rural-urban differences in behaviors to prevent skin cancer: An analysis of the Health Information National Trends Survey. *J Am Acad Dermatol.* 2010;62(6),950-956.

50 Health Resources and Services Administration. (2014). Homelessness in rural America. *National Advisory Committee on Rural Health and Human Services Policy Brief*.

51 First RJ, Rife JC, & Toomey BG. Homelessness in rural areas: Causes, patterns, and trends. *Social Work.* 1994;39(1),97-108.

52 Vargas CM, Dye BA, & Hayes KL. Oral health status of rural adults in the United States. *JADA.* 2002;133(12),1672-1681.

Section V: Conclusions

Overall, the distribution of diagnosed conditions between rural and urban Veterans are largely similar, with rural Veterans having higher diagnosed rates of some conditions (e.g., diabetes and COPD) while urban Veterans have higher diagnosed rates of other conditions (e.g., HIV and Hepatitis C). In this way, we can see that rural residence does not necessarily result in a diagnosed disease prevalence disparity. However, disparities in health outcomes are largely a result of geographic differences in delivery of and access to quality care, which encompasses differences in prevention, diagnosis, screening, outreach, and clinical service delivery. For example, rural/urban differences in treatment patterns have been described for a variety of disorders such as coronary artery disease, stroke, and breast cancer. Prior studies have also found lower screening rates for colorectal cancer and lower rates of mental health treatment. These and the many other examples discussed above suggest that understanding how rurality impacts health goes beyond exploring rates of health conditions, and should explore differences in health outcomes, in treatment provision, and in health behaviors, to name a few. By exploring rurality through a broader array of health measures, we could start to see how interventions and health care must be adapted to bring rural residents the same high quality care as their urban counterparts.

In sum, rural residence does not always suggest that a disparity exists. Instead, rural residence suggests that there could be differences in how health services are delivered, received, and adopted. In addition to work around other social determinants of rural Veterans' health, understanding and addressing the variety of disparities that can result from these differences in care is the challenge for future research, policy, and practice in rural health.

There are several limitations of this chapter to note. First, this chapter provides only count data for the demographics, utilization, and individual conditions listed. While this count data can provide a springboard from which to start to examine areas of rural health care that may require additional attention, it does not provide the detailed look required to see many of the disparities in care rural Veterans face. These disparities are often seen in data such as differential health outcomes for the same illness or increased burden of travel to receive care, as two examples. For this reason, it is important to interpret the numbers in this report with this in mind and remember that the lack of a difference in rates seen in many of these illnesses is not suggesting that rural and urban Veterans are equal in health care access, but instead shows that, as expected, the rates of many diseases are similar across populations.

Additionally, the counts and rates included in this chapter reflect only diagnoses and visits which are documented in VA records. It is possible, and likely, that many Veterans are receiving care outside of the VA and that information is not included here. This should be considered when reviewing the rates and utilization information provided in previous sections.

Lastly, this chapter does not include data on many other social determinants that could be important to rural Veterans. For example, many issues facing rural Veterans are a result of provider shortages, lack of available education, training and employment, issues with health literacy, poverty, transportation, and other psychosocial factors which can make rural residence a barrier to accessing care and remaining healthy. These issues also merit research and policy, but are beyond the scope of the data provided here.

Chapter 7

Health and Healthcare Disparities Among Veterans with Serious Mental Illness

Amy N. Cohen, PhD
Dawn L. Glover, MA

Section I: Significance & Background

Compared to the general population, individuals with serious mental illness (SMI) have between 14-30 years shorter life expectancy, depending on the study.[1, 2, 3, 4, 5, 6, 7] Individuals with SMI who are treated in VA are on the lower end of this mortality gap with between 14-18 years shorter life expectancy compared to the general US population.[8] SMI as a category has been variably defined across studies. For the purposes of this chapter, and in line with the most typical definitions of SMI, the SMI group included schizophrenia, schizoaffective disorder, bipolar disorders, major depression with psychosis, and psychotic disorders not otherwise specified. Schizophrenia is considered the hallmark disorder of SMI.

In a systematic review across 25 countries, individuals with schizophrenia were found to have, on average, a 2.5 times increased risk of death compared to the general population.[9] And, although healthcare has improved over the last several decades, individuals with schizophrenia have not benefitted from advances in prevention, medicine, and system design that have reduced mortality and disability in the rest of the population.[10, 11] In fact, looking across several countries, mortality and morbidity rates for the population with schizophrenia have been *increasing* in a linear fashion during the period from 1980 to 2006.[9] This loss of health was attributable to a number of factors, such as medication side effects, lifestyle factors and cognitive deficits, and healthcare system disparities in access and utilization.[6]

There is also considerable increased risk of mortality and morbidity for the SMI population from physical health disorders. The 2001-2003 National Comorbidity Survey Replication, a nationally representative epidemiological survey of the U.S. population, found that more than 68% of adults with mental disorders also have medical conditions.[12] People with SMI, both generally and in the VA, have particularly high rates of co-occurring medical disorders,[1] including poorly treated cardiovascular disease, metabolic abnormalities, respiratory and infectious

1 Colton C, Manderscheid R. Congruencies in increased mortality rates, years of potential life lost, and causes of death among public mental health clients in eight states. *Prev Chronic Dis [serial online].* 2006.

2 De Hert M, Correll CU, Cohen D. Do antipsychotic medications reduce or increase mortality in schizophrenia? A critical appraisal of the FIN-11 study. *Schizophr Res.* Vol 117. 2010:68-74.

3 Kisely S, Smith M, Lawrence D, Maaten S. Mortality in individuals who have had psychiatric treatment population-based study in Nova Scotia. *The British Journal of Psychiatry.* 2005;187(6):552-558.

4 Roshanaei-Moghaddam B, Katon W. Premature mortality from general medical illnesses among persons with bipolar disorder: a review. *Psychiatr Serv.* 2009;60(2):147-156.

5 Brazier JE, Roberts J. The estimation of a preference-based measure of health from the SF-12. *Med Care.* 2004;42(9):851-859.

6 De Hert M, Correll CU, Bobes J, et al. Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care. *World Psychiatry.* 2011;10(1):52-77.

7 Tidemalm D, Waern M, Stefansson C-G, Elofsson S, Runeson B. Excess mortality in persons with severe mental disorder in Sweden: a cohort study of 12 103 individuals with and without contact with psychiatric services. *Clinical Practice and Epidemiology in Mental Health.* 2008;4(1):23.

8 Kilbourne AM, Morden NE, Austin K, et al. Excess heart-disease-related mortality in a national study of patients with mental disorders: identifying modifiable risk factors. *Gen Hosp Psychiatry.* 2009;31(6):555-563.

9 Saha S, Chant D, McGrath J. A systematic review of mortality in schizophrenia: is the differential mortality gap worsening over time? *Arch Gen Psychiatry.* 2007;64(10):1123-1131.

10 Laursen TM, Munk-Olsen T, Gasse C. Chronic somatic comorbidity and excess mortality due to natural causes in persons with schizophrenia or bipolar affective disorder. *PLoS One.* 2011;6(9):e24597.

11 Dickerson F, Brown C, Kreyenbuhl J, et al. Obesity among individuals with serious mental illness. *Acta Psychiatrica Scandinavica.* 2006;113(4):306-313.

12 Alegria M, Jackson JS, Kessler RC, D. T. National Comorbidity Survey Replication (NCS-R) 2001-2003. *Ann Arbor: Interuniversity Consortium for Political and Social Research.* 2003.

diseases.[13, 14, 15, 16, 17, 18, 19] Cardiovascular disease and coronary artery disease have been identified as leading causes of mortality in the SMI population.[20, 21, 22]

As a group, mental and substance use disorders have been the leading cause of non-fatal global disease burden and fifth in overall disease burden, which includes impact from both mortality and morbidity as measured in disability-adjusted life years (DALYs).[18] Although depressive and anxiety disorders are more prevalent and carry higher global burden, SMI accounts for the highest disability weights.[18] Despite the low prevalence of SMI (approximately 4% of the U.S. population),[23] they account for the majority of patients treated at outpatient public mental health clinics, including VA.[20]

13 Colton C, Manderscheid R. Congruencies in increased mortality rates, years of potential life lost, and causes of death among public mental health clients in eight states. *Prev Chronic Dis [serial online].* 2006

14 Kilbourne AM, Morden NE, Austin K, et al. Excess heart-disease-related mortality in a national study of patients with mental disorders: identifying modifiable risk factors. *Gen Hosp Psychiatry.* 2009;31(6):555-563

15 Bindman J, Johnson S, Wright S, et al. Integration between primary and secondary services in the care of the severely mentally ill: patients' and general practitioners' views. *Br J Psychiatry.* 1997;171:169-174.

16 Kisely S, Crowe E, Lawrence D. Cancer-related mortality in people with mental illness. *JAMA psychiatry.* 2013;70(2):209-217.

17 Lawrence D, Hancock KJ, Kisely S. The gap in life expectancy from preventable physical illness in psychiatric patients in Western Australia: retrospective analysis of population based registers. Vol 3462013.

18 Whiteford HA, Degenhardt L, Rehm J, et al. Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *The Lancet.* 2013;382(9904):1575-1586.

19 Walker ER, McGee RE, Druss BG. Mortality in mental disorders and global disease burden implications: a systematic review and meta-analysis. *JAMA psychiatry.* 2015;72(4):334-341.

20 Newcomer JW, Sernyak MJ. Identifying metabolic risks with antipsychotics and monitoring and management strategies. *J Clin Psychiatry.* 2007;68(7):e17.

21 Newcomer JW. Metabolic considerations in the use of antipsychotic medications: a review of recent evidence. *J Clin Psychiatry.* 2007;68 Suppl 1:20-27.

22 Dixon LB, Kreyenbuhl JA, Dickerson FB, et al. A comparison of type 2 diabetes outcomes among persons with and without severe mental illnesses. *Psychiatr Serv.* 2004;55(8):892-900.

23 NAMI. Mental health facts in America. 2015; https://www.nami.org/getattachment/Learn-More/Mental-Health-By-the-Numbers/General-MH-Facts-4-12-15.pdf. Accessed August 14, 2015.

Formation of Mental Health Groupings

The focus of this chapter is on those Veterans in VA care in FY13 who have a serious mental illness (SMI).

Key Information For Interpreting The Results In This Chapter

In order to contextualize the findings regarding the group of Veterans with SMI, we have established five comparison groups, for a total of six groups:
1) serious mental illness;
2) mood or anxiety disorders;
3) post-traumatic stress disorder (PTSD);
4) substance abuse;
5) other mental health and
6) no mental health diagnoses.

The comparison groups were formed hierarchically such that individuals who had comorbid mental health diagnoses were placed in the highest group for which they had a diagnosis, starting with the SMI group.

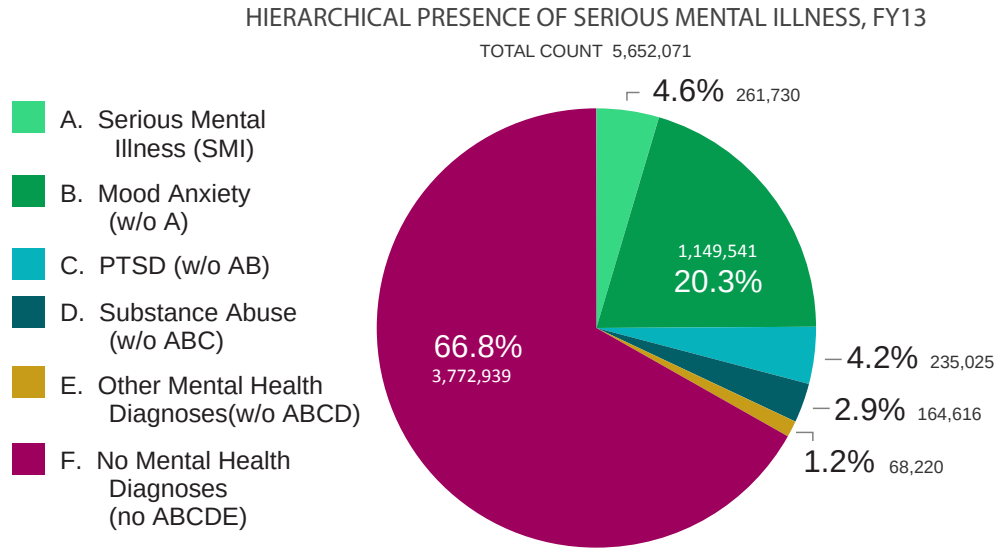
It is important to note throughout this chapter, when comparison groups are referred to, the reader must consider the implications of the hierarchy on interpretation. For example, those in the substance abuse comparison group are only those with a substance abuse diagnosis who did not also have a comorbid SMI, mood, anxiety, or PTSD diagnosis (i.e., groups higher in the hierarchy). It follows, then, that those in the "substance abuse" comparison group were not the whole population with that diagnosis. Only two groups in this chapter include the full VA population in care in FY13 with that diagnosis: the SMI group and the no mental health group. Each of the other groups (mood/anxiety disorders, PTSD, substance abuse, other mental health) contains only a subset of the VA population in care in FY13 with that diagnosis.

Distribution of Veteran VHA Patients by Mental Health Diagnosis

The Veteran population in VA care in FY13 who had no mental health diagnoses was 66.8% *(Exhibit 7-1)*. The percent of the Veteran population in VA care in FY13 who had an SMI diagnosis was 4.6%. The overall percent of the other mental health groups cannot be interpreted due to the hierarchical build of the groups.

EXHIBIT 7-1

DISTRIBUTION OF MENTAL HEALTH DIAGNOSES AMONG VETERAN VHA PATIENTS, FY13



Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Community epidemiological surveys estimate that as many as 30% of the adult population in the United States meet criteria for a DSM mental disorder within a 12-month period.[24] The percent of Veterans in VA care in FY13 with a mental health diagnosis was 33.2%, or over 1.8 million.

According to the National Alliance on Mental Illness, approximately 4% (14 million) of the adult population in the United States is living with a SMI.[25] Specifically, about 1% (2 million) has schizophrenia and 3% (6 million) has bipolar disorder.[25] The rate of Veterans with a SMI diagnosis in VA care in FY13 was 4.6%, or 261,730 individuals.

Not only is the rate of mental illness diagnoses, and SMI in particular, higher in VA compared to the general adult population, the VA numbers here only include those Veterans with the diagnosis who

24 Kessler RC, McGonagle KA, Zhao S, et al. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. Results from the National Comorbidity Survey. *Arch Gen Psychiatry*. 1994;51(1):8-19.

25 NAMI. Mental health facts in America. 2015; https://www.nami.org/getattachment/Learn-More/Mental-Health-By-the-Numbers/General-MH-Facts-4-12-15.pdf. Accessed August 14, 2015.

Continued from previous page
are also in care in a particular fiscal year. This means the numbers in this chapter are an underestimate of the diagnoses in the Veteran population at large and indicates a higher burden of mental health disorders in Veterans.

Veterans with SMI are treated in VA specialty mental health clinics. National treatment guidelines are clear on both psychopharmacologic and psychosocial treatments indicated for this population. These mental health treatments include guideline-concordant medication management, assertive community treatment (called Mental Health Intensive Case Management, or MHICM, in VA), family and caregiver psychoeducation, supported employment, social skills training, psychoeducation, and cognitive behavioral psychotherapies.[26, 27, 28]

Comorbidity Amongst Mental Health Diagnoses

Rates of comorbid mental health diagnoses can be high. Additionally, as a consequence of the hierarchical build of the mental health groupings for this chapter it was expected that comorbidity of mental health diagnoses will be even greater in the "highest" groups in the hierarchy (e.g., SMI, mood/anxiety) and lesser in the "lowest" group (e.g., other mental health). Comorbidity of mental health disorders in the Veterans in care in FY13 is available in *Exhibit 7-2*. The SMI group had high comorbidity with PTSD (28.2%), anxiety disorders (23.5%), alcohol use disorders (23.9%), and drug use disorders (22.6%). Keeping in mind the hierarchical build of the comparison groups, it is still noteworthy that the mood/anxiety group had high comorbidity with PTSD (32.5%) as well as alcohol (15.7%) and drug (10.3%) use disorders. The PTSD comparison group had high comorbidity with alcohol use disorders (11.5%).

26 Dixon LB, Dickerson F, Bellack AS, et al. The 2009 schizophrenia PORT psychosocial treatment recommendations and summary statements. *Schizophr Bull*. 2010;36(1):48-70.

27 Kreyenbuhl J, Buchanan RW, Dickerson FB, Dixon LB. The Schizophrenia Patient Outcomes Research Team (PORT): updated treatment recommendations 2009. *Schizophr Bull*. 2010;36(1):94-103.

28 American Psychiatric Association. Practice guideline for the treatment of patients with bipolar disorder (revision). *Am J Psychiatry*. 2002;159(4 Suppl):1-50.

EXHIBIT 7-2

PERCENT DISTRIBUTION OF MENTAL HEALTH COMORBIDITIES AMONG VETERAN VHA PATIENTS, FY13

Hierarchical Presence of Serious Mental Illness, FY13

	A. Serious Mental Illness (SMI)	B. Mood Anxiety (w/o A)	C. PTSD (w/o AB)	D. Substance Abuse (w/o ABC)	E. Other Mental Health Diagnoses (w/o ABCD)	F. No Mental Health Diagnosis (no ABCDE)	Total
COUNT	261,730	1,149,541	235,025	164,616	68,220	3,772,939	5,652,071
	%	%	%	%	%	%	%
Major Depressive Disorder	19.3	24.8					5.9
Depression, Possible - Other	34.6	70.7					16.0
PTSD	28.2	32.5	100.0				12.1
Acute Stress Disorders	0.5	0.6	0.3	0.2	5.3		0.2
Anxiety Disorders - Other	23.5	39.1					9.0
Adjustment Disorders	4.7	6.8	4.4	3.7	55.2		2.6
Bipolar Disorders	49.9						2.3
Schizophrenia	34.7						1.6
Psychotic Disorders - Other	21.1						1.0
Alcohol Use Disorders	23.9	15.7	11.5	79.2			7.1
Drug Use Disorders	22.6	10.3	5.9	33.5			4.4
Eating Disorders	0.3	0.2	<0.1	<0.1	0.4		0.1
Dissociative Disorders	0.2	0.1	<0.1	<0.1	0.1		<0.1
Personality Disorders	8.2	2.5	0.8	0.6	3.1		1.0
Conduct/Impulse Control Disorders	1.9	0.8	0.4	0.4	2.4		0.3
Somatoform Disorders	1.2	1.2	0.5	0.2	4.3		0.4
Attention Deficit Disorder/Hyper-kinetic Disorder	2.4	2.0	1.2	0.4	11.6		0.7
Psychiatric Disorders - Nonspecific	11.0	4.1	1.5	2.0	22.0		1.7

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS There is considerable burden in this population with SMI of several comorbid mental health diagnoses with at least a quarter also having PTSD or a substance use disorder. There is expertise to be shared across clinicians regarding treatment of Veterans with SMI, substance use disorders, and PTSD. These illnesses are often treated in clinics that are siloed from one another (e.g., specialized PTSD clinic, dual diagnosis clinic) and formal Standards of Practice (SOPs) for consultation across experts of specific mental health diagnoses could improve outcomes and treatment compliance.

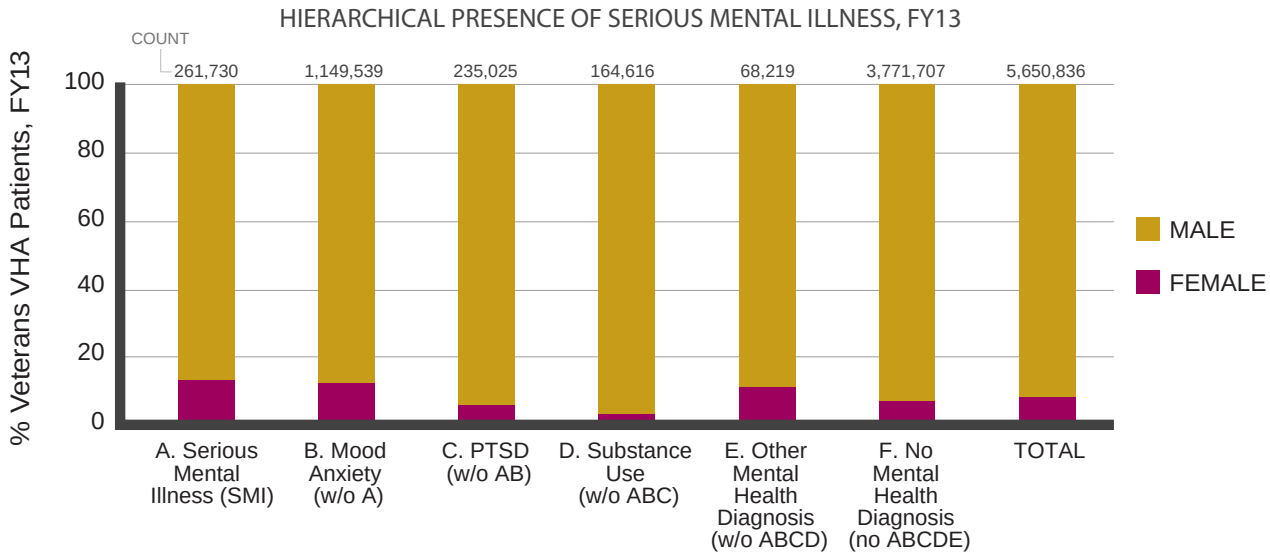
Section II: Sociodemographics

Gender by Mental Health Diagnoses

The Veteran population with SMI in VA care in FY13 had a higher percentage of females (11.8%) compared to the overall Veteran population (6.8%; See *Exhibit 7-3*). The female Veteran population was also higher in the comparison groups of mood/anxiety (11.0%) and other mental health (9.8%) compared to the overall Veteran population.

EXHIBIT 7-3

DISTRIBUTION OF GENDER BY MENTAL HEALTH DIAGNOSES AMONG VETERAN VHA PATIENTS, FY13



Missing = 1,235

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS The gender representation of women in the SMI, mood/anxiety, and other mental health groups compared to the overall VA population in care in FY13 highlights the need for VA healthcare services that are gender sensitive within the mental health services care line.[29] It also indicates a need for training in the care of SMI for staff and clinicians in the VA women's clinics.

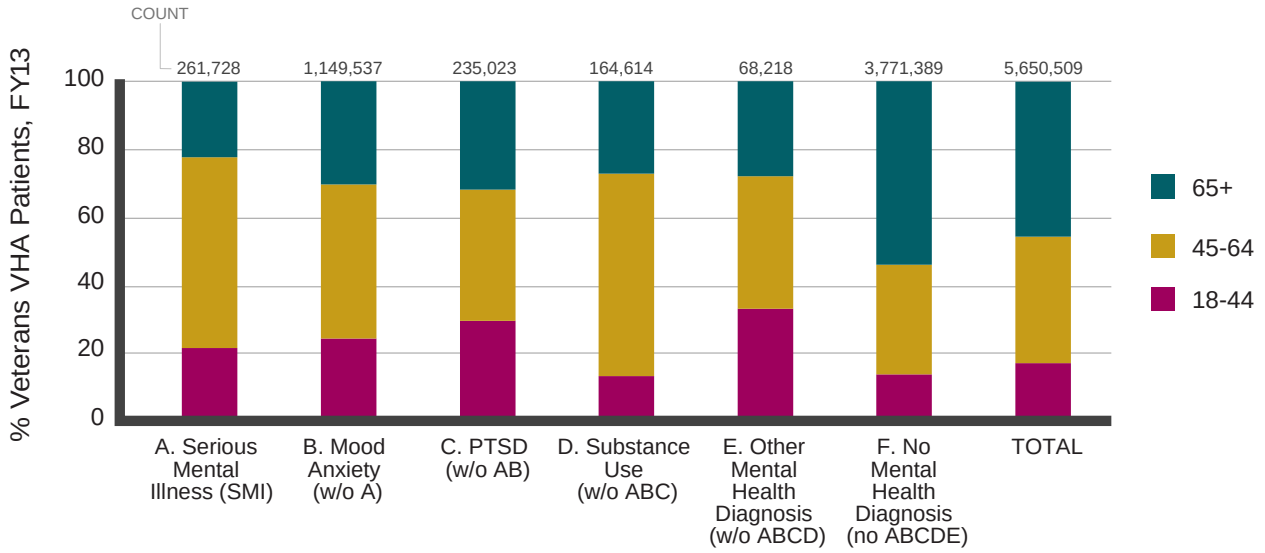
29 Washington DL, Farmer MM, Mor SS, Canning M, Yano EM. Assessment of the healthcare needs and barriers to VA use experienced by women Veterans: findings from the sational survey of women Veterans. *Med Care*. 2015;53:S23-S31.

Age by Mental Health Diagnoses

A higher percent of the Veteran population with SMI in care in FY13 was younger than 65 compared to the overall Veteran population *(Exhibit 7-4)*. Specifically, 77.4% of the SMI group was under 65 while 53.7% of the overall VA population and 45.3% of the no mental health diagnoses group was in that age group. While only 22.6% of the SMI group fell in the 65+ category, all other groups had a higher percentage in those senior years.

EXHIBIT 7-4

PERCENT DISTRIBUTION OF AGE BY MENTAL HEALTH DIAGNOSES AMONG VETERAN VHA PATIENTS, FY13



Missing = 1,562

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS All of the mental health groups in VA care in FY13 had a higher percent of their population in the under-65 age categories. This may reflect the truncated life span experienced by individuals with mental illness or the influx of new Veterans experiencing mental illness post deployment. With younger Veterans entering VA care, there has been an influx of parents and spouses in need of education and support to understand the mental illness of their loved one. Training for staff and clinicians (e.g., couples counseling, family education, shared decision making training) and adjustments to clinic work space (e.g., group rooms, toys for children) will need to be considered. Younger Veterans ask for more technology-based access to care and phone consultation in lieu of face-to-face appointments.

Race/Ethnicity by Mental Health Diagnoses

The Veteran population with SMI in VA care in FY13 was 65.1% White and 23.2% Black/African American *(Exhibit 7-5)*. The percent of Black/African Americans in the SMI group was considerably higher than the overall VA population (15.5%); and only surpassed by the substance abuse group (26.7%).

EXHIBIT 7-5

PERCENT DISTRIBUTION OF RACE/ETHNICITY BY MENTAL HEALTH DIAGNOSES AMONG VETERAN VHA PATIENTS, FY13

Hierarchical Presence of Serious Mental Illness, FY13

	A. Serious Mental Illness (SMI)	B. Mood Anxiety (w/o A)	C. PTSD (w/o AB)	D. Substance Abuse (w/o ABC)	E. Other Mental Health Diagnoses (w/o ABCD)	F. No Mental Health Diagnosis (no ABCDE)	Total
COUNT	**261,730**	**1,149,541**	**235,025**	**164,616**	**68,220**	**3,772,939**	**5,652,071**
American Indian/ Alaska Native	0.6	0.7	1.0	0.7	0.6	0.5	0.6
Asian	0.7	0.7	1.0	0.3	1.0	0.9	0.8
Black/African American	23.2	16.3	19.0	26.7	17.6	13.9	15.5
Native Hawaiian/ Other Pacific Islander	0.7	0.7	1.0	0.5	0.7	0.6	0.6
Multi-race	0.9	0.8	0.8	0.6	0.8	0.5	0.6
Hispanic	7.0	6.5	7.8	5.2	7.1	4.7	5.4
Unknown	1.8	2.8	2.1	4.0	4.0	4.1	3.7
White	65.1	71.5	67.3	62.0	68.3	74.8	72.9

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS The VA is committed to providing equitable access to care for all Veterans. African-American Veterans, compared to White Veterans, are more likely to depend on VA to provide at least some of their healthcare[30, 31] and these groups were overrepresented in the population of Veterans with Serious Mental Illness-Patient-Aligned Care Teams (SMI-PACT), or substance abuse. Since African-Americans have been shown to have poorer clinical outcomes in hypertension, cardiovascular care, and diabetes care[32] and these physical illnesses are higher in those individuals on second-generation antipsychotics, there is particular concern that gaps in care for these illnesses may exist for the Veteran population with SMI. These illnesses have been targeted as high priority for the new SMI-PACT teams being tested in VISN 22, funded by VA Health Services Research and Development funds (VA HSR&D SDP 12-177).

30 Washington DL, Farmer MM, Mor SS, Canning M, Yano EM. Assessment of the healthcare needs and barriers to VA use experienced by women Veterans: findings from the national survey of women Veterans. *Med Care*. 2015;53:S23-S31.

31 Harada ND, Damron-Rodriguez J, Villa VM, et al. Veteran identity and race/ethnicity: influences on VA outpatient care utilization. *Med Care*. 2002;40(1 Suppl):I117-128.

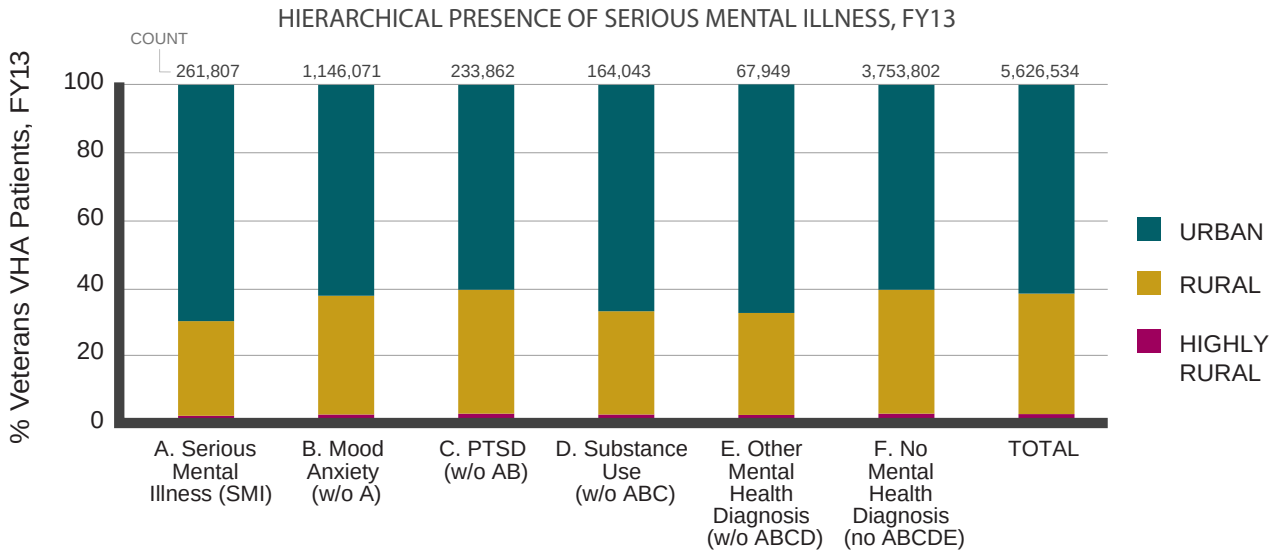
32 Trivedi AN, Grebla RC, Wright SM, Washington DL. Despite improved quality of care in the Veterans Affairs health system, racial disparity persists for important clinical outcomes. *Health Affairs*. 2011;30(4):707-715.

Rural/Urban Status by Mental Health Diagnoses

As compared to all other mental health groups, those with no mental health, and the overall Veteran population in care in FY13, more Veterans with SMI were living in urban locales and fewer of them were living in either rural or highly rural settings *(Exhibit 7-6)*.

EXHIBIT 7-6

PERCENT DISTRIBUTION OF RURAL/URBAN STATUS BY MENTAL HEALTH DIAGNOSES AMONG VETERAN VHA PATIENTS, FY13



Missing = 1,562

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Urban locales allow for easier access to in-person VA care, including both physical and mental health services, but those with SMI often live in parts of the city populated by those with limited income. For this reason, VA research should continue to examine the effects of social determinants of health and health behavior.

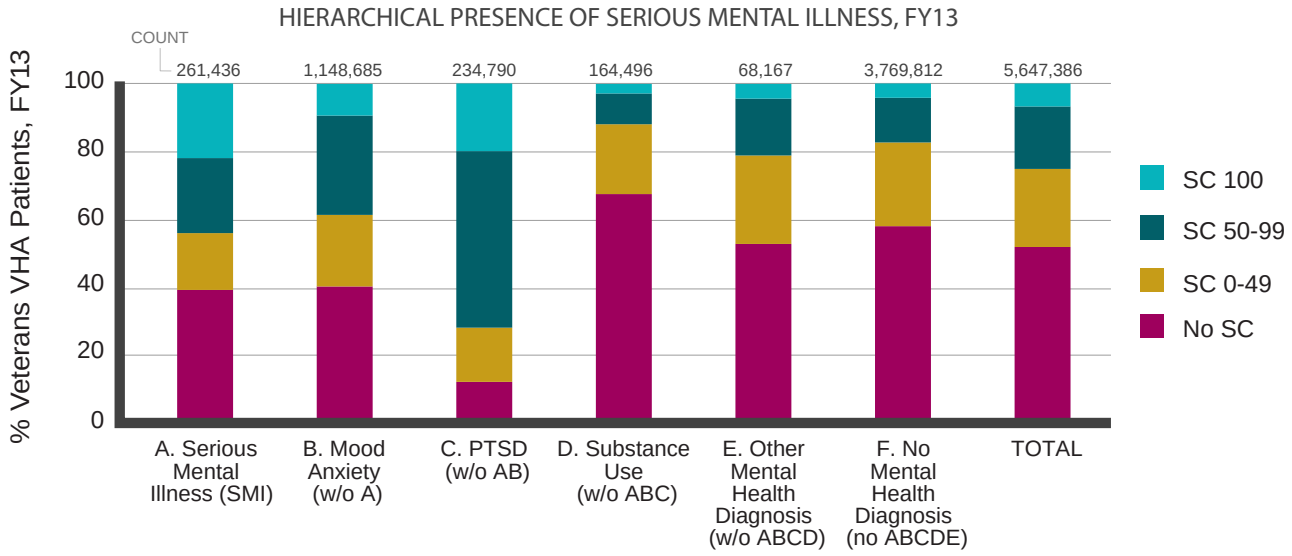
With between a quarter and a third of all Veterans, including those with mental illness, living in rural locales, there needs to be continued support of tele-mental health services. Access to specialty physical health services via the Veterans Access, Choice and Accountability Act of 2014 (Public Law 113-146) is also critical.

Service-Connected Disability Rating Status by Mental Health Diagnoses

A higher percent of the population of Veterans in care with SMI, a mood or anxiety disorder, or PTSD had a service-connected disability (SC≥0) in FY13 compared to all other groups. As expected, the PTSD group had the highest percent of those with service-connected disabilities *(Exhibit 7-7)*. A total of 44.5% of the Veteran population with SMI had 50% or higher service-connection for their disabilities. The Veteran population in care in FY13 with SMI or PTSD had the highest percent of Veterans with 100% service connection for their disabilities.

EXHIBIT 7-7

PERCENT DISTRIBUTION OF SERVICE-CONNECTED STATUS BY MENTAL HEALTH DIAGNOSES AMONG VETERAN VHA PATIENTS, FY13



Missing = 1,562

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Having a VA service-connected disability is a strong facilitator of access to VA care. These data do not provide information on what condition or conditions led to a service-connected disability in these populations, but given the increased access allowed to these populations with a service-connection, there needs to be adequate full-time equivalent employees (FTEs) available in both primary care and specialty mental health. These FTEs need experience working with mental health populations with complex physical health illnesses.

Section III: Utilization

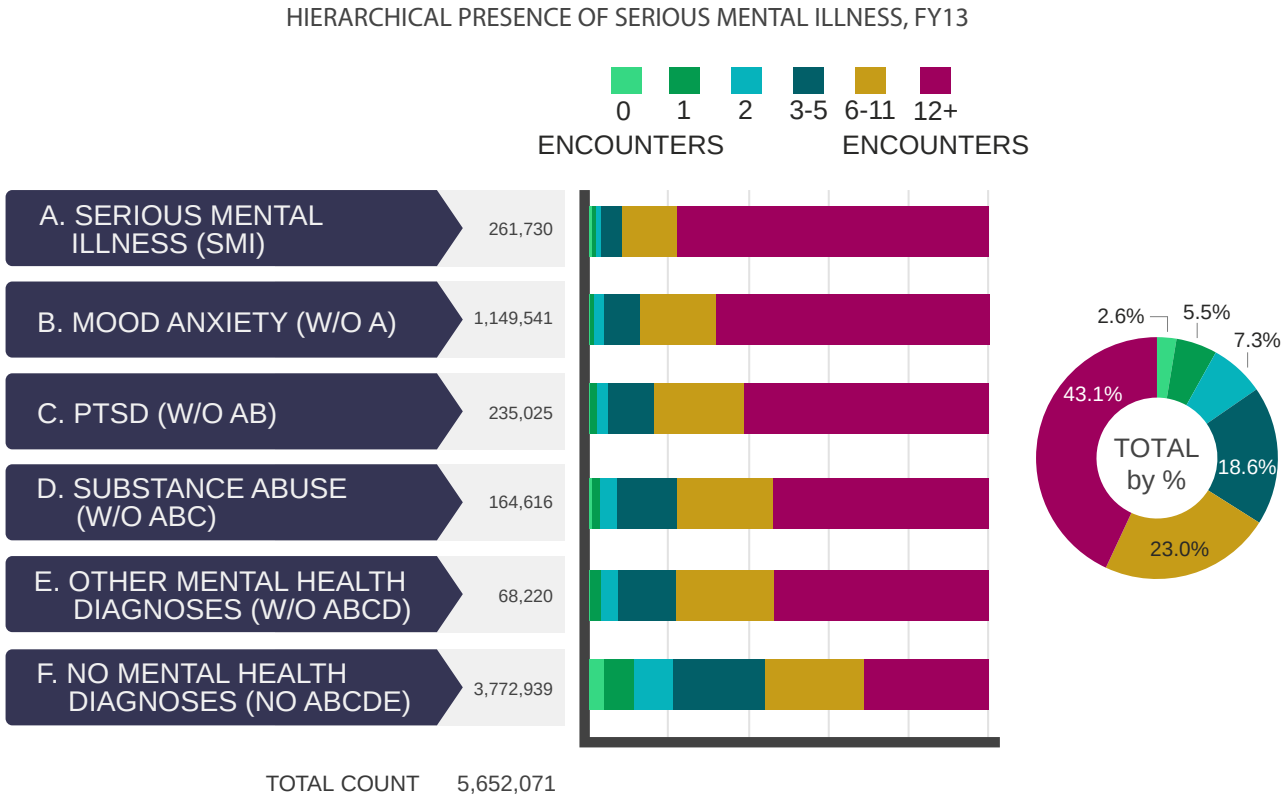
VHA Outpatient Encounters by Mental Health Diagnoses

The Veteran population with SMI in VA care in FY13 is noted for its high number of outpatient encounters *(Exhibit 7-8)*, which includes encounters for physical health (both primary care and specialists) and mental health (including substance use disorders).

The vast majority of the SMI group (78.1%) had 12+ outpatient visits in FY13. Similarly, the majority of each of the comparison mental health groups also received 12+ outpatient visits (range 53.6-68.4%) but these rates were lower than the SMI group. Only a minority of those with no mental health diagnoses received 12+ outpatient visits (31.2%) in FY13.

EXHIBIT 7-8

PERCENT DISTRIBUTION OF OUTPATIENT ENCOUNTERS BY MENTAL HEALTH DIAGNOSES AMONG VETERAN VHA PATIENTS, FY13



Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS In the Healthcare for Communities Survey, a national survey including adults from 60 communities across the United States, service utilization was measured. In a 12-month period, the mean number of visits to specialty outpatient providers was 13 for individuals with SMI, 15 for individuals with mental health diagnoses but not SMI, and 11 for individuals with no mental health diagnosis.[33] The Healthcare for Communities Survey did not include diagnostic measures of the most severe illnesses such as schizophrenia and bipolar disorder and therefore might underrepresent these groups. Additionally, many of those included in the Survey did not have insurance, limiting their ability to use services. In sum, the VA users may be utilizing more services than the community surveys might suggest and usage is high across all mental health groups.

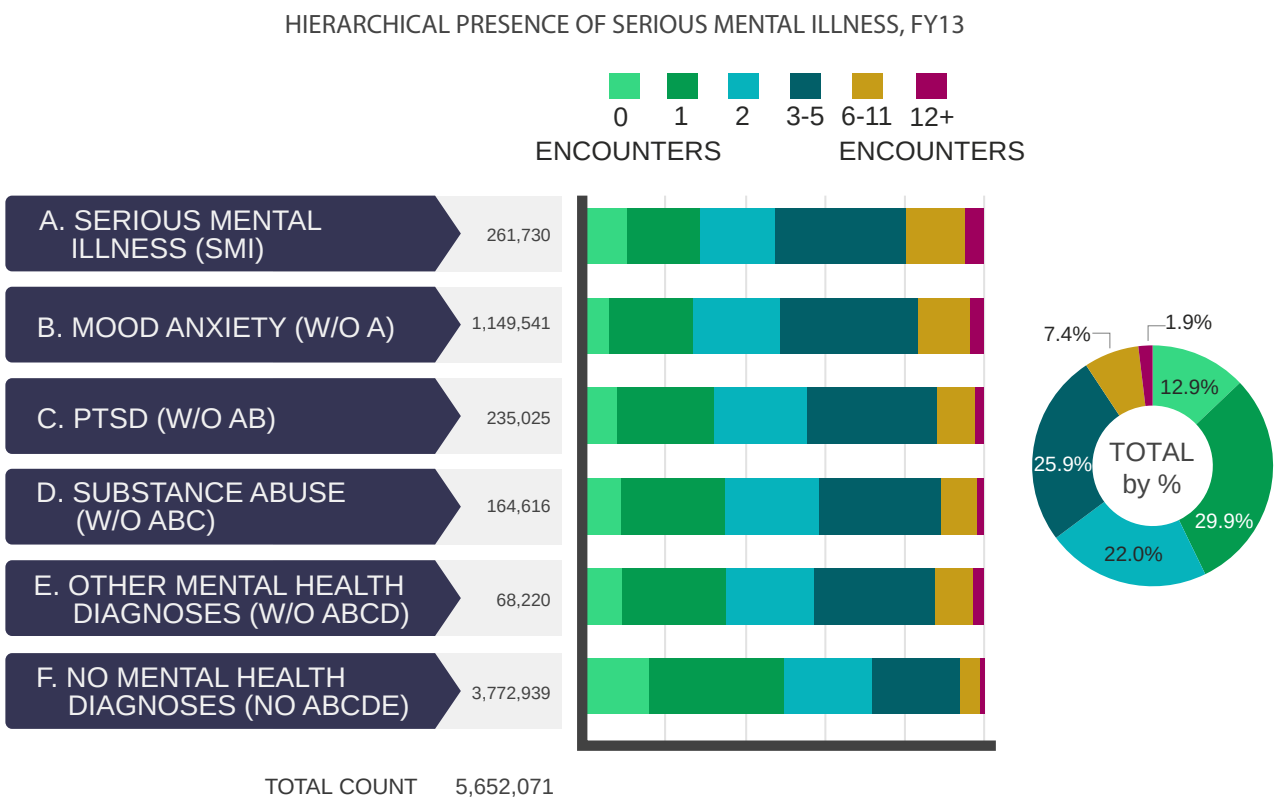
33 McAlpine DD, Mechanic D. Utilization of specialty mental health care among persons with severe mental illness: the roles of demographics, need, insurance, and risk. *Health Serv Res*. 2000;35(1 Pt 2):277-292.

Primary Care Encounters by Mental Health Diagnoses

For the overall VA population in care in FY13, 47.9% utilized primary care two to five times in that fiscal year. This is relatively consistent across all mental health and non-mental health categories *(Exhibit 7-9)*. What is noteworthy and discrepant is that the SMI group and the mood/anxiety group both had a much higher percent of their population using six or more visits in that fiscal year when compared to the overall VA population.

EXHIBIT 7-9

PERCENT DISTRIBUTION OF PRIMARY CARE ENCOUNTERS BY MENTAL HEALTH DIAGNOSES AMONG VETERAN VHA PATIENTS, FY13



Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS The higher percent of the SMI and mood/anxiety groups using a higher number of primary care visits is consistent with many studies which have established that individuals with mental illness have increased rates of comorbid medical disease.[34, 35, 36] This level of physical disease burden requires more visits in a year and additionally, due to the cognitive deficits and poor care history of the mental health population, may require more careful monitoring and support. This finding is a change from an earlier VA study in one VISN that found patients with psychiatric disorders had fewer medical visits in FY00 than other VA patients, which contributed to a concern about care quality.[37]

In line with the VHA Handbook 1101.02 directives for specialty PACTs, SMI-PACT teams have smaller caseloads (n=500) and therefore are able to accommodate an increase in the standard visit length from 20 to 30 minutes. This extra time is needed to allow for increased discussion of complex medical comorbidities. Currently, there is initial implementation and testing of SMI-PACT teams in VISN 22, funded by VA Health Services Research and Development funds (VA HSR&D SDP 12-177).

34 Jeste DV, Gladsjo JA, Lindamer LA, Lacro JP. Medical comorbidity in schizophrenia. *Schizophr Bull*. 1996;22(3):413-430.

35 Koran LM, Sox HC, Jr, Marton KI, et al. Medical evaluation of psychiatric patients: I. results in a state mental health system. *Archives of Gen Psychiatry*. 1989;46(8):733-740.

36 Alegria M, Jackson JS, Kessler RC, D. T. National Comorbidity Survey Replication (NCS-R) 2001-2003. Ann Arbor: Interuniversity Consortium for Political and Social Research. 2003.

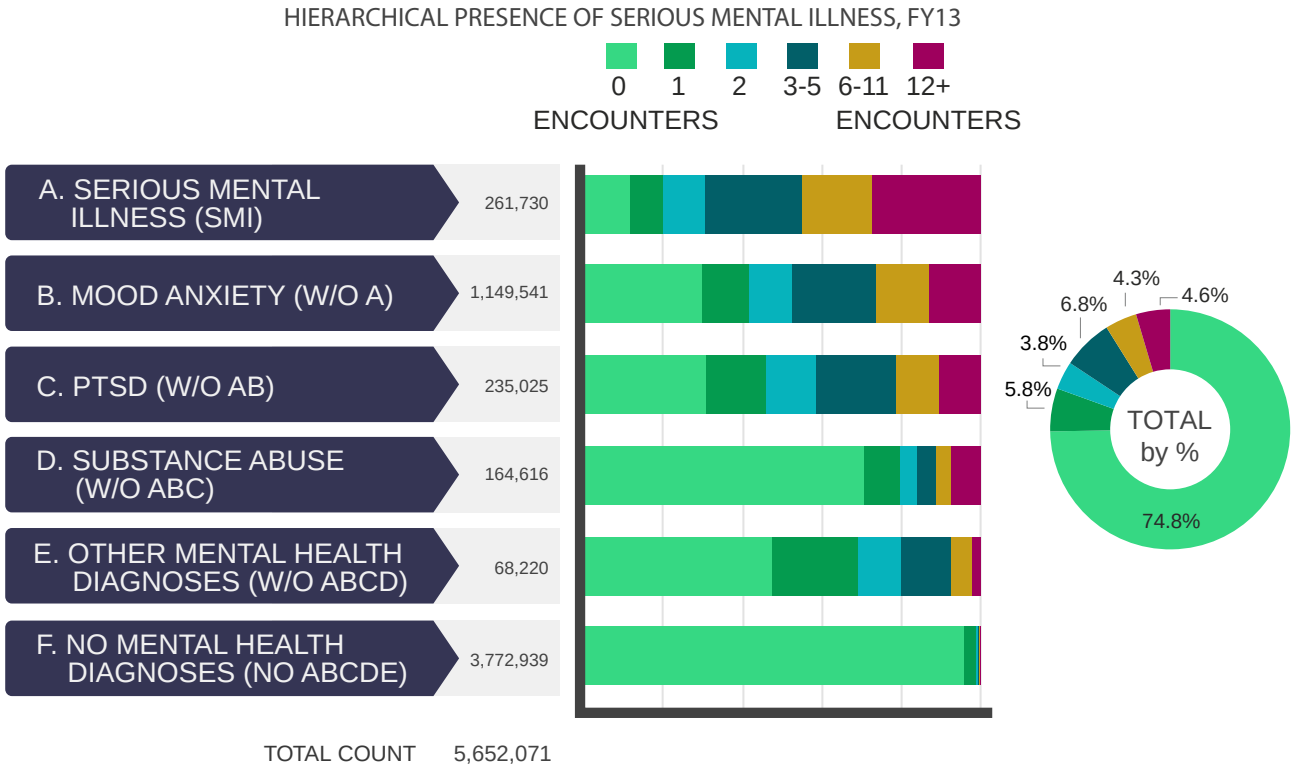
37 Cradock-O'Leary J, Young AS, Yano EM, Wang M, Lee ML. Use of general medical services by VA patients with psychiatric disorders. *Psychiatr Serv.* (Washington, D.C). 2002;53(7):874-878.

Mental Health/Substance Use Disorder Encounters by Mental Health Diagnoses

The vast majority of the Veteran population with SMI in VA care in FY13 (69.3%) had 3 or more visits in a year for mental health and/or substance use *(Exhibit 7-10)*. A high percentage of the mood/anxiety (47.3%) and PTSD (41.3%) groups also had 3 or more visits in a year for these services. Noteworthy is that the substance abuse comparison group had 70.7% with no mental health/substance use disorder encounters in FY13. This anomaly is most likely a result of the hierarchal build of the groups.

EXHIBIT 7-10

PERCENT DISTRIBUTION OF MENTAL HEALTH/SUBSTANCE USE DISORDER ENCOUNTERS BY MENTAL HEALTH DIAGNOSES AMONG VETERAN VHA PATIENTS, FY13



Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS As expected, the mental health groups had higher utilization of mental health/substance use disorder visits compared to both the no mental health group and the overall VA population in FY13. Also, as expected, a higher percent of Veterans with SMI had more encounters, which is in line with the severity of these disorders. The unexpected encounter distribution in the substance abuse group is explained by the known high comorbidity of mental health and substance abuse disorders coupled with the hierarchical build of the groups for this chapter. Among those with the mental health diagnoses the odds ratio of also having a substance abuse disorder (either drug or alcohol) is approximately 2.7, with a lifetime prevalence of 29%.[38]

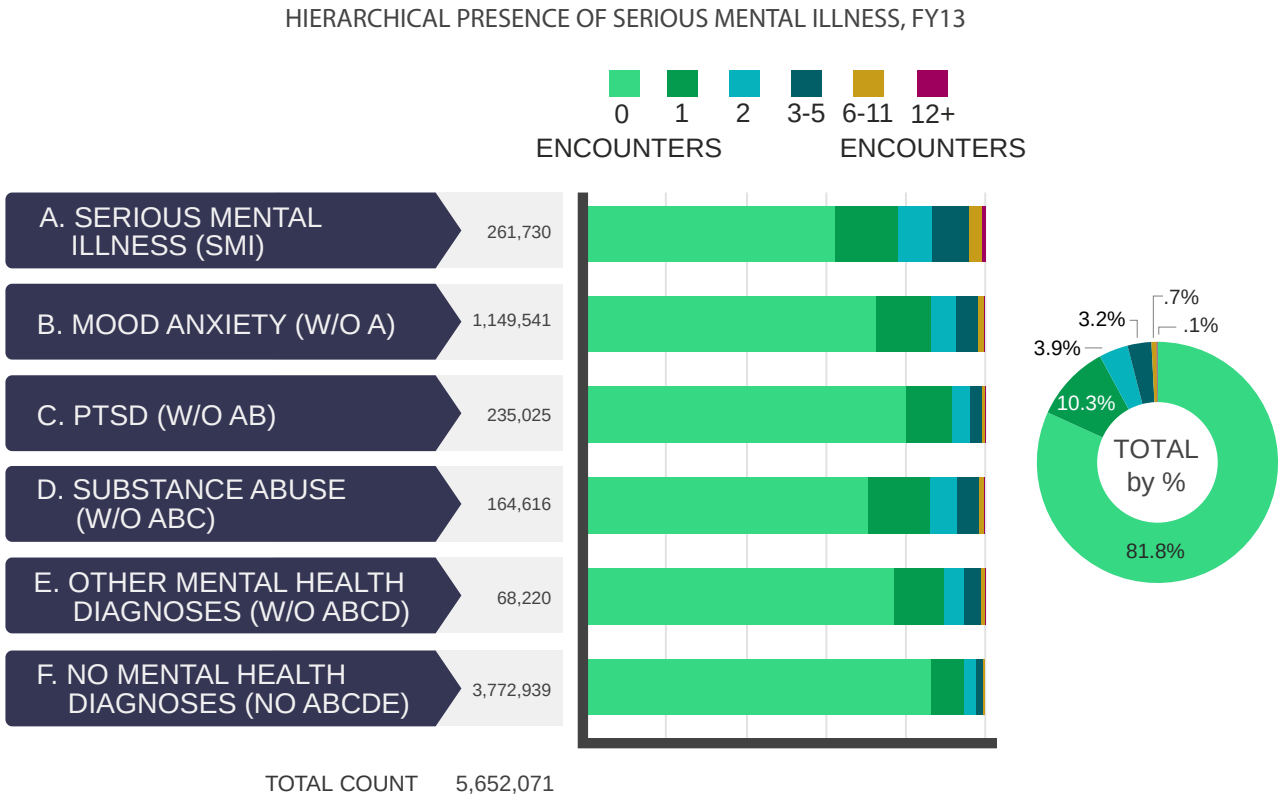
38 Regier DA, Farmer ME, Rae DS, et al. Comorbidity of mental disorders with alcohol and other drug abuse: Results from the epidemiologic catchment area (eca) study. *JAMA.* 1990;264(19):2511-2518.

Emergency Department (ED) Encounters by Mental Health Diagnoses

ED visits in these data are for all cause and are not identified in these data as mental health, physical health, or both *(Exhibit 7-11)*. Across all mental health groups, the majority of Veterans did not use the ED in FY13. The FY13 data did show, though, that ED visits occur at a higher rate across all mental health groups in comparison to the group of Veterans without a mental health diagnosis. When looking at the rates, by group, of those who use the ED two or more times in FY13, the data indicated that SMI has the highest percent using the ED at that frequency (21.7%), followed by the substance abuse group (13.8%), mood/anxiety group (13.3%), other mental health group (10.3%), and PTSD group (8.2%). In contrast, only 5.0% of the group with no mental health diagnosis used the ED two or more times.

EXHIBIT 7-11

PERCENT DISTRIBUTION OF EMERGENCY DEPARTMENT ENCOUNTERS BY MENTAL HEALTH DIAGNOSES AMONG VETERAN VHA PATIENTS, FY13



Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS Community participants in the Healthcare for Communities Survey indicated that the population of individuals with SMI who use the ED in a year (7.7 %) is over three times the percent of those individuals with mental health, but not SMI who use the ED (2.1%). The Survey indicated that none of the population with no mental disorder, by self-report, utilized the ED in the survey year.[39] The higher use of the ED by the SMI and mood/anxiety groups in the VA data is most pronounced compared to the no mental health group and the overall VA population in care in FY13. Alongside the primary care visits in Exhibit 7-9 we can conclude that the use is not due to fewer visits to primary care, but more likely a result of the enormous burden of comorbid physical and mental illness in these individuals.

39 McAlpine DD, Mechanic D. Utilization of specialty mental health care among persons with severe mental illness: the roles of demographics, need, insurance, and risk. *Health Serv Res*. 2000;35(1 Pt 2):277-292.

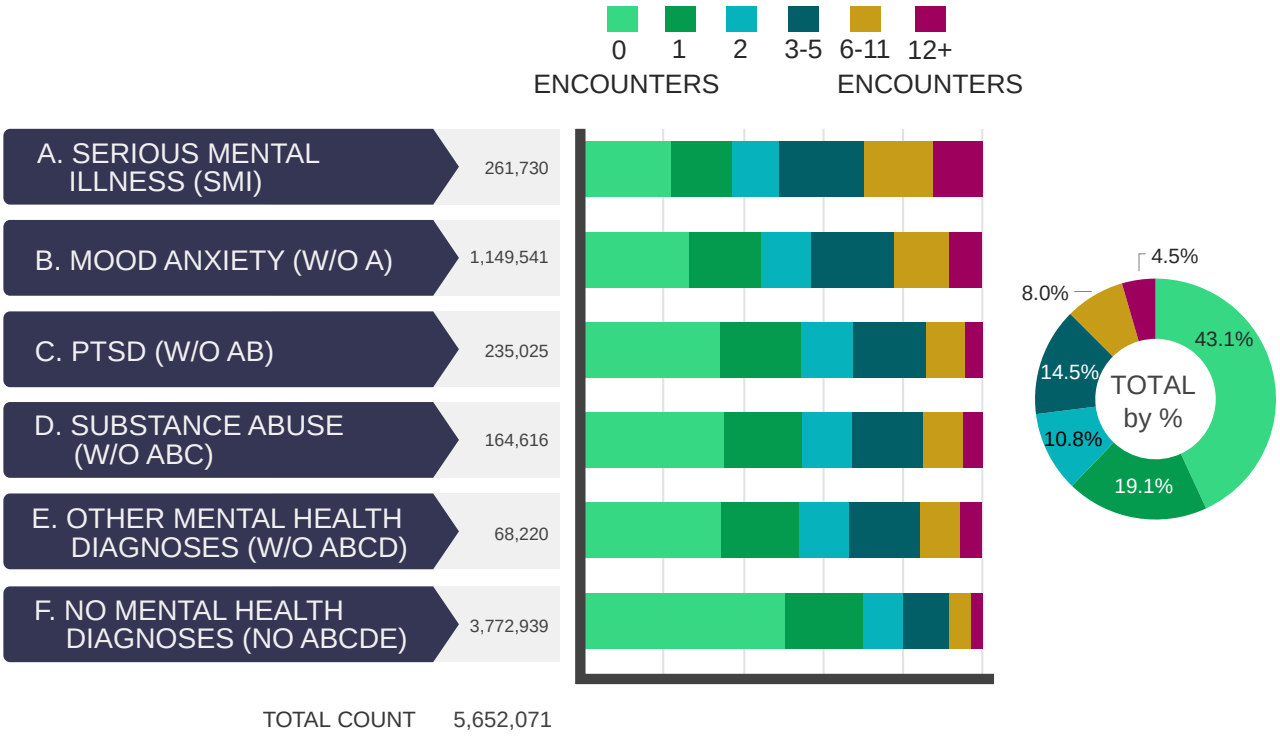
Telephone Encounters by Mental Health Diagnoses

Veterans in the SMI and mood/anxiety groups who were in VA care in FY13 were receiving a considerable number of telephone visits; the percent of Veterans in this group who were receiving six or more telephone encounters were three to four times higher than the percent of Veterans with no mental health diagnosis during this same period. In the no mental health disorder group, 50.7% had no telephone visit encounters in FY13 *(Exhibit 7-12)*.

EXHIBIT 7-12

PERCENT DISTRIBUTION OF TELEPHONE ENCOUNTERS BY MENTAL HEALTH DIAGNOSES AMONG VETERAN VHA PATIENTS, FY13

HIERARCHICAL PRESENCE OF SERIOUS MENTAL ILLNESS, FY13



Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS These data indicate a skew in both the Veterans with SMI and Veterans with mood/anxiety in care in FY13 towards more telephone encounters compared to both the no mental health group and the overall VA population. This increased number of telephone encounters in these two groups probably reflects the high rates of comorbid illness in these populations.[40, 41, 42] This higher rate of telephone encounters is also reflective of the move to telephone care management between sessions to provide healthcare follow-up and "telephone care visits," in lieu of face-to-face visits. Telephone care is a part of the transformation in VA to the medical home model (See VHA Handbook 1101.02).

40 Jeste DV, Gladsjo JA, Lindamer LA, Lacro JP. Medical Comorbidity in Schizophrenia. *Schizophr Bull*. 1996;22(3):413-430.

41 Koran LM, Sox HC, Jr, Marton KI, et al. Medical evaluation of psychiatric patients: I. results in a state mental health system. *Archives of Gen Psychiatry*. 1989;46(8):733-740.

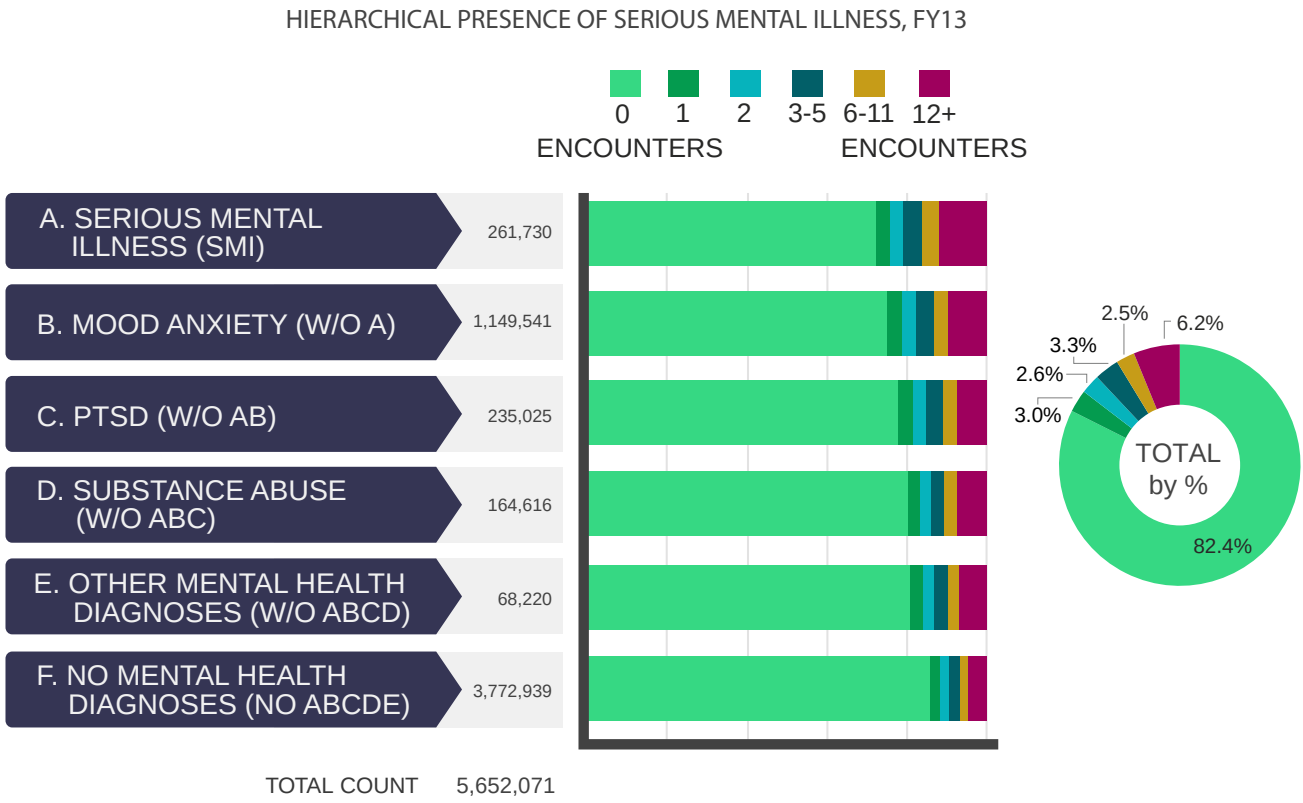
42 Alegria M, Jackson JS, Kessler RC, D. T. National Comorbidity Survey Replication (NCS-R) 2001-2003. Ann Arbor: Interuniversity Consortium for Political and Social Research. 2003.

Fee Outpatient Services by Mental Health Diagnoses

The vast majority of Veterans did not have fee outpatient visits in FY13 (82.4%; *Exhibit 7-13*). The Veterans in VA care in FY13 who had SMI or mood/anxiety disorders used more fee visits than the other groups. Noteworthy is the frequency of these types of visits with 12.0% of the SMI group and 9.6% of the mood/anxiety group using these types of visits 12+ times in FY13, a much higher rate than all other groups and especially in comparison to the no mental health group.

EXHIBIT 7-13

PERCENT DISTRIBUTION OF FEE OUTPATIENT SERVICES BY MENTAL HEALTH DIAGNOSES AMONG VETERAN VHA PATIENTS, FY13



Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS VA fee outpatient visits are an adjunctive way for Veterans to receive services. Higher rates of fee use by the SMI and mood/anxiety groups may relate to geographic characteristics of their residential areas, with more than a quarter of each of these two groups living in rural areas. There are also specific services for which VA fee care is often used, and some of these services are specific to females (e.g., OB/GYN services). Both the SMI and mood/anxiety groups in this sample have higher rates of female Veterans compared to the other mental health groups and the overall VA population in care in FY13. VA should identify ways to measure the quality of care delivered via fee visits and should include assessments specifically for the SMI and mood/anxiety populations since they were high utilizers of these services and have special needs due to high rates of comorbidity.

Section IV: Conditions

This section reports on diagnosed conditions (202 clinically meaningful groups of ICD-9-CM diagnosis codes) for each mental health group and those with no mental health diagnoses. The health conditions have been grouped into 17 broad, higher-order major disease condition domains and can be found in *Exhibit 7-14*, which is available in the supplemental matierals.

In order to begin to interpret the findings in Exhibit 7-14, we examined the percent distribution of the condition domains across the groups *(Exhibit 7-15)* and found that the six most prevalent health domains experienced by the overall VA population in care in FY13 were also the top six for the SMI population, albeit in a slightly different order. For the overall VA population in VA care in FY13 the order of most prevalent condition domains were: 1) Endocrine/Metabolic/Nutritional; 2) Cardiovascular; 3) Musculoskeletal; 4) Other; 5) Sense Organ; and 6) Gastrointestinal. For the SMI population, the order was 1) Other; 2) Endocrine/Metabolic/Nutritional; 3) Cardiovascular; 4) Musculoskeletal; 5) Gastrointestinal; and 6) Sense Organ. It is notable that each of the four domains with the highest involvement of the VA population with SMI involved upwards of 59% of the group.

Of particular note is the "other" condition domain which involves over 72% of the SMI population. The "other" domain includes both psychosocial factors and residual codes. Psychosocial factors encompassed a broad range of issues including, but not limited to, unemployment, history of abuse, family circumstances, identity disorder, relationship problems, legal circumstances, and psychological stress. Residual codes encompassed a broad range of issues including, but not limited to, being transsexual, experiencing muscle weakness, acute pain due to trauma, abnormal pap smear, history of drug therapy, lifestyle problems not otherwise specified, and history of major organ surgery.

Other than the breast condition domain, which was expected to be low in the male-dominated population in VA, the domains with low involvement by the overall VA population in care in FY13 were cancer, hematologic/immunologic and the dental domains. Low involvement by the SMI population was also found in the cancer and hematologic/immunologic domains, but more than double involvement was exhibited in the dental domain, indicating particular problems for the SMI population.

EXHIBIT 7-15

PERCENT DISTRIBUTION OF DIAGNOSED CONDITIONS CATEGORIES BY MENTAL HEALTH DIAGNOSES AMONG VETERAN VHA PATIENTS, FY13

Hierarchical Presence of Serious Mental Illness, FY13

	A. Serious Mental Illness (SMI)	B. Mood Anxiety (w/o A)	C. PTSD (w/o AB)	D. Substance Abuse (w/o ABC)	E. Other Mental Health Diagnoses (w/o ABCD)	F. No Mental Health Diagnosis (no ABCDE)	Total
Count	261,730	1,149,541	235,025	164,616	68,220	3,772,939	5,652,071
CONDITION	%	%	%	%	%	%	%
Infectious Disease	37.0	29.2	24.4	31.2	25.4	17.0	21.3
Endocrine/ Metabolic/ Nutritional	68.7	68.6	63.2	61.9	59.6	61.9	63.6
Cardio-Vascular	60.6	63.0	57.2	67.3	53.4	59.9	60.6
Respiratory	37.8	36.1	30.4	33.6	30.2	23.6	27.4
Gastro-Intestinal	47.5	45.3	38.3	48.4	36.7	29.7	34.7
Urinary	21.2	18.9	14.6	16.3	16.4	15.4	16.4
Reproductive Health	25.7	28.5	25.2	22.3	25.2	23.3	24.5
Breast	1.4	1.3	0.7	0.6	1.2	0.6	0.8
Cancer	7.8	9.7	8.5	10.2	9.2	10.6	10.2
Hematologic/ Immunologic	14.4	12.3	8.9	16.0	10.3	9.4	10.4
Musculo-Skeletal	59.8	65.4	62.5	55.6	58.7	43.1	49.8
Neurologic	39.2	36.9	30.5	24.6	29.7	18.9	24.3
Mental Health/SUD	100.0	100.0	100.0	100.0	100.0		33.2
Sense Organ	44.0	46.3	47.0	37.5	41.0	41.3	42.6
Dental	20.9	13.8	21.0	7.7	8.7	4.8	8.2
Dermatologic	28.2	26.8	25.2	24.2	24.7	19.5	21.9
Other	72.6	67.5	58.4	73.1	60.9	36.5	46.8

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

We then examined the most prevalent conditions experienced by the mental health population groups using VA in FY13 ordered by the involvement of the overall VA population *(Exhibit 7-16)*. Percent involvement of the population was only indicated when 20% (rounded) or more of the population was involved.

It was evident that the top conditions (hypertension and lipid disorders) involved more than 20% of all the mental health categories as well as the no mental health group. These conditions were high population-wide. Diabetes mellitus, the third most prevalent disorder in the VA in FY13, was also seen in more than 20% of the population of all groups except the substance abuse group. Of the top 14 conditions seen in the overall population of Veterans in care in FY13, the vast majority were also seen in more than 20% of the SMI and mood/anxiety population, but much less in the other mental health groups (PTSD, substance abuse, other mental health) and the no mental health group.

EXHIBIT 7-16

PERCENT DISTRIBUTION OF MOST PREVALENT CONDITIONS IN THE OVERALL VA POPULATION BY MENTAL HEALTH DIAGNOSES, FY13

Mental Illness Categories, FY13

	A. Serious Mental Illness (SMI)	B. Mood Anxiety (w/o A)	C. PTSD (w/o AB)	D. Substance Abuse (w/o ABC)	E. Other Mental Health Diagnoses (w/o ABCD)	F. No Mental Health Diagnoses (no ABCDE)	Total
Count	261,730	1,149,541	235,025	164,616	68,220	3,772,939	5,652,071
Conditions	%	%	%	%	%	%	%
Hypertension	50.7	52.8	48.7	57.9	43.8	50.5	51.0
Lipid Disorders	47.1	49.6	46.6	41.2	41.5	47.0	47.3
Diabetes Mellitus	25.6	24.4	24.0		19.6	23.9	23.8
Refraction Disorders	24.0	23.2	23.0				
Dermatologic Disorders-Other	23.0	22.5	21.9		20.8		
Esophageal Disorders	24.2	24.9	19.9				
Spine Disorders -Lumbosacral	26.1	28.6	26.2	19.7	22.9		
Eye Disorders - Other		19.7					
Joint Disorders - Lower Extremity	21.5	23.2	22.1		21.5		
Overweight/Obesity	21.6	20.3					
Joint Disorders - Unspecified or Multiple Joints		20.4					
Tobacco Use Disorder	32.8	22.7		44.2			
Residual Codes	22.2						
Psychosocial Factors - Other	21.2						

Key: Blacked out percentages were less than 20% rounded. Table ordered by rank of the total VA population involved in the condition.

Denominator: All Veterans who used any VHA care in FY2013 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY2013 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

We then examined the top 20 conditions seen in the Veteran population with SMI in care in FY13 and compared the percent of the SMI population involved with the percent of the population involved in each of the comparison groups *(Exhibit 7-17)*.

When the prevalence of the health conditions in SMI was compared to the other mental health groups, a number of differences in prevalence were illuminated. Differences highlighted in yellow indicate higher prevalence in the SMI group by at least 10% (rounded). These differences were in tobacco use disorder, spine disorders, residual codes, psychosocial factors, dental disorders, dental caries, and housing insufficiency. There were no differences in the top 20 conditions experienced by the SMI population where the prevalence in the SMI group was at least 10% lower (rounded) than other groups.

EXHIBIT 7-17

PERCENT DISTRIBUTION OF MOST PREVALENT CONDITIONS IN THE VA POPULATION WITH SMI WITH DIFFERENCES IN PERCENT INVOLVEMENT OF ALL COMPARISON GROUPS, FY13

Presence of Serious Mental Illness, FY13

	A. Serious Mental Illness (SMI)	B. Mood Anxiety (w/o A)	C. PTSD (w/o AB)	D. Substance Abuse (w/o ABC)	E. Other Mental Health Diagnoses (w/o ABCD)	F. No Mental Health Diagnoses (no ABCDE)	Total
Count	261,730	1,149,541	235,025	164,616	68,220	3,772,939	5,652,071
Condition	%	- SMI%	- SMI%	- SMI%	- SMI%	- SMI%	
Hypertension	50.7	2.1	-2.0	7.2	-6.9	-0.2	51.0
Lipid Disorders	47.1	2.5	-0.5	-5.9	-5.6	-0.1	47.3
Tobacco Use Disorder	32.8	-10.2	-14.3	11.4	-16.3	-23.4	14.7
Spine Disorders - Lumbosacral	26.1	2.5	0.1	-6.4	-3.2	-12.9	17.8
Diabetes Mellitus	25.6	-1.2	-1.5	-8.7	-6.0	-1.7	23.8
Esophageal Disorders	24.4	0.5	-4.5	-5.7	-6.3	-9.4	17.8
Refraction Disorders	24.0	-0.8	-1.0	-4.9	-4.8	-7.3	18.7
Dermatologic Disorders - Other	23.0	-0.5	-1.1	-4.0	-2.2	-6.7	18.2
Residual Codes	22.2	-4.6	-7.8	-3.2	-6.3	-11.5	13.2
Overweight/Obesity	21.6	-1.2	-3.9	-7.2	-2.5	-8.2	15.4
Joint Disorders - Lower Extremity	21.5	1.7	0.6	-3.8	<0.1	-8.3	16.2
Psychosocial Factors - Other	21.2	-7.4	-13.2	-9.9	-9.3	-18.6	6.3
Eye Disorders - Other	18.7	0.9	0.5	-3.5	-1.9	-3.3	16.6
Joint Disorders - Unspecified or Multiple Joints	18.3	2.1	0.4	-3.1	-2.0	-5.2	15.2
Cataract	16.4	1.1	2.0	-1.0	-2.0	-0.2	16.6
Endocrine, Metabolic and Nutritional Disorders - Other	16.1	-1.3	-4.0	-0.6	-3.5	-6.0	11.6
Dental Disorders - Other	15.4	-5.1	0.7	-10.4	-9.0	-11.9	6.1
Other Injuries and Conditions Due to External Causes	14.4	-3.4	-5.5	-4.3	-5.7	-9.5	6.9
Dental Caries	13.9	-4.9	0.8	-9.8	-8.5	-10.9	5.3
Housing Insufficiency	13.6	-7.4	-11.1	-2.9	-7.8	-12.5	3.1

Key: Yellow highlight indicates conditions in which the diagnosed prevalence in people with SMI exceeded the comparison group prevalence by 10% (rounded) or more. There were no conditions in which the diagnosed prevalence in SMI was 10% (rounded) or lower than the comparison group prevalence. Conditions (rows) removed from the table included bipolar disorder, schizophrenia, depression, PTSD, alcohol use, anxiety disorder, drug use disorders, psychotic disorders, major depressive disorders.

Denominator: All Veterans who used any VHA care in FY13 (VHA outpatient care, inpatient care, pharmacy care, or Non-VA [Fee] Medical Care), referred to as "Veteran FY13 VHA patients" (Data source: WHEI Master Database).

Source: VHA National Health Equity Report 2016

IMPLICATIONS What stands out in these data regarding specific conditions and health domains was the very high percentage of the population with SMI who were having physical health complications most likely related to psychosocial burdens. For example, the high rate of conditions in the "other" domain and dental disorders coupled with the higher rate of housing insufficiency lends support to the conclusion that this population with SMI in VA care in FY13 had ongoing lifestyle and stressful life histories that had negative healthcare consequences. True rates of dental disorders are likely substantially higher than the rates identified here, because most VA patients would not be eligible for dental care, and thus would have less opportunity to have a diagnosis recorded. Attention and referral for dental issues must be addressed, as these impact overall health and quality of life. It is established that homeless Veterans have a high rate of mental illness and of substance abuse.[43] Veteran homelessness has been a high priority for VA nationally and there are ongoing efforts to place and support homeless Veterans, especially those with SMI.[44] Efforts include The Department of Housing and Urban Development (HUD) – Veterans Affairs (VA) Supportive Housing (HUD-VASH) Program which should be further evaluated for impact on housing placement and sustainment as well as linkages to healthcare utilization for those Veterans with SMI.

The population with SMI, both inside and outside VA, have a high rate of tobacco use. This was evidenced again in these data. Although there are clinical reminders related to tobacco use disorders, the emphasis and tailoring of tobacco services for this population, which has cognitive issues associated with their mental health disorders, should be addressed.

The VA population overall and those with SMI, have considerable burden from the endocrine/metabolic/nutritional and cardiovascular domains. These domains include hypertension, diabetes mellitus and lipid disorders. In addition to the fact that these disorders are a problem nationwide due to the highly publicized obesity epidemic in this country, these conditions have affected the SMI population in particular due to the side effect profile of the second generation antipsychotics.[45] Individuals who are on antipsychotics fall in the SMI group but may also include some individuals with PTSD. There have been efforts in VA to monitor and address the metabolic syndrome, including successful efforts to tailor and implement weight management programs for the population with the cognitive deficits associated with SMI.[46, 47] There needs to be continued emphasis on weight and lipid monitoring in this population.

43 Yuan AH, Gabrielian S, Andersen R, McGuire J, Rubenstein L, Gelberg L. What medical care needs of homeless and housed veterans are served by the VA? *Drug & Alcohol Dependence.* 2014;140:e248.

44 Gabrielian S, Yuan AH, Andersen RM, Rubenstein LV, Gelberg L. VA health service utilization for homeless and low-income veterans: A spotlight on the VA supportive housing (VASH) program in greater los angeles. *Med Care*. 2014;52(5):454-461.

45 Newcomer JW. Metabolic considerations in the use of antipsychotic medications: a review of recent evidence. *J Clin Psychiatry.* 2007;68 Suppl 1:20-27

46 Cohen AN, Chinman MJ, Hamilton AB, Whelan F, Young AS. Using patient-facing kiosks to support quality improvement at mental health clinics. *Med Care*. 2013;51(3 0 1):S13.

47 Niv N, Cohen AN, Hamilton A, Reist C, Young AS. Effectiveness of a psychosocial weight management program for individuals with schizophrenia. *The Journal of Behavioral Health Services & Research*. 2014;41(3):370-380.

Section V: Conclusions

The Veteran population with SMI in VA care in FY13 is 4.6%, which is a rate that is slightly higher than the global rates of those living with these disorders. This chapter systematically examined the demographic characteristics, VA service utilization rates, and rates of diagnosed health conditions by mental health status. Some caution is needed in interpreting results in this chapter due to the hierarchical build of the mental health groups. The only two groups that represent all members of that group are those in the SMI group and those in the no mental health diagnoses group.

Comorbidity of mental health diagnoses was found to be high in VA, which is similar to non-VA samples. Those Veterans with SMI, compared to those with no mental health diagnoses and the overall VA population in FY13, have a greater representation of women, African-Americans, and those with service-connected disabilities. Veterans with SMI were younger than all comparison groups which may be a consequence of a shortened lifespan and of the demographic of Veterans returning from the current conflicts. Veterans with SMI were more likely to be living in urban locales, although over a quarter are residing rurally. The group of Veterans with SMI was using more outpatient services than any other comparison group. Specifically, the Veterans with SMI were using more primary care, mental health/substance use visits, and emergency department visits when compared to most of the other mental health groups and to those with no mental health diagnoses. Telephone care is also high in the population with SMI, probably due to the high need for close care management. This higher utilization of all services is in line with the severity of the diagnosis of an SMI and their service-connected status. Although in other populations, a younger cohort would be expected to use fewer services, SMI has a heavy burden early when the illness appears and disrupts functioning significantly. Early intervention is needed in the population with SMI and organizational adjustments for supporting their families (e.g., parents, spouses) are needed.

Similar to the overall VA population and every mental health group, the population with SMI in VA care in FY13 had high rates of hypertension and lipid disorders. Unique to the SMI population, there was also a very high rate of tobacco use disorder. These are each major risk factors for coronary heart disease, which is a leading cause of early mortality in this group. The establishment of SMI-PACT teams hopes to address these issues and shrink the mortality gap. For the SMI population, considerable burden was also due to psychosocial factors and housing insufficiency. VA efforts to house homeless Veterans should continue to be supported and tailored for the SMI population. Dental disorders and dental caries were also seen in higher rates than in other groups, were probably an underestimate of prevalence, and will need to be addressed.

In order to reduce mortality and disability in SMI, efforts should address provider attitudes towards SMI, quality of care, access to preventative medical care, and help managing chronic comorbid medical conditions. Clinicians, outside of specialty mental health, often have limited experience, discomfort, and a lack of familiarity with evidence-based practices for this population. At the organizational level, systems may lack protocols for care management, shared treatment arrangements, and effective partnerships between primary care and mental health staff. The core difficulty with treating comorbid medical and mental health is the mismatch between the patient, in whom medical and mental conditions and their treatments are interrelated, and a healthcare system with separate services for each disorder; though in VA, primary care-mental health integration is designed to address part of this concern. However, even in VA, a large, quasi-integrated system, the experience of the patient with SMI and their providers is often that of a fragmented healthcare system.

The SMI population lags behind their comparison group with a diminished quality of life from preventable chronic diseases and a shortened life span due to premature death. Given these disparities, great strides need to be made to adapt prevailing models of medical care for the population with SMI.

Chapter 8

National Veteran Health Equity Report Highlights

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"I concur with 15 of the 18 Commission recommendations… These include areas such as … eliminating disparities in how health care is delivered to Veterans from different backgrounds…"

(President Barack Obama's message to Congress on the VA Commission on Care Report)[1]

President Barack Obama's message to Congress on the VA Commission on Care Report concurred with most of the recommendations, one of which called for eliminating disparities among Veterans and full implementation of the VHA Health Equity Action Plan.[2] The VHA Health Equity Action Plan is the VA's roadmap for achieving health equity for all Veterans, especially the most vulnerable. This inaugural VHA National Veteran Health Equity Report provides baseline data against which VHA actions to eliminate health disparities may be measured. This effort capitalizes on the expertise of existing networks of advocates for vulnerable Veteran populations.

The VHA National Veteran Health Equity Report is a major milestone in the Office of Health Equity's efforts to implement the Health Equity Action Plan. Specifically, it advances the Health Equity Action Plan goals of awareness, leadership, cultural competency and data – all key areas in the pursuit of health equity. One of the intentions of the Health Equity Action Plan is to catalyze, synergize, and coordinate VHA programs, projects, and initiatives to effectively identify, understand, seek and implement solutions to diminish, and where possible eliminate, health disparities.

The report systematically describes sociodemographic characteristics, health care utilization patterns, and the medical conditions for which Veterans are treated in VHA, and it does this for sub-populations of Veterans as defined by their race/ethnicity, gender, age group, rurality of residence, and mental health diagnoses. Currently, the report does not reflect all of the vulnerable Veteran populations. For example, VHA does not collect sexual orientation and gender identity data. However, efforts are underway to include appropriate fields in the electronic health record to monitor the care of these Veterans.

All data in this report come from centralized, national VHA administrative databases of enrollment, outpatient, inpatient, and Non-VA (Fee) medical care,[3] but do not include long-term care services or care received privately by VHA users. This report describes Veterans receiving VHA care in Fiscal Year 2013 (FY13). While the following are highlighted findings, detailed findings for each Veteran sub-population are described within the respective section of each chapter.

1 The White House Office of the Press Secretary. Letter from the President – Report of the VA Commission on Care. https://www.whitehouse.gov/the-press-office/2016/09/01/letter-president-report-va-commission-care. September 1, 2016. Accessed September 16, 2016.

2 Commission on Care. Commission on Care: Final Report. https://commissiononcare.sites.usa.gov/files/2016/07/Commission-on-Care_Final-Report_063016_FOR-WEB.pdf. Published June 30, 2016. Accessed September 16, 2016.

3 This was formerly known as "Fee" or "Fee-basis" care. VHA now refers to this type of service as "Non-VA Medical Care." This report uses the convention of adding the word "Fee" in parentheses to this term so as to distinguish this type of non-VA care from other types of care that VHA patients might receive outside of VHA (e.g., care funded through Medicare, Medicaid, private insurance, or other non-VA sources).

Highlighted Findings

Sociodemographics

Race/Ethnicity: Among FY13 Veteran VHA users, 23.5% were racial/ethnic minority group members, 72.9% non-Hispanic White, and 3.7% were unknown race/ethnicity. The Census Bureau projects that by 2044, the U.S. population will become "majority minority" (49.7% White, 25.0% Hispanic, 12.7% Black or African-American, 7.9% Asian, 3.7% multi-racial).[4] Reflecting U.S. population projections, the Veteran VHA user population is expected to continue to become increasingly racially and ethnically diverse.

Gender: Women represent an extreme numeric minority group in VHA; in FY13, they made up only about 7% of VHA patients. However, their numbers in VHA have more than doubled since the turn of the millennium (140% growth), far outstripping the 63% growth seen among men over the same period.[5] The age distribution of Veteran VHA patients differs markedly by gender, with the mean age of women being 15 years younger than that for men (48 versus 63 years). Women represent 18.1% of Veteran VHA patients under age 45 years. Among Veteran VHA patients, substantially more women than men belong to a racial/ethnic minority group (37.0% vs. 22.4%).

Age: In FY13, 46.3% of Veterans were age 65 and older; overall, 7.4% of Veteran VHA users were aged 85 and older. Longer life spans and aging "Baby Boomers" (adults born between 1946 and 1964) will combine to double the population of Americans aged 65 years or older during the next 25 years.[6] The age distribution of Veteran VHA users is expected to shift as well.

Rural Residence: Over one-third of Veterans served by VHA reside in rural (including highly rural) areas (1.3% highly rural; 35.9% rural; 62.3% urban). Older (age 65+) Veterans were more likely to live in rural locations (40.7%) compared to their younger counterparts (36.8% of 45-64 year olds; 29.4% of 18-44 year olds). In contrast to other racial/ethnic groups, a majority of American Indian/Alaska Native Veteran VHA users lived in rural areas (53.5%, versus 42.6% of Whites, and smaller percentages of other groups).

Service-Connected Disability: Almost one-half (48.6%) of Veteran VHA patients had a service-connected disability. All racial/ethnic minority Veteran patient groups, compared with Whites, were more likely to have a service-connected disability. A higher proportion of women Veteran patients than men had a service-connected disability. Increasing age group was inversely associated with having a service-connected disability. Rural and urban Veterans were largely similar in their distribution of service-connected status category. A higher percent of the Veterans in care with serious mental illness (SMI), a mood or anxiety disorder, or PTSD had a service-connected disability compared to all other groups.

Serious Mental Illness: Among FY13 Veteran VHA patients, 4.6% had an SMI diagnosis. Overall, 33.2% of Veteran VHA patients had one or more mental health diagnoses. Not only is the rate of mental illness diagnoses, and SMI in particular, higher in VA compared to the general adult population (where SMI is estimated to be present in approximately 4%),[7] the VA numbers include only those Veterans with the diagnosis who are in care in a particular fiscal year, and therefore the burden of mental health disorders in Veterans may be higher. Women and

4 U.S. Census Bureau. Projections of the Size and Composition of the U.S. Population: 2014 to 2060. Current Population Reports. 2015 March. P25-1143. Available at: https://www.census.gov/content/dam/Census/library/publications/2015/demo/p25-1143.pdf.

5 Frayne, S. M., et al. (2010). Sourcebook: Women Veterans in the Veterans Health Administration. Volume 1. Sociodemographic Characteristics and Utilization of VHA Care. Women's Health Evaluation Initiative, Women Veterans Strategic Health Care Group, Veterans Health Administration, Department of Veterans Affairs, Washington DC. December 2010. Available at: http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2455.

6 Centers for Disease Control and Prevention. The State of Aging and Health in America 2013. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2013.

7 NAMI. Mental health facts in America. 2015; https://www.nami.org/getattachment/Learn-More/Mental-Health-By-the-Numbers/General-MH-Facts-4-12-15.pdf. Accessed August 14, 2015.

Blacks/African-Americans were over-represented among Veteran VHA patients diagnosed with SMI, whereas those age 65+ were under-represented.

Utilization

VHA Outpatient Encounters are the portion of care that occurs at VHA facilities (in contrast to Non-VA (Fee) medical care). The vast majority of FY13 Veteran patients (97.4%) had one or more VHA outpatient encounters, and 43.1% had twelve or more encounters. By race/ethnicity, gender, and age, Veteran groups with 50% or more of the group having twelve or more outpatient encounters were: Blacks/African-Americans, multi-race individuals, and Hispanics (versus 41.4% of Whites having over twelve encounters); women (versus 42.6% of men); and 45-64 year olds (versus <40% of both younger and older age groups). Highly rural Veterans were least likely to have over twelve outpatient encounters (37.7%, versus 44.5% of urban Veterans). The Veteran population with SMI in VA care is notable for its particularly high proportion having over twelve outpatient encounters (78.1%, versus 31.2% of the group with no mental health diagnosis), though greater than 50% of all groups with mental health diagnoses had over twelve outpatient encounters.

Primary Care: The majority (87.1%) of FY13 Veteran patients utilized primary care. Across sociodemographic and mental health categories, the groups that were least likely to use primary care were: Asians (18.1% with no primary care encounters); 18-44 year olds (19.7%); and those with no mental health diagnoses (15.8%). The amount of primary care utilization varied, with 9.3% of Veteran patients having six or more primary care encounters. Across sociodemographic and mental health groups, the largest differences in frequent utilization were based on age group (5.3% of 18-44 year olds, versus 10.7% of 45-64 year olds and 9.5% of those age 65+ having over six encounters) and mental health diagnoses (19.3% of the SMI group, >10% of other mental health groups, and 6.1% of those with no mental health diagnosis having over six primary care encounters).

Mental Health And Substance Use Disorder (SUD) Care: One-quarter (25.2%) of FY13 Veteran patients utilized VA care for mental health and substance use disorders. Racial/ethnic minorities, women, younger age groups, urban dwelling Veterans, and not surprisingly, those with mental health diagnoses, were all more likely to use this type of care. Groups that were least likely to have mental health and SUD encounters were older patients (age 65+) and Veterans residing in highly rural areas.

Emergency Department Care: Overall, 18.2% of FY13 Veteran patients utilized VHA emergency department care, though there was considerable variation in use. Among Veterans diagnosed with SMI, 37.7% had one or more emergency department encounters, and 4.1% had over six encounters. Among Black/African-American Veteran patients, 28.6% utilized VHA emergency departments. The lowest use of VHA emergency departments was among highly rural Veterans, with 9.6% having one or more emergency department encounters.

Telephone Encounters: More than one-half (56.9%) of Veteran patients had one or more VA telephone encounters in FY13. There was variation by race/ethnicity, gender, age group, and mental health diagnosis in use of VA telephone care, but not by rural/urban status. One in eight (12.5%) Veteran patients had 6 or more telephone encounters.

Non-VA (Fee) Outpatient Services: In FY13, 17.6% of Veteran patients used one or more Non-VA (Fee) outpatient service, and 6.2% used twelve or more. Across sociodemographic and mental health categories, the groups that were most likely to use Non-VA (Fee) medical care were women (31.4%, versus 16.6% of men) and highly rural dwelling Veterans (36.9%, versus 19.4% of other rural Veterans and 16.1% of urban Veterans). Groups that were most likely to be the heaviest utilizers of Non-VA (Fee) services (using over twelve services) were: Native Hawaiian or other Pacific Islanders (9.9%); women (8.9%); the oldest old (8.2% of those age 85+); highly rural Veterans (12.4%); and those diagnosed with SMI (12.0%).

Conditions

Categories of Diagnosed Conditions: Overall, the top seven categories of diagnosed medical conditions (diseases or symptoms organized primarily by organ system) were each diagnosed in one-third or more of FY13 Veteran patients. These condition categories were: #1 Endocrine/Metabolic/Nutritional (diagnosed in 63.6%); #2 Cardiovascular (60.6%); #3 Musculoskeletal (49.8%); #4 Other (46.8%); #5 Sense Organ (42.6%); #6 Gastrointestinal (34.7%); #7 Mental Health/Substance Use Disorder (33.2%).

- By race/ethnicity, there were only minor variations in the rank order of condition categories; however, there were sizable differences (> 5%) in the percent of each group receiving diagnoses. American Indian/Alaska Native, Black or African-American, Native Hawaiian or other Pacific Islander, multi-race, and Hispanic Veteran groups all were diagnosed with musculoskeletal and mental health/SUD conditions more than were White Veterans, whereas Asian Veterans received similar or lower rates of these diagnoses as Whites.
- There were sizable gender differences as well as age group differences in the diagnosis rates across condition categories. The #1 condition category in women was musculoskeletal (diagnosed in 57.1% of women, 49.3% of men), and the #3 category was mental health/SUD (46.2% of women, 32.3% of men).
- Among the domains with sizable differences across age groups, for seven domains, the rates increased with age (endocrine/metabolic/nutritional, cardiovascular, urinary, reproductive health, cancer, hematologic/immunologic, and sense organ). For three domains, the rates were highest in the middle age group (gastrointestinal, musculoskeletal, and other). For one domain (mental health/SUD), the rate was highest in the youngest age group.
- The five leading categories of diagnosed conditions were the same among highly rural, rural, and urban Veterans.
- The SMI group was defined such that 100% of that group would have a mental health diagnosis. The #2 condition category for that group is "other", diagnosed in 72.6% versus in 36.5% of the no mental health diagnosis group. The "other" domain includes both psychosocial factors and residual codes. Psychosocial factors encompassed a broad range of issues including, but not limited to, unemployment, history of abuse, family circumstances, identity disorder, relationship problems, legal circumstances, and psychological stress. The SMI group, compared with the no mental health diagnosis group, also had higher diagnosis rates for musculoskeletal disorders (59.8% versus 43.1%) and gastrointestinal conditions (47.5% versus 29.7%).

Individual Diagnosed Conditions: Overall, the top three diagnosed conditions were: hypertension (diagnosed in 51.0%); lipid disorders (47.3%); and diabetes mellitus (23.8%). By race/ethnicity, the highest diagnosed condition rate for hypertension was among Blacks/African-Americans (55.7%), for lipid disorders it was among Whites (50.2%), and for diabetes mellitus there was relatively less variation. Among the overall top 20 diagnosed conditions, the only condition in which the diagnosed rate in a racial/ethnic group exceeded that for Whites by a margin of 10% was PTSD, diagnosed in 20.7% of American Indian/Alaska Natives and in 11.1% of Whites. For several conditions and racial/ethnic groups, the diagnosed condition rate was lower than that for Whites by a margin of 10% or more. The top diagnosed conditions for women were also hypertension and lipid disorders, though the diagnosis rates were lower than that for men by a margin of more than 20%. The third through fifth most commonly diagnosed conditions in women were diagnosed more frequently in women than in men (depression, 26.2% versus 15.2%; lower extremity joint disorders, 23.1% versus 15.7%; and lumbosacral spine disorders, 21.8% versus 17.5%). There were not vast differences between rural and urban Veterans in the diagnosis rates of individual conditions. Among Veterans diagnosed with SMI, diagnosis rates for the top two conditions (hypertension and lipid disorders) were similar to the rates for the no mental health diagnosis group.

However, overall, among the top 20 diagnosed conditions, diagnosis rates for the SMI group exceeded that for the no mental health group for 17 conditions, including exceeding it by a margin of >10% for seven conditions. The largest disparities were in tobacco use disorder, psychosocial factors, spine disorders, and housing insufficiency.

Implications for Policy, Practice, Evaluation and Research

Sociodemographics

- The changing demographics of the Veteran VHA patient population, with increasing racial/ethnic and gender diversity, reinforces the need for ongoing attention to health care delivery and the environment of care to assure that it is culturally and gender sensitive, and that it reflects the preferences and care needs of the diverse population of Veteran VHA users.
- To track achievement and maintenance of this objective, VA should monitor and report patient experience data and quality of care by race/ethnicity and gender.
- With the projected growth in the number of Veterans in older age groups, Veterans who use VHA care will likely have increasing levels of functional dependency and disability; the concomitant need for long-term services and supports will likely increase. Functional limitation may reflect disparities in access to services that forestall or prevent decline. Future work needs to explore functional status, access to long-term services and supports, and multi-morbidity.
- Older Veterans were more likely to live in rural settings than younger Veterans, which could potentially compound access issues. VA should continue identifying strategies to address healthcare access and care coordination targeted toward rural-residing Veteran patients. Addressing the healthcare needs of patients who may face healthcare disparities due to multiple vulnerabilities related to age, racial/ethnic, gender, and rural factors may require additional efforts to develop and deliver innovative, culturally-sensitive care models.
- The over-representation of women and Blacks/African-Americans among Veterans diagnosed with SMI highlights the need to apply recommendations regarding gender and cultural sensitivity within the mental health services line and other settings of care. With younger Veterans entering VA care, there has been an influx of parents and spouses in need of education and support to understand the mental illness of their loved one. Training for staff and clinicians (e.g., couples counseling, family education, shared decision making training) and adjustments to clinic work space (e.g., group rooms, toys for children) will need to be considered.

Utilization

- The primary care clinical setting, utilizing Patient-Aligned Care Teams (PACT), is the preferred setting within VA for coordinating care delivery for most patients, particularly those with complex care needs. Achievement of PACT initiative goals varies across VA sites, with greater PACT implementation associated with higher patient satisfaction, higher care quality, and lower ambulatory care sensitive hospitalizations and emergency department use.[8] Future steps in evaluating VA primary care use should examine variations in these important correlates of PACT implementation by race/ethnicity.
- Women are disproportionately represented among heavy users of primary care (6+ visits per year) despite the fact that they have a younger average age than men. This finding supports VHA policy requiring downward panel size adjustments for primary care providers who see women patients.[9]
- Given that the causes of mental health issues differ by gender (for example, rates of military sexual trauma and its sequelae are far more common in women than in men[10]), and given that health care preferences may differ by gender,[11] further inquiry is warranted regarding any additional adaptations to VHA mental health/SUD delivery systems that would better meet women's treatment needs. In addition, education on trauma-informed approaches to care should be developed for staff in mental health, primary care, specialty care and other clinical settings.
- Ensuring access to preventive and specialty health services among older adult Veterans may require tailoring the structure of VA care to extend its reach to Veterans who may not be able to travel regularly to a medical center.
- Prior research found that significant disparities are present between traditionally underserved racial-ethnic groups and White Veterans in their ability to obtain needed medical care,[12] e.g., with greater proportions of American Indian/Alaska Native, Hispanic, and Black/African-American Veterans reporting barriers to care and unmet need.[13] Data on use of mental health/SUD care should be correlated with diagnoses and symptoms to gauge if observed levels of use are sufficient to meet need for this care.
- As Non-VA (Fee) medical care (e.g., Veterans Access, Choice and Accountability Act of 2014) takes on a larger role in healthcare for Veterans, VA should identify strategies for arranging non-VA care that is also sensitive to the needs and healthcare delivery preferences of a diverse Veteran patient population. The quality of Non-VA (Fee) medical care is not systematically monitored. VA should identify strategies for systematically monitoring the quality of that care, particularly given the lower quality of care and greater racial/ethnic disparities in care that have been documented in community settings compared to VA outpatient care. As VA monitors the patient experience of care, they should include assessments of Non-VA (Fee) medical care stratified by race/ethnicity.

8 Nelson KM, Helfrich C, Sun H, Hebert PL, Liu CF, Dolan E, et.al. Implementation of the patient-centered medical home in the Veterans Health Administration: associations with patient satisfaction, quality of care, staff burnout, and hospital and emergency department use. *JAMA Intern Med*. 2014;174(8):1350-8.

9 Veterans Health Administration (2010). Health Care Services for Women Veterans (VHA Handbook 1330.01). Washington, DC, US Department of Veterans Affairs.

10 Kimerling R, Street AE, Pavao J, et al. Military-Related Sexual Trauma Among Veterans Health Administration Patients Returning From Afghanistan and Iraq. *Am J Public Health.* 2010.

11 Kimerling R, Bastian LA, Bean-Mayberry BA, et al. Patient-centered mental health care for female Veterans. *Psychiatr Serv.* 2015;66(2):155-162.

12 Washington DL, Villa V, Brown A, Damron-Rodriguez J, Harada N. Racial/ethnic variations in Veterans' ambulatory care use. *Am J Public Health*. 2005;95:2231-7.

13 Washington DL, Harada ND, Villa VM, et.al. Racial variations in Department of Veterans Affairs ambulatory care use and unmet health care needs. *Mil Med*. 2002;167:235-41.

Conditions

- Veteran VHA users had higher diagnosed rates of many conditions compared with the broader U.S. population, including higher rates for the top three diagnosed conditions – hypertension, lipid disorders, and diabetes mellitus. These conditions are each a major risk factor for coronary heart disease, which is the leading cause of mortality for both men and women. Prior VA data, limited to Black-White comparisons, found durable disparities in control of each of these cardiovascular risk factors.[14] These conditions have also affected the SMI population in particular, due to the side effect profile of the second generation antipsychotics.[15]
- Severity of each condition and rates of guideline-adherent management of these conditions were not examined in the current report—these should be the focus of systematic evaluations. There have been efforts in VA to monitor and address the metabolic syndrome, including successful efforts to tailor and implement weight management programs for the population with the cognitive deficits associated with SMI.[16] VHA efforts should continue to focus on preventing, detecting, and controlling these disorders, including tailoring programs for African-Americans, SMI populations, and other Veteran groups that prior research has identified as having worse outcomes. Associated health outcomes should be examined by race/ethnicity, gender, and other sociodemographic characteristics, while accounting for the different age distributions in each group. The Office of Health Equity-Quality Enhancement Research Initiative (OHE-QUERI) Partnered Evaluation Center, established in 2015, will fill some of these information gaps by systematic evaluating variations in VA performance and mortality across the entire VHA user population by vulnerable population characteristics.
- Most racial/ethnic minority groups, compared with White Veteran patients, had lower diagnosed condition rates. This is likely due to the younger age distribution of racial/ethnic minorities within VA, though under-diagnosis may be correlated with race/ethnicity. Measurement science research should include studies to identify valid improvements to or alternatives to diagnosis-based metrics for high morbidity conditions that have disparities in diagnosis, treatment or outcomes.
- Health-related behavior and social factors are thought to contribute much more than medical care to overall health, and they are influenced by environmental and socioeconomic factors.[17] Therefore, VA research and quality improvement evaluations should be directed toward investigating the effects of other social determinants of health on the health behavior and outcomes of diverse Veteran patients. For instance, one of the many opportunities currently untapped is the linkage of VA benefits and health in order to better incorporate the social determinants of health in the whole care and personalized health plan for the Veteran.

14 Trivedi AN, Grebla RC, Wright SM, Washington DL. Despite improved quality of care in the Veterans Affairs health system, racial disparity persists for important clinical outcomes. *Health Aff (Millwood).* 2011 Apr;30(4):707-15.

15 Newcomer JW. Metabolic considerations in the use of antipsychotic medications: a review of recent evidence. *J Clin Psychiatry.* 2007;68 Suppl 1:20-27.

16 Cohen AN, Chinman MJ, Hamilton AB, Whelan F, Young AS. Using patient-facing kiosks to support quality improvement at mental health clinics. *Med Care*. 2013;51(3 0 1):S13.

17 Williams DR, Costa MV, Odunlami AO, Mohammed SA. Moving upstream: how interventions that address the social determinants of health can improve health and reduce disparities. J Public Health Manag Pract. 2008 Nov;14 Suppl:S8-17.

Next Steps

A good understanding of the diverse Veteran populations is imperative if the VA is to genuinely resolve the inequities for those at high risk and with the most need. The World Health Organization, the Institute for Healthcare Improvement and the National Academies of Sciences, Engineering, and Medicine recommendations for achieving health equity and effective population management underscore this imperative.[18, 19, 20] This VHA National Veteran Health Equity Report is part of the effort to identify disparities and knowledge gaps, and seek to understand them in order to effectively tackle the avoidable differences in care and outcomes for vulnerable Veteran populations. It is one of many steps toward addressing disparities by catalyzing necessary research, and shifts in policy and operations, in the largest integrated healthcare system in the United States. If used appropriately, the resultant actions at all levels of the agency will be transformative for the vulnerable Veterans in particular, and the healthcare industry as a whole. It should lead to sustainable policies, processes and procedures, irrespective of shifts in agency priorities, and it will add to the evidence for the business case for health equity, beyond the moral imperative.

This report targeted approximately six million Veterans accessing the VA for care in FY13, though the estimated number of living Veterans is about 22 million. It is therefore important to underscore the role of the non-VA health care systems, care providers, and the American society at large in attaining the highest level of health possible for all Veterans. This is particularly relevant given the 2014 Veterans Access, Choice and Accountability Act, which means that an unprecedented numbers of Veterans eligible for VA health care could seek care beyond the VA.

In conclusion, the foundational work illustrated in this first ever VHA National Veteran Health Equity Report should create awareness, and inform, educate, and empower all stakeholders to take further actions towards addressing health and healthcare disparities among Veterans. Just like the Health Equity Action Plan, this is a starting place, and next iterations of the VHA National Veteran Health Equity Report will continue to evolve in order to meet the unique needs of diverse Veterans who entrust their health care to VA.

18 World Health Organization. Uncovering Health Inequalities: A Path towards Leaving No One Behind. http://www.who.int/features/2016/health-inequalities/en/. May 2016. Accessed September 16, 2016.

19 Institute for Health Care Improvement. Assuring Healthcare Quality: A Healthcare Equity Blueprint. http://www.ihi.org/resources/Pages/Tools/HealthcareEquityBlueprint.aspx. Accessed September 16, 2016.

20 Institute of Medicine. 2014. Capturing social and behavioral domains in electronic health records: Phase 1. Washington, DC: The National Academies Press.

Technical Appendix

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This Technical Appendix is adapted from Sourcebook: Women Veterans in the Veterans Health Administration, Volume 3[1] and describes the methods used to generate the results displayed in Chapters 3-7 of this report. These analyses were obtained from the Women's Health Evaluation Initiative (WHEI) Master Database of Women's Health Services, Veterans Health Administration.

A.1 Data Sources

Data for Chapters 3-7 of this report came from the WHEI Master Database, which is compiled from the following centralized VHA administrative data files[2]:

ADUSH Fiscal Year-End Enrollment File (FY00-FY13). Referred to as the "ADUSH Enrollment File" in this report, these VHA enrollment data files are maintained by the office of the Assistant Deputy Under Secretary for Health and contain records of patient characteristics (sex, Veteran status, VHA user status, date of birth, SC disability status, etc.). Enrollment files used span a 14-year period from fiscal year 2000 through fiscal year 2013.[3]

VHA Medical SAS Datasets

a. **VHA Outpatient Event and Visit Files (Medical SAS Outpatient Datasets, FY00 through FY13).** The Outpatient Event (SE) file contains a record for every encounter the patient has with VHA (e.g., clinic visits, telephone encounters, lab test encounters, radiology encounters, etc.); there can be more than one encounter on a given day. Each record contains information about the encounter (e.g., date of care, VA facility, clinic types, diagnoses associated with the visit, procedures performed at the visit, etc.). The Outpatient Visit (SF) file consolidates records of SE file encounters into one record per day of care, and provides additional information about patients (e.g., sex, date of birth, etc.).

    i. MDPPRD.MDP.SAS.SEyy (SE)

    ii. MDPPRD.MDP.SAS.SFyy (SF)

b. **VHA Inpatient Main and Bed Section Files (Medical SAS Inpatient Datasets, FY00–FY13).** These VHA inpatient stay files contain a record for every admission to a VHA facility. This includes admissions to acute care settings (e.g., medical/surgical, psychiatric, etc.), observation bed stays, and extended care stays. The inpatient stay files include patient demographic data as well as information on diagnoses, procedures, and surgeries performed while an inpatient.

    i. MDPPRD.MDP.SAS.PMyy

    ii. MDPPRD.MDP.SAS.PMOyy

    iii. MDPPRD.MDP.SAS.XMyy

    iv. MDPPRD.MDP.SAS.CENSUS.PMyy

    v. MDPPRD.MDP.SAS.CENSUS.PMOyy

1 Frayne SM, Phibbs CS, Saechao F, Maisel NC, Friedman SA, Finlay A, Berg E, Balasubramanian V, Dally SK, Ananth L, Romodan Y, Lee J, Iqbal S, Hayes PM, Zephyrin L, Whitehead A, Torgal A, Katon JG, Haskell S. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 3. Sociodemographics, Utilization, Costs of Care, and Health Profile. Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. February 2014. Available at: http://www.womenshealth.va.gov/WOMENSHEALTH/docs/Sourcebook_Vol_3_FINAL.pdf

2 Detailed descriptions of source datasets can be found on the VA Information Resource Center website (available at: http://vaww.virec.research.va.gov/Intro/Working-with-VA-Data.htm) and the VA Health Economics Resource Center website (available at: http://www.herc.research.va.gov).

3 FY13 is October 1, 2012, through September 30, 2013.

vi. MDPPRD.MDP.SAS.CENSUS.XMyy

vii. MDPPRD.MDP.SAS.PByy

viii. MDPPRD.MDP.SAS.PBOyy

ix. MDPPRD.MDP.SAS.XByy

x. MDPPRD.MDP.SAS.CENSUS.PByy

xi. MDPPRD.MDP.SAS.CENSUS.PBOyy

xii. MDPPRD.MDP.SAS.CENSUS.XByy

In this report, files i-vi, above (the Medical SAS Inpatient Main files), are referred to as the "Inpatient Main files" and files vii-xii, above (the Medical SAS Inpatient Bed Section files), are referred to as "Inpatient Bed Section files." The Inpatient Bed Section files are used in this report only as part of the Conditions identification algorithm.

VHA Vital Status File (FY15Q1). The VHA Vital Status File (VSF) contains mortality and demographic data, including race and ethnicity data from Medicare, for all Veterans who are enrolled in VHA, who received VHA care since 1992, or who have received Veterans Benefits Association (VBA) compensation or pension benefits since 2002.

VA OEF/OIF/OND Roster (FY15Q2). The DOD, Manpower Data Center (DMDC), maintains a cumulative roster of all Veterans who have been deployed to the OEF/OIF/OND mission or those who have served in support of the missions, and whose most recent military discharge occurred after October 1, 2001. VA Office of Public Health maintains the VA OEF/OIF/OND Roster. The Roster includes the subset of these Veterans who were enrolled in VHA prior to the date the VA OEF/OIF/OND Roster was updated—we used the version updated on January 2015.

PSSG Enrollee File (FY13). Maintained by the Planning Systems Support Group, these data indicate geographic characteristics, including urban/rural status of patients' residences.

Non-VA (Fee) Medical Care Files (FY13). Care provided in Non-VA facilities but paid for by VA is recorded in the Non-VA (Fee) Medical Care files. The file for a given fiscal year contains a record for each service reimbursed in that fiscal year, along with other information (e.g., date of service, type of service, diagnoses associated with the service, amount paid to the service provider, etc.). Payments made in a given fiscal year may reflect services provided in that fiscal year or in previous years.[4]

a. **Non-VA (Fee) Medical Care Outpatient Services File.** Called "MDPPRD.MDP.SAS.FEN.FY13. MED," the Non-VA (Fee) Medical Care Outpatient Services file reflects services provided through the Non-VA (Fee) Medical Care system. It includes services provided by non-VHA providers in FY13 or services provided in prior years that VHA reimbursed in FY13.[5]

b. **Non-VA (Fee) Medical Care Inpatient Stay and Ancillary Files.** The Non-VA (Fee) Medical Care Inpatient Stay file contains a record for each submitted invoice not exceeding the allowable Medicare Diagnostic Related Group (DRG) payment. The Inpatient Ancillary file contains records for services whose reimbursement exceeds the Medicare DRG amount as well as for physician care provided in the inpatient setting.

   i. MDPPRD.MDP.SAS.FEN.FYyy.INPT

4 Therefore, some records contained in Non-VA (Fee) Medical Care files reflect care provided in FY12 or earlier. Conversely, some care provided in FY13 will not appear in the FY13 Non-VA (Fee) Medical Care files but instead will appear in a subsequent year's file.

5 Physician services provided on an outpatient basis appear in this Non-VA (Fee) Medical Care Outpatient Services file, while physician services provided to patients in an inpatient setting appear in the Inpatient Ancillary file.

ii. MDPPRD.MDP.SAS.FEN.FYyy.INPT.ANCIL

All programming was performed using SAS 9.2©, and all programs were independently validated by at least one other data analyst.

A.2 Cohort Creation

To create the cohort presented in this report, we selected the subset of Veterans from the WHEI Master Database who, based on the ADUSH Enrollment File, used VHA for outpatient and/or inpatient care and/or Non-VA (Fee) Medical Care services and/or non-VA contract care and/or pharmacy services at least once in FY13.[6]

A.2.1 Veterans

A patient is considered a Veteran in FY13 if the PRIO1_8 value is NOT missing in the ADUSH Enrollment File.

A.2.2 VHA Users

VHA users were identified from ADUSH Enrollment Files using a year-specific user field labeled "FYyy", and the following cost fields:

DSSCNHCOST; DSSFEECOST; DSSLTCCOST; DSSMEDCOST; DSSNVACOST; DSSOPCCOST; DSSPSYCOST; DSSSURCOST; ARCCNHCOST; ARCFEECOST; ARCLTCCOST; ARCMEDCOST; ARCNVACOST; ARCOPCCOST; ARCPSYCOST; ARCSURCOST

A person was considered to be a VHA user in FY13 if all the following were true:

1. "FYyy=1" for FY13[7] AND
2. Sum of all cost fields is >0 for FY13 AND
3. Visits to Compensation and Pension clinics or Employee Health were not the sole sources of VHA care utilization in FY13.

All others were non-users. The term "user" is synonymous with the term "patient" in this report.

A.2.3 Special Population Subgroups

This report focuses on the following special populations, representing subgroups of VHA Veteran patients:

1. Racial/ethnic groups (variable creation described in Section A.3.3)
2. Women and men Veterans (variable creation described in Section A.3.1)
3. Older Veterans (variable creation described in Section A.3.2)
4. Veterans in rural areas (variable creation described in Section A.3.4)
5. Mental health disorder groups (variable creation described in Section A.7)

6 Because the ADUSH Enrollment File counts use of non-VA contract care and pharmacy services as instances of VHA utilization, a small number of patients whose only use of VHA services is through non-VA contract care or outpatient pharmacy services are included in the cohort.

7 This designation in ADUSH Enrollment Files indicates that the patient appeared in a FY13 utilization file for VHA outpatient services, VHA inpatient services, VA pharmacy services, Non-VA (Fee) Medical Care outpatient or inpatient services, or non-VA contract care.

A.3 Algorithms for Sociodemographic Characteristics

The cohorts presented in this report include person-level sociodemographic variables derived from data in the ADUSH Enrollment File (in some cases supplemented with data from the VHA Medical SAS Datasets, VHA VSF, and VA OEF/OIF/OND Roster)[8] for each year from FY00–FY13. These variables include sex, age group, race/ethnicity, rural/urban status, and service-connected disability rating status.

A.3.1 Gender

Creating the cross-year gender variable used in this report involved a multi-step process.

In Step 1, we assigned the patient's gender, SEX_FINAL, based on the SEX_BEST value in the FY13 ADUSH Enrollment File.

In Step 2, individuals without a SEX_FINAL value after applying Step 1 were assigned the most recent non-missing sex value from the FY13 SF file.

In Step 3, individuals without a SEX_FINAL value after applying Step 2 were assigned the most recent non-missing sex value from the FY13 Medical SAS Inpatient Main files.

In Step 4, for individuals without a SEX_FINAL value after applying Step 3, we repeated Steps 1-3 for FY12, and then continued to fill in missing data iteratively using the same approach by searching prior years' files in reverse year order, back to FY00.

FY06–FY13: Identified using ADUSH Enrollment File field labeled SEX_BEST."[8]

FY00–FY05: Identified using ADUSH Enrollment File field labeled "SEX."

Together, steps 1-4 minimized missing gender values, while relying on the most recent gender data available in the ADUSH Enrollment Files and the VHA Medical SAS Datasets for FY00-FY13.

A.3.2 Age

Creating the age variable for FY13 involved five steps.

In Step 1, we assigned a date of birth (DOB) value, DOB_FINAL, based on the DOB_BEST value in the FY13 ADUSH Enrollment File.

In Step 2, individuals without a DOB_FINAL value after applying Step 1 were assigned the most recent non-missing, within-range value of DOB from the FY13 SF file.

In Step 3, individuals without a DOB_FINAL value after applying Step 2 were assigned the most recent non-missing, within-range BORNDAY value from the FY13 Inpatient Main files.

In Step 4, for individuals without a DOB_FINAL value after applying Step 3, we repeated Steps 1-3 for FY12, and then continued to fill in missing data iteratively using the same approach by searching prior years' files in reverse year order, back to FY00.

FY06–FY13: Identified using ADUSH Enrollment Files field labeled "DOB_BEST."

FY00–FY05: Identified using ADUSH Enrollment File field labeled "DOB."

Together, Steps 1-4 minimized missing DOB values, while relying on the most recent DOB data available in ADUSH Enrollment Files and the VHA Medical SAS Datasets for FY00-FY13.

8 Since FY06, the VA Information Resource Center (VIReC) Vital Status Files include derived sociodemographic fields, including SEX_BEST and DOB_BEST, which incorporate information from multiple data sources and thus represent more complete/accurate data. ADUSH Enrollment Files use these fields from FY06 onward.

In Step 5, we calculated age in a given year by subtracting the DOB (identified in Steps 1-4) from the first day of the fiscal year (in days) and then dividing the result by 365.25 to determine the age in years.

When this calculation resulted in a decimal, the final age value was rounded down to the nearest integer. For example, an age of 47.788 was rounded down to 47.

A.3.3 Race/Ethnicity Status

Overview. Several different VHA files contain information about race/ethnicity: the VHA Medical SAS Datasets, the VA OEF/OIF/OND Roster, and the VHA VSF. By combining data across files and across years, it is possible to reduce the number of patients with missing race/ethnicity values.[9] However, race/ethnicity data is structured quite differently across data sources, or even across years within a single data source. Therefore, to make it possible to combine data from different sources, it is necessary to perform within-source, within-year data processing to achieve a standardized data structure across sources and years. We first explain how we mapped race data from different sources to a common set of response options, to be applied to our "WHEI_RACE" variable, and how we mapped ethnicity data from different sources to a common set of response options, to be applied to our "WHEI_ETHNICITY" variable. We then describe how we combined data within each data source and across data sources to reduce missing data as we populated the WHEI_RACE variable and the WHEI_ETHNICITY variable. Finally, we explain how we linked our WHEI_RACE variable and our WHEI_ETHNICITY variable to create a composite variable called WHEI_RACE/ETHNICITY.

Mapping Algorithm to Standardize Race and Ethnicity Categories Across Sources and Across Years. Since race and ethnicity classification schema are not uniform across data sources, we constructed standardized categories and mapped values from each source to these standardized categories, as detailed in *Exhibits A-1 and A-2*. This mapping algorithm allowed us to assign standardized values to WHEI_RACE (six race categories: American Indian/Alaska Native; Asian; Black/African American; Native Hawaiian/Other Pacific Islander; White; and Unknown) and to WHEI_ETHNICITY (three ethnicity categories: Hispanic; non-Hispanic; and Unknown).

9 The VA Information Resource Center provides guidance on working with race and ethnicity data in VHA data (VA Information Resource Center. VIReC Technical Report: VA Race Data Quality. Hines, IL: U.S. Dept. of Veterans Affairs, Health Services Research and Development Service, VA Information Resource Center, Sept. 2011).

EXHIBIT A-1

MAPPING OF "RACE" VALUES

Data Sources	VHA Medical SAS Datasets		VHA Medical SAS Datasets		VA OEF/OIF/OND Roster Source: Department of Defense	VHA Vital Status File Source: Medicare		WHEI_RACE Values*
Fields	RACE1-RACE7 (SF, FY04-FY13)	RACE1-RACE6 (Inpatient Main FY03-FY13)	RACE (SF, FY00-FY03, FY04- FY13†)	RACE (Inpatient Main FY00-FY02, FY03-FY13‡)	RACE, ETHNICITY	CMS_RACE		
Race Values from Original Source File	American Indian or Alaska Native		American Indian		Race=(Other OR Unknown‖) AND Ethnicity=(Aleut, Eskimo, OR U.S./Canadian Indian tribes)	North American Native	Reassigned Race Values	American Indian/ Alaska Native
	Asian		Asian		Race=(Other OR Unknown) AND Ethnicity=(Asian Indian, Chinese, Filipino, Guamanian, Japanese, Korean, Vietnamese, OR Other Asian Descent)	Asian		Asian
	Black or African American		Hispanic Black; Black		Black	Black		Black/ African American
	Native Hawaiian or Other Pacific Islander				Race=(Other OR Unknown) AND Ethnicity=(Melanesian, Micronesian, Polynesian, OR Other Pacific Islander Descent)			Native Hawaiian/ Other Pacific Islander
	White		Hispanic White; White		White	White		White
	Unknown; Declined to Answer; Missing		Unknown; Missing		Race=Hispanic OR Race=(Other OR Unknown) AND Ethnicity=(Other, None, OR Unknown)	Hispanic; Other; Unknown		Unknown §

* Within each data source within each fiscal year, during data processing we replaced the race value found in the original data source file with this reassigned WHEI_RACE value.

† Starting in FY04, RACE values in the SF file were no longer being populated, although the previously-populated legacy value was carried forward in subsequent years' files.

‡ Starting in FY03, RACE values in the Medical SAS Inpatient Main files were no longer being populated, although the previously-populated legacy value was carried forward in subsequent years' files.

§ Unknown includes (a) "Unknown," "Declined to Answer," or "Missing," or (b) Race coded as Hispanic without any modifier (i.e., not specified as Hispanic White or Hispanic Black), or (c) "Other" or "Unknown" Race combined with "Other," "None," or "Unknown" Ethnicity.

‖ For 0.02% of individuals in the FY12 WHEI Master Database, OEF/OIF/OND Roster Ethnicity=[(Aleut, Eskimo, OR U.S./ Canadian Indian tribes) OR (Asian Indian, Chinese, Filipino, Guamanian, Japanese, Korean, Vietnamese, OR Other Asian Descent) OR (Melanesian, Micronesian, Polynesian, OR Other Pacific Islander Descent)] AND OEF/OIF/OND Roster Race=[(White) OR (Black)]. Note that these individuals' WHEI_RACE would be White or Black/African American, respectively (and not American Indian/Alaska Native, Asian or Native Hawaiian/Other Pacific Islander, respectively).

EXHIBIT A-2

MAPPING OF "ETHNICITY" VALUES

Data Sources	VHA Medical SAS Datasets		VHA Medical SAS Datasets		VA OEF/OIF/OND Roster Source: Department of Defense	VHA Vital Status File Source: Medicare		
Fields	ETHNIC (SF, FY04-FY13)	ETHNIC (Inpatient Main, FY03-FY13)	RACE (SF, FY00-FY03, FY04-FY13†)	RACE (Inpatient Main, FY00-FY02, FY03-FY13‡)	ETHNICITY	CMS_RACE	Reassigned Ethnicity Values	WHEI ETHNICITY Values*
Ethnicity Values rom Original Source File	Hispanic or Latino		Hispanic White, Hispanic Black		Puerto Rican; Mexican; Cuban; Latin American with Hispanic Descent; Other Hispanic Descent	Hispanic		Hispanic
	Not Hispanic or Latino		American Indian§		Asian Indian; Chinese; Filipino; Guamanian; Japanese; Korean; Vietnamese; Other Asian descent; Aleut; Eskimo; U.S./ Canadian Indian tribes; Melanesian; Micro-nesian; Polynesian; Other Pacific Islander descent	North American Native§		Non-Hispanic
			Asian§			Asian§		
			Black			Black§		
			White			White§		
	Unknown; Declined to Answer; Missing		Unknown; Missing		Other; None; Unknown	Other; Unknown		Unknown‖

* Within each data source within each fiscal year, we replaced the ethnicity value found in the original data source file with this WHEI reassigned ethnicity value during data processing.

† Starting in FY04, RACE values in the SF file were no longer being populated, although the previously-populated legacy value was carried forward in subsequent years' files.

‡ Starting in FY03, RACE values in the Inpatient Main files were no longer being populated, although the previously-populated legacy value was carried forward in subsequent years' files.

§ Although it is possible that individuals with these race values could be Hispanic, WHEI mapped these to "non-Hispanic" due to the fact that "Hispanic" was a response option in these files but was not selected for the individual.

‖ Includes "Unknown," "Declined to Answer," "Missing," "Other," and "None."

Addressing Missing Data for Race. Applying the mapping algorithm described in *Exhibit A-1*, we created a person-level race variable, WHEI_RACE, that minimized missing values by incorporating data from multiple sources and multiple years.

In Step 1, we populated WHEI_RACE with the most recent, non-missing RACE1 value in the FY13 SF file. If RACE1 was missing, we sequentially used any non-missing RACE2-RACE7 value.[10]

In Step 2, individuals without a WHEI_RACE value after applying Step 1 were assigned the most recent, non-missing RACE1 value in any of the FY13 Inpatient Main files. If RACE1 was missing, we sequentially used any non-missing RACE2-RACE6 value from those files.

In Step 3, individuals without a WHEI_RACE value after applying Step 2 were assigned the most recent, non-missing RACE value in the FY13 SF file.[11]

In Step 4, individuals without a WHEI_RACE value after applying Step 3 were assigned the most recent, non-missing RACE value in any of the FY13 Inpatient Main files.[12]

In Step 5, individuals without a WHEI_RACE value after applying Step 4 were assigned the RACE value from the JAN2015 VA OEF/OIF/OND Roster (a cumulative file), if that value was not missing or unknown.

In Step 6, individuals without a WHEI_RACE value after applying Step 5 were assigned the CMS_RACE value from the VHA VSF (a cumulative file updated in the first quarter of FY15) if that value was non-missing.

In Step 7, for individuals still without a WHEI_RACE value after applying Step 6, we repeated Steps 1-4 for FY12, and then continued to fill in missing data iteratively using the same approach by searching prior years' files in reverse year order, back to FY04. (Steps 5 and 6 did not apply to these prior years because the VA OEF/OIF/OND Roster and the VSF are cumulative files.)

In Step 8, for individuals still without a WHEI_RACE value after applying Step 7, we repeated Steps 3 and 4 for FY03, and then continued to fill in missing data iteratively using the same approach by searching prior years' files in reverse year order, back to FY00. (Steps 1 and 2 did not apply because RACE1-RACE7 were not available in FY03 and earlier SF files, and RACE1-RACE6 were not available in FY02 and earlier Inpatient Main files.)

Only a single WHEI_RACE value was assigned to each patient. However, for patients whose WHEI_RACE value was assigned based on the RACE1-RACE7 or RACE1-RACE6 fields in the VHA Medical SAS Datasets, a person-level variable was created to count the number of valid race values that appeared across all race fields in the same record of the patient's most recent, non-missing Race1-RACE7 value in the FY13 SF file or in the same record of the patient's most recent, non-missing Race1-RACE6 value in the FY13 Inpatient Main files.

Addressing Missing Data for Ethnicity. Applying the mapping algorithm described in *Exhibit A-2*, we likewise created a person-level ethnicity variable, WHEI_ETHNICITY, that minimized missing values by incorporating data from multiple sources and multiple years.

In Step 1, we populated WHEI_ETHNICITY with the most recent, non-missing ETHNIC value in the FY13 SF file.

In Step 2, individuals without a WHEI_ETHNICITY value after applying Step 1 were assigned the most recent, non-

10 The values for the RACE1-RACE7, RACE1-RACE6, and ETHNIC variables additionally contain information on the method by which race/ethnicity information was collected, i.e., whether race/ethnicity was self-identified by the patient, identified by an observer (such as a clinic clerk), identified by a proxy, or whether the method of collection of data was unknown by the patient or missing. The WHEI race and ethnicity algorithms did not attempt to distinguish between these different data collection methods, and simply assigned a value based on the most recent, non-missing race and ethnicity values. The values "Declined to Answer" and "Unknown" were considered to be missing values.

11 Note that starting in FY04, RACE values in the SF file were no longer being populated, although the previously-populated legacy value was carried forward in subsequent years' files.

12 Note that starting in FY03, RACE values in the Inpatient Main files were no longer being populated, although the previously-populated legacy value was carried forward in subsequent years' files.

missing ETHNIC value in any of the FY13 Inpatient Main files.

In Step 3, individuals without a WHEI_ETHNICITY value after applying Step 2 were assigned an ethnicity value from the most recent, non-missing RACE value in the FY13 SF files.[13]

In Step 4, individuals without a WHEI_ETHNICITY value after applying Step 3 were assigned an ethnicity value from the most recent, non-missing RACE value in any of the FY13 Inpatient Main files.[14]

In Step 5, individuals without a WHEI_ETHNICITY value after applying Step 4 were assigned an ethnicity value from the ETHNICITY field from the JAN2015 VA OEF/OIF/OND Roster (a cumulative file) if that value was not missing or unknown.

In Step 6, individuals without a WHEI_ETHNICITY value after applying Step 5 were assigned the ethnicity value from the CMS_RACE field from the FY15Q1 VHA VSF (a cumulative file), if that value was non-missing.

In Step 7, for individuals without a WHEI_ETHNICITY value after applying Step 6, we repeated Steps 1-4 for FY12, and then continued to fill in missing data iteratively using the same approach by searching prior years' files in reverse year order, back to FY04. (Steps 5 and 6 did not apply to these prior years because the VA OEF/OIF/OND Roster and the VSF are cumulative files.)

In Step 8, for individuals without a WHEI_ETHNICITY after applying Step 7, we repeated steps 3 and 4 for FY03, and then continued to fill in missing data iteratively using the same approach by searching prior years' files in reverse year order, back to FY00. (Steps 1 and 2 did not apply because ETHNIC was not available in FY03 and earlier SF files nor in FY02 and earlier Inpatient Main files.)

Only a single WHEI_ETHNICITY value was assigned to each patient.

Creating a Combined, Person-Level Race/Ethnicity Variable. Finally, we combined our person-level WHEI_RACE variable with our person-level WHEI_ETHNICITY variable to create a single, person-level WHEI_RACE/ETHNICITY variable, using the mapping strategy described in *Exhibit A-3*. This mapping is adapted from the approach used by The Statistical Policy Division, Office of Information and Regulatory Affairs, of the Office of Management and Budget, which parallels one approach used for U.S. Census data.[15, 16] The approach generally matches the approach used in prior WHEI reports, except that a new race/ethnicity value ("multi-race") has been added.

13 RACE contains legacy data from prior to 2004 when race and ethnicity were reported in the same variable. Note that starting in FY04, RACE values in the SF file were no longer being populated, although the previously-populated value was carried forward in subsequent years' files.

14 Note that starting in FY03, RACE values in the Inpatient Main files were no longer being populated, although the previously-populated value was carried forward in subsequent years' files.

15 Office of Management and Budget, Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity, 30 October 1997, http://www.whitehouse.gov/omb/fedreg/1997standards.html (Accessed September 2013).

16 2010 Census Redistricting Data (Public Law 94-171) Summary File—Technical Documentation/prepared by the U.S. Census Bureau, 2011.

EXHIBIT A-3

MAPPING OF WHEI_RACE AND WHEI_ETHNICITY TO WHEI_RACE/ETHNICITY

WHEI_RACE (From Exhibit A-1)	WHEI_ETHNICITY (From Exhibit A-2)	WHEI_RACE/ETHNICITY (combined)
American Indian/Alaska Native	Hispanic	Hispanic
Asian	Hispanic	
Black/African American	Hispanic	
Native Hawaiian/Other Pacific Islander	Hispanic	
White	Hispanic	
Unknown	Hispanic	
Any combination of two or more races recorded in the same record	Non-Hispanic OR Unknown	Multi-race
American Indian/Alaska Native	Non-Hispanic OR Unknown	American Indian/Alaska Native – non-Hispanic
Asian	Non-Hispanic OR Unknown	Asian – non-Hispanic
Black/African American	Non-Hispanic OR Unknown	Black/African American – non-Hispanic
Native Hawaiian/Other Pacific Islander	Non-Hispanic OR Unknown	Native Hawaiian/Other Pacific Islander – non-Hispanic
White	Non-Hispanic OR Unknown	White – non-Hispanic
Unknown	Non-Hispanic OR Unknown	Unknown

Note: All individuals with indication of Hispanic ethnicity are included in the "Hispanic" race/ethnicity group regardless of their race. The remaining race/ ethnicity categories contain Veteran patients who have identified as "non-Hispanic," but for simplicity, the labels reported in the main text identifies only the race. For example, in the text, "American Indian/Alaska Native – non-Hispanic" is shortened to "American Indian/ Alaska Native."

We used a hierarchical approach to assign the final person-level combined WHEI_RACE/ETHNICITY values.

In Step 1, among individuals whose WHEI_ETHNICITY value was Hispanic, we automatically assigned a Hispanic WHEI_RACE/ETHNICITY value, regardless of the WHEI_RACE value. For example, if an individual had a WHEI_ RACE value of "Black/African American" but his/her WHEI_ETHNICITY value was "Hispanic", his/her WHEI_RACE/ ETHNICITY value was assigned as "Hispanic."

In Step 2, among the individuals remaining, we then looked at records for the subset of individuals whose WHEI_ RACE was assigned based on the RACE1-RACE7 fields in the FY13 SF file.

- In Step 2a, if an individual had two or more values of RACE recorded in the same record as his/her most recent, non-missing RACE1-RACE7 value, then the individual was assigned a "MULTI-RACE" value for WHEI_RACE/ETHNICITY.
- In Step 2b, among the remaining individuals whose WHEI_RACE was assigned based on the RACE1-RACE7 fields in the FY13 SF file, we assigned the same WHEI_RACE/ETHNICITY value as the WHEI_RACE value. For example, an individual with a WHEI_RACE value of "White" was then assigned a WHEI_RACE/

ETHNICITY value of "White."

In Step 3, among the individuals missing WHEI_RACE/ETHNICITY values at the end of Step 2, we next looked at records for the subset of individuals whose WHEI_RACE was assigned based on the RACE1-RACE6 fields in the FY13 Inpatient Main files.

- In Step 3a, if an individual had 2 or more values of RACE recorded in the same record as his/her most recent, non-missing RACE1-RACE6 value, then the individual was assigned a "MULTI-RACE" value for WHEI_RACE/ETHNICITY.
- In Step 3b, among the remaining individuals whose WHEI_RACE was assigned based on the RACE1-RACE6 fields in the FY13 Inpatient Main files, we assigned the same WHEI_RACE/ETHNICITY value as the WHEI_RACE value. For example, an individual with a WHEI_RACE value of "American Indian/Alaska Native" was then assigned a WHEI_RACE/ETHNICITY value of "American Indian/Alaska Native."

In Step 4, of the remaining individuals with missing WHEI_RACE/ETHNICITY values at the end of Step 3, individuals with "Unknown" WHEI_RACE were mapped to "Unknown" WHEI_RACE/ETHNICITY. All others with known WHEI_RACE were mapped to the corresponding non-Hispanic category, as described in *Exhibit A-3*.

A.3.4 Rural/Urban Status

The urban/rural variable draws on the field "URH" in the FY13 PSSG Enrollee File, which indicates the urban/rural status of the last known address in FY13 for each enrollee. PSSG defines its URH field using three categories: A "highly rural" address is in a county with <7 residents per square mile (on average); a "rural" address is in any other non-urban area (renamed "other rural" in this report); an "urban" address must have both 50,000 or more people in the urban nucleus and have an urban core with at least 1,000 residents per square mile.[17]

A.3.5 Service-Connected (SC) Disability Rating Status

The SC disability rating variable is based on the field "SCPER" in the ADUSH Enrollment File. Like the Veteran field, SCPER can potentially change across years for legitimate reasons (i.e., if the individual's SC disability rating changes). If the SCPER field was populated in the ADUSH Enrollment File for a particular fiscal year, we assigned the ADUSH Enrollment File SCPER value to the individual for that fiscal year. If the SCPER field was missing for that fiscal year, we considered the individual as not having an SC disability rating in that fiscal year. We created a variable indicating whether the individual had an SC disability rating in FY13 (yes/no). For those who did have an SC disability rating in FY13, we also created a variable indicating the level of the SC disability rating: 0-49 percent disability rating, 50-99 percent disability rating, or 100 percent disability rating.[18]

17 Spoont M, et al. 2011. Rural vs. Urban Ambulatory Health Care: A Systematic Review [Internet]. Washington (DC): Department of Veterans Affairs (US); 2011 May.

18 Note that "0 percent" refers to a patient who does have an SC disability rating, but whose severity rating is 0 (zero) percent; this is distinct from a patient who has no SC disability rating.

A.4 Algorithms for VHA Utilization

A.4.1 VHA Outpatient Utilization: Overview

Outpatient utilization variables are derived from the Medical SAS VHA Outpatient Event (SE) files.

Generating Count Of VHA Outpatient Encounters. The WHEI Master Database contains variables counting the number of VHA encounters a patient had within a specific type of care. Clinic "stop codes" (codes indicating clinic type) identify the clinical setting in which the patient received care.[19] This report examines the following specific types of outpatient care:

- **VHA Outpatient Visits** refers to any type of outpatient care (i.e., all clinic stop codes are considered outpatient care).
- **Primary Care Visits** refers to primary care received in general medical clinics or in Women's Health Clinics.
- **Mental Health/Substance Use Disorder (SUD) Visits** refers to care received in mental health or SUD clinics (e.g., psychiatry visits, psychology visits, individual or group therapy, SUD treatment, and mental health/SUD rehabilitation treatment programs). It also includes visits with mental health providers embedded in primary care settings. Note: This category does not include services provided by primary care providers for mental health conditions or SUDs. Screening for these conditions occur in primary care settings, and patients may receive pharmacotherapy or brief interventions for these conditions from primary care providers as well. Also note that the mental health/SUD category does not include services provided in Social Work Clinic.[20]
- **Emergency Department Visits** refers to care received in the Emergency Department, but does not include care provided in Urgent Care units.
- T**elephone Visits** refers to a telephone encounter with a clinician.

For each type of care, WHEI created variables for the count of the total number of encounters occurring for a patient in FY13, regardless of whether those encounters occurred on the same day. Of note, while we exclude duplicate records (encounters by the same person on the same day at the same facility to the same clinic stop code), more than one encounter may legitimately occur on a single day. For example, a patient may visit a primary care clinic, cardiology clinic, podiatry clinic, and the outpatient laboratory all on the same day. Using our approach, all visits would count toward that patient's "VHA outpatient care" tally, and the primary care visit would count toward the "primary care" tally. It is important to capture all visits occurring on each day (rather than simply counting total number of days on which care was received), because some patients try to schedule as much care as possible on a single day (e.g., to minimize travel to the care setting or to minimize time away from work or care giving).

19 "Stop codes" are clinic type codes, which are used to identify outpatient care in VHA. Each type of clinic has a unique three-digit code. The codes are entered into the local VHA VISTA system for each patient encounter (e.g., a clinic visit, a radiology procedure, a clinical telephone encounter). The data gathered through VISTA are aggregated into SE files in the national SAS Medical Datasets.

20 Investigation for Sourcebook Volume 3 revealed that the preponderance of Social Work Clinic encounters were associated with a diagnosis indicative of a need for social services (such as housing instability or employment difficulties) rather than a mental health diagnosis. Thus, services provided by a social work clinician would count as mental health/SUD care if associated with a mental health/SUD clinic stop code, but services provided by a social work clinician within a Social Work clinic would not. See: Frayne SM, Phibbs CS, Saechao F, Maisel NC, Friedman SA, Finlay A, Berg E, Balasubramanian V, Dally SK, Ananth L, Romodan Y, Lee J, Iqbal S, Hayes PM, Zephyrin L, Whitehead A, Torgal A, Katon JG, Haskell S. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 3. Sociodemographics, Utilization, Costs of Care, and Health Profile. Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. February 2014. Available at: http://www.womenshealth.va.gov/WOMENSHEALTH/docs/Sourcebook_Vol_3_FINAL.pdf

Outpatient care variables stop codes. The specific clinic stop codes from the SE file (CL field) used to create counter variables for each type of care are listed here.

A.4.2 VHA Outpatient Care

Any stop code is present in the CL field (the CL field captures the primary stop code responsible for the visit).

A.4.3 Primary Care Clinics [21]

Any of the following stop codes is present in the CL field (unless indicated otherwise in a footnote):

160322 ➔ Clinical Pharmacy Women's Clinic[22]

160323 ➔ Clinical Pharmacy Primary Care Medicine[23]

170 ➔ Home-based Primary Care - Physician

171 ➔ Home-based Primary Care - Nursing (RN or LPN)

172 ➔ Home-based Primary Care - Physician Extender (NP, CNS, PA)

301 ➔ General Internal Medicine

310323 ➔ Infectious Disease Primary Care Medicine[24]

318 ➔ Geriatric Clinic

322 ➔ Women's Clinic[25]

323 ➔ Primary Care Medicine[26]

348 ➔ Primary Care Group

350 ➔ Geriatric Primary Care

704 ➔ Pap Smear Clinic

21 Stop code labels come from VA documentation, and so in general no effort has been made here to spell out these abbreviations.

22 160322 is a code combining two different clinics, where 160 is the primary stop code (in the CL field) and 322 is the secondary stop code (in the CLC field).

23 160323 is a code combining two different clinics, where 160 is the primary stop code (in the CL field) and 323 is the secondary stop code (in the CLC field).

24 3103323 is a code combining two different clinics, where 310 is the primary stop code (in the CL field) and 323 is the secondary stop code (in the CLC field).

25 Starting in FY10, the women's health clinic stop code (322) is officially described in the VHA coding manual as follows: "Records patient visit for primary care services provided to women through a coordinated, interdisciplinary provision of medical, nursing, psychosocial, and allied health services for disease treatment and prevention and health promotion and education, referral for specialty, rehabilitation, and other levels of care, follow-up and overall care management by a Comprehensive Women's Health Primary Care Provider and support team. Includes provider and support services. Comprehensive Women's Health Centers and Women's Health clinics may have shared space. Subspecialty services may also be provided in the same physical location."

26 323 is the stop code most commonly used for primary care clinics.

A.4.4 Mental Health/SUD Care Clinics

Any of the following stop codes is present in the CL field:

156 ➔ Home Based Primary Care - Psychologist
157 ➔ Home Based Primary Care - Psychiatrist
502 ➔ Mental Health Clinic - Individual
503 ➔ Mental Health Residential Care - Individual
504 ➔ Grant and Per Diem - Group
505 ➔ Day Treatment - Individual
506 ➔ Day Hospital - Individual
509 ➔ Psychiatry - Individual
510 ➔ Psychology - Individual
512 ➔ Mental Health Consultation
513 ➔ SUD - Individual
514 ➔ SUD - Home Visit
516 ➔ Post-traumatic Stress Disorder - Group
519 ➔ Substance Use Disorder / Post-traumatic Stress Disorder Teams
523 ➔ Opioid Substitution
524 ➔ Active Duty Sexual Trauma
525 ➔ Women's Stress Disorder Treatment Teams
529 ➔ Health Care for Homeless Veterans
532 ➔ Psychosocial Rehabilitation - Individual
533 ➔ Mental Health Intervention Biomedical Care - Individual
534 ➔ Mental Health Integrated Care - Individual
535 ➔ Mental Health Vocational Assistance - Individual
539 ➔ Mental Health Integrated Care Group
540 ➔ Post-traumatic Stress Disorder Clinical Team - Individual
547 ➔ Intensive Substance Use Disorder - Group
548 ➔ Intensive Substance Use Disorder - Individual
550 ➔ Mental Health Clinic - Group
552 ➔ Mental Health Intensive Case Management - Individual
553 ➔ Day Treatment - Group
554 ➔ Day Hospital - Group
557 ➔ Psychiatry - Group
558 ➔ Psychology - Group

559 ➔ Psycho / Social Rehab - Group
560 ➔ Substance Use Disorder – Group
561 ➔ Post-traumatic Stress Disorder Clinical Team - Group
562 ➔ Post-traumatic Stress Disorder - Individual
564 ➔ Mental Health Team Case Management
567 ➔ Mental Health Intensive Case Management - Group
568 ➔ Mental Health Compensated Work Therapy / Supported Employment Face-To-Face
571 ➔ SeRV-Mental Health - Individual
572 ➔ SeRV-Mental Health - Group
573 ➔ Mental Health Incentive Therapy Face-To-Face
574 ➔ MH Compensated Work Therapy / Transitional Work Experience Face-To-Face
575 ➔ Mental Health Vocational Assistance - Group
576 ➔ Psychogeriatric Clinic - Individual
577 ➔ Psychogeriatric Clinic - Group
580 ➔ Posttraumatic Stress Disorder Day Hospital
582 ➔ Psychosocial Rehabilitative and Recovery Center - Individual
583 ➔ Psychosocial Rehabilitative and Recovery Center - Group
588 ➔ Residential Rehabilitation Treatment Programs Aftercare - Individual
590 ➔ Community Outreach Homeless Vets By Staff Other than HCHV and RRTP Programs Services
591 ➔ Incarcerated Veterans Reentry
592 ➔ Veterans Justice Outreach
593 ➔ Residential Rehabilitation Treatment Programs Outreach Services
595 ➔ Residential Rehabilitation Treatment Programs Aftercare – VA
596 ➔ Residential Rehabilitation Treatment Programs Admission Screening Services
598 ➔ Residential Rehabilitation Treatment Programs Pre-Admit Individual
599 ➔ Residential Rehabilitation Treatment Programs Pre-Admit Group

A.4.5 Emergency Department Care Clinic

The following stop code is present in the CL field:

130 ➔ Emergency Department

A.4.6 Telephone

Any of the following stop codes in the CL field:

103 ➔ Telephone Triage
147 ➔ Telephone / Ancillary
148 ➔ Telephone / Diagnostic
178 ➔ Home Based Primary Care / Telephone
181 ➔ Telephone / Dental
182 ➔ Telephone Case Management
199 ➔ Telephone Polytrauma/Traumatic Brain Injury (TBI)
216 ➔ Telephone Rehab & Support
221 ➔ Telephone Visit Impairment Service Team (VIST)
224 ➔ Telephone Spinal Cord Injury (SCI)
229 ➔ Telephone / Blind Rehab Program
324 ➔ Telephone / Medicine
325 ➔ Telephone / Neurology
326 ➔ Telephone / Geriatrics
338 ➔ Telephone Primary Care
424 ➔ Telephone / Surgery
425 ➔ Telephone / Prosthetics / Orthotics
428 ➔ Telephone / Optometry
527 ➔ Mental Health Telephone
528 ➔ Telephone HCMI
530 ➔ Telephone / HUD-VASH
536 ➔ Telephone / MH Vocational Assistance
537 ➔ Telephone Psychosocial Rehabilitation
542 ➔ Telephone / PTSD
545 ➔ Telephone Substance Use Disorder
546 ➔ Telephone / MHICM
579 ➔ Telephone / Psychogeriatrics
584 ➔ Telephone Psychosocial Rehabilitation Recovery Center (PRRC)
597 ➔ Telephone/Residential Rehabilitation Treatment Program (RRTP)
611 ➔ Telephone Dialysis

A.5 Algorithms for Non-VA (Fee) Medical Care Utilization

A.5.1 Non-VA (Fee) Medical Care Utilization: Overview

Non-VA (Fee) Medical Care utilization variables are derived using the FY13 Non-VA (Fee) Medical Care Outpatient Services file.

NOTES ABOUT NON-VA (FEE) MEDICAL CARE DATA: Due to differences in organization between the FY13 Non-VA (Fee) Medical Care outpatient data and the FY13 VHA outpatient data, additional processing is required to create utilization variables for this report. These processing steps, which included removing duplicate records and adjusting the "Volume Indicator" variable, are described in detail in Sourcebook Volume 3.[27] The decisions behind the processing are summarized below.

The FY13 Non-VA (Fee) Medical Care Outpatient Services file includes only services that were reimbursed by VHA in FY13. *Exhibit A-4* shows three possible combinations of (a) the year in which a service was provided and (b) the year in which the service was reimbursed (and thus appeared in Non-VA [Fee] Medical Care outpatient data).

- Scenario 1 shows a service both provided and reimbursed in FY13.
- Scenario 2 shows a service provided in FY12, but which appeared in the FY13 Non-VA (Fee) Medical Care Outpatient Services file rather than FY12 Non-VA (Fee) Medical Care Outpatient Services file due to a lag between service provision and service reimbursement,[28] and thus we refer to it as an "extra" service in the FY13 Non-VA (Fee) Medical Care Outpatient Services file.
- Scenario 3 shows a similar lag, where the service was provided in FY13 but was reimbursed in FY14; this service appears in the FY14, file but not in the FY13 file and thus we refer to it as being "excluded" from the FY13 Non-VA (Fee) Medical Care Outpatient Services file.

27 Frayne SM, Phibbs CS, Saechao F, Maisel NC, Friedman SA, Finlay A, Berg E, Balasubramanian V, Dally SK, Ananth L, Romodan Y, Lee J, Iqbal S, Hayes PM, Zephyrin L, Whitehead A, Torgal A, Katon JG, Haskell S. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 3. Sociodemographics, Utilization, Costs of Care, and Health Profile. Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. February 2014. Available at: http://www.womenshealth.va.gov/WOMENSHEALTH/docs/Sourcebook_Vol_3_FINAL.pdf

28 From an earlier investigation of the raw FY12 Non-VA (Fee) Medical Care outpatient file, WHEI found that 74% of records reflect FY12 care, 24% reflect FY11 care, and 2% reflect care prior to FY11.

EXHIBIT A-4:

THREE SCENARIOS OBSERVED IN FY13 NON-VA (FEE) MEDICAL CARE OUTPATIENT DATA

FY	FY12	FY13	FY14
Scenario 1: Service provided in FY13 and appears in FY13 Non-VA (Fee) Medical Care File		◆ ●	
Scenario 2: Service provided in FY12 and appears in FY13 Non-VA (Fee) Medical Care File	◆	●	
Scenario 3: Service provided in FY13 and appears in FY14 Non-VA (Fee) Medical Care File		◆	●

◆ Fiscal year in which service occurred.

● Record reimbursement date, indicating the fiscal year of Non-VA (Fee) Medical Care file in which record appears.

WHEI decided to create Non-VA (Fee) Medical Care utilization variables based on care reimbursed in FY13, with two justifications: First, for administrative purposes, it may be useful to track the volume of services that were reimbursed in FY13, rather than the services that were provided in FY13. Second, for program evaluation purposes, volume of services *reimbursed* in FY13 appears to be an acceptable proxy for services *provided* in FY13. WHEI estimates that the number of "extra" services in the FY13 file (those provided prior to FY13, but reimbursed in FY13) will approximately compensate for the "excluded" services in the FY13 file (those provided in FY13 but reimbursed after FY13). However, annual increases in the numbers of Veterans in VHA and corresponding increases in service volume each year may mean that the number of FY13 services "excluded" exceeds the number of "extra" FY12 services included. Therefore, approximating services provided in FY13 using the FY13 Non-VA (Fee) Medical Care outpatient data most likely undercounts the services actually provided in Non-VA (Fee) Medical Care in FY13.

A.5.2 Non-VA (Fee) Medical Care Outpatient Utilization Variable Creation

Generating Count of Non-VA (Fee) Medical Care Services. The WHEI Master Database contains variables counting the number of Non-VA (Fee) Medical Care outpatient *services* received (rather than days) within a specific type of care. A "service" is based upon CPT procedure codes in the Non-VA (Fee) Medical Care files, e.g., a clinic visit, a lab test, a radiology study, a surgical procedure, a medication, or a supply. If a patient received multiple services on a single day, each service is counted separately. Data on use of "Fee Outpatient Visits" reports total Non-VA (Fee) Medical Care outpatient care, measured by a variable that counts any unique service that appears in the processed FY13 Non-VA (Fee) Medical Care Outpatient Services file.

A.6 Algorithms for Diagnosed Condition Categories and Conditions

This report includes characterization of diagnosed conditions among the special population subgroups. To do this, we used International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis codes appearing in VHA outpatient/inpatient files and in Non-VA (Fee) Medical Care outpatient/inpatient files. In the outpatient setting, the clinician records the ICD-9-CM diagnosis/diagnoses addressed at the visit on an encounter form, which is then incorporated into the patient's administrative records. In the inpatient setting, coders typically abstract admitting diagnoses and discharge diagnoses appearing in the patient's medical record, which are then incorporated as ICD-9-CM codes into the patient's administrative records. To capitalize on this existing clinical data, we aggregated the more than 15,000 ICD-9-CM diagnosis codes into 202 clinically meaningful ***"conditions,"*** and then grouped conditions into 17 broad ***"condition categories:"*** Infectious Disease; Endocrine/Metabolic/Nutritional; Cardiovascular; Respiratory; Gastrointestinal; Urinary; Reproductive Health; Breast; Cancer; Hematologic/Immunologic; Musculoskeletal; Neurologic; Mental Health/SUD; Sense Organ; Dental; Dermatologic; and Other conditions. This section describes five phases of variable creation.

- *Phase* 1 involved developing a rule for mapping ICD-9-CM codes to conditions.
- *Phase 2* involved developing a rule for mapping conditions to condition categories.
- *Phase 3* involved database processing to generate person-level indicators (and, in the case of outpatient data, counts) for presence of each condition within each data source (VHA outpatient, VHA inpatient, Non-VA [Fee] Medical Care outpatient, and Non-VA [Fee] Medical Care inpatient).
- *Phase 4* synthesized information across data sources, applying the algorithm for identification of presence/absence of each condition for each patient.
- *Phase 5* generated patient-level variables indicating, for each condition category, whether or not the patient had at least one condition falling within the condition category.

Detailed description of these phases follows.

A.6.1 Phase 1: Rule for Mapping ICD-9-CM Codes to Conditions

There are two major reasons for the decision to map ICD-9-CM codes to broader "conditions". First, attempting to present the frequency of each individual ICD-9-CM diagnosis code would be more confusing than illuminating, as there are well over 15,000 ICD-9-CM diagnosis codes. Second, in many cases a clinician coding the diagnosis responsible for the patient's visit or hospital stay could legitimately apply one of several ICD-9-CM codes to reflect the presenting condition. For example, if the clinician identifies migraine headache as the patient's diagnosis at a visit, then the clinician could code the reason for that visit as ICD-9-CM 346.00 ("migraine with aura, without mention of intractable migraine"), as ICD-9-CM 346.90 ("migraine, unspecified, without mention of intractable migraine"), or as ICD-9-CM 784.0 ("headache"), among other options, all to describe the same clinical presentation. Similarly, a clinician seeing a patient for diabetes mellitus might correctly code the reason for the visit as ICD-9-CM 250.60 ("diabetes type II or unspecified type, with neurological manifestations"), as ICD-9-CM 250.90 ("diabetes type II or unspecified type, with unspecified complication"), or as ICD-9-CM 357.2 ("polyneuropathy in diabetes"), among other options. In other words, to present data from a single ICD-9-CM diagnosis code may be to apply a higher level of granularity of results than typical clinician coding practices would support. Therefore, it is necessary to aggregate ICD-9-CM codes into groupings meaningful to the purpose of the work being pursued.

Fortunately, a widely-used approach to aggregating ICD-9-CM codes exists. The Agency for Healthcare Research and Quality (AHRQ) sponsors the Healthcare Cost and Utilization Project (HCUP) to develop Clinical Classification Software (CCS) that categorizes all ICD-9-CM diagnosis codes into a set of clinically meaningful groups, each

reflecting a single condition.[29]

For this report, the CCS approach serves as the foundation for the WHEI strategy for mapping ICD-9-CM codes to conditions. Over a series of nine steps, WHEI consulted with clinicians and national VHA program offices, workgroups, and research centers to maximize consistency of our approach to condition mapping with the approaches used by other experts, and to tailor the CCS approach to the needs of this report. For a detailed description of the mapping strategy please see Sourcebook Volume 3, Technical Appendix, Section 9.8.1.[30]

The VHA National Health Equity Report 2015 reports on a total of 12,851 ICD-9-CM codes mapped to a total of ***202 conditions***. These 202 conditions are presented in this report. The full ICD-9-CM code mapping to conditions is available on line.[31]

A.6.2 Phase 2: Rule for Mapping Conditions to Diagnosed Condition Categories

Applying clinical expertise and drawing upon the broad groupings developed by CCS, a panel of VHA women's health primary care providers and researchers grouped these 202 conditions into 17 broad "condition categories" that primarily represent organ systems. Each condition received a primary mapping to a single condition category. Some conditions also were secondarily mapped to another condition category; in that case, the condition was counted toward the frequency of the primary condition category and toward the frequency of the secondary condition category. These secondary mappings are listed below, by condition category. The 17 condition categories are as follows.

1. **Infectious Disease Condition Category.** Systemic infections and unspecified infections receive primary mapping to Infectious Disease. Infections of a specific organ system are primarily mapped to that organ system, and secondarily mapped to Infectious Disease. For example, the condition "Hepatitis C" is primarily mapped to the Gastrointestinal condition category, and secondarily mapped to the Infectious Disease condition category.[32]The conditions secondarily mapped to Infectious Disease for total Infectious Diseases counts were the following:
    - Pneumonia (primary condition category: Respiratory)
    - Respiratory System Infections - Other (primary condition category: Respiratory)
    - Hepatitis C (primary condition category: Gastrointestinal)
    - Urinary Tract Infection (Cystitis/Urethritis/Pyelonephritis) (primary condition category: Urinary)
    - Sexually Transmitted Infections (primary condition category: Reproductive Health)
    - Vaginitis and Other Pelvic Inflammatory Conditions (primary condition category: Reproductive Health)
    - Osteomyelitis/Infectious Arthritis (primary condition category: Musculoskeletal)
    - Skin Infection (primary condition category: Dermatologic)

29 Healthcare Cost and Utilization Project (HCUP) Clinical Classification Software (CCS). November 2013. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp.

30 Frayne SM, Phibbs CS, Saechao F, Maisel NC, Friedman SA, Finlay A, Berg E, Balasubramanian V, Dally SK, Ananth L, Romodan Y, Lee J, Iqbal S, Hayes PM, Zephyrin L, Whitehead A, Torgal A, Katon JG, Haskell S. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 3. Sociodemographics, Utilization, Costs of Care, and Health Profile. Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. February 2014. Available at: http://www.womenshealth.va.gov/WOMENSHEALTH/docs/Sourcebook_Vol_3_FINAL.pdf

31 Available at: http://www.womenshealth.va.gov/WOMENSHEALTH/sourcebookvol3onlineappendix.asp

32 In a limited number of instances (specified here), conditions were counted toward the total condition category count of more than one condition category. However, individual ICD-9-CM codes were not counted toward more than one condition.

2. **Endocrine/Metabolic/Nutritional Condition Category.** Endocrine, metabolic and nutritional disorders are primarily mapped to this condition category. Conditions secondarily mapped to this condition category were the following:
    - Pregnancy Complicated by Diabetes Mellitus (primary condition category: Reproductive Health)
    - Cancer – Thyroid (primary condition category: Cancer)
3. **Cardiovascular Condition Category.** This refers to conditions that affect the heart and other parts of the cardiovascular system, including cerebrovascular and peripheral vascular conditions. One condition was secondarily mapped to this condition category.
    - Pregnancy Complicated by Hypertension (primary condition category: Reproductive Health)
4. **Respiratory Condition Category.** This includes conditions that affect the lungs and upper respiratory tract. One condition was secondarily mapped to this condition category.
    - Cancer – Bronchopulmonary (primary condition category: Cancer)
5. **Gastrointestinal Condition Category.** This refers to conditions that affect the digestive system. Conditions secondarily mapped to this condition category are as follows:
    - Cancer – Esophagus (primary condition category: Cancer)
    - Cancer – Gastric (primary condition category: Cancer)
    - Cancer – Colorectal (primary condition category: Cancer)
    - Cancer – Anal (primary condition category: Cancer)
    - Cancer – Hepatobiliary (primary condition category: Cancer)
    - Cancer – Pancreatic (primary condition category: Cancer)
6. **Urinary Condition Category.** This refers to conditions of the kidneys, bladder, or other parts of the urinary system. Conditions secondarily mapped to this condition category are as follows:
    - Cancer – Renal (primary condition category: Cancer)
    - Cancer – Bladder (primary condition category: Cancer)
7. **Reproductive Health Condition Category.** This encompasses genital tract conditions, pregnancy-related conditions, and other conditions related to reproductive health. Conditions secondarily mapped to this condition category are as follows:
    - Cancer – Cervical (primary condition category: Cancer)
    - Cancer – Uterine (primary condition category: Cancer)
    - Cancer – Ovarian (primary condition category: Cancer)
    - Cancer – Female Reproductive – Other (primary condition category: Cancer)
    - Carcinoma in Situ – Cervical (primary condition category: Cancer)
    - Carcinoma in Situ – Female Reproductive – Other (primary condition category: Cancer)
    - Cancer – Prostate (primary condition category: Cancer)
    - Cancer – Testicular (primary condition category: Cancer)
8. **Breast Condition Category.** This includes breast conditions and abnormal breast findings. Conditions secondarily mapped to this condition category are as follows:

- Cancer – Breast (primary condition category: Cancer)
- Carcinoma in Situ – Breast, Ductal or Lobular (primary condition category: Cancer)

9. **Cancer Condition Category.** All cancer diagnoses and all carcinoma in situ diagnoses[33] are primarily mapped to the Cancer condition category. Whenever applicable, cancers are secondarily mapped to the organ system to which they refer.
10. **Hematologic/Immunologic Condition Category.** This refers to disorders of the blood or immune system. Conditions secondarily mapped to this condition category are as follows:
    - Lymphomas (primary condition category: Cancer)
    - Leukemias (primary condition category: Cancer)
    - Multiple Myeloma (primary condition category: Cancer)
11. **Musculoskeletal Condition Category.** This includes rheumatologic and musculoskeletal conditions. One condition is secondarily mapped to this condition category.
    - Cancer – Bone/Connective Tissue (primary condition category: Cancer)
12. **Neurologic Condition Category.** This refers to conditions of the brain and nervous system. Conditions secondarily mapped to this condition category are as follows:
    - Cerebrovascular Accident/Transient Ischemic Attack (primary condition category: Cardiovascular)
    - Cancer – Brain/Nervous System (primary condition category: Cancer)
13. **Mental Health/SUD Condition Category.** This condition category consists of mental health conditions, SUDs, and nonspecific psychiatric disorders. Note that general psychosocial factors and Tobacco Use Disorder are mapped to the Other condition category, not to the Mental Health/SUD condition category. Note that the mental health/SUD condition category refers to conditions, which are described for each special population in this report (Chapters 3-7). This is distinct from the hierarchical categorization of mental health status that is used in the serious mental illness special population chapter. See Section A.7 for information about how a mental health condition hierarchy was established for the Serious Mental Illness chapter of this report (Chapter 7).
14. **Sense Organs Condition Category.** This includes conditions that affect the eyes or ears.
15. **Dental Condition Category.** This refers to dental disorders.

    Note: Most Veteran VHA patients are not eligible to receive dental care by a VHA provider; therefore frequencies of dental disorders among Veteran VHA patients may represent an under-count of true condition prevalence.
16. **Dermatologic Condition Category.** This refers to conditions affecting the skin. One condition is secondarily mapped to this condition category.
    - Melanoma (primary condition category: Cancer)
17. **Other Condition Category.** This condition category includes miscellaneous diagnoses not mapped to other condition categories, such as symptoms, conditions due to external causes, and psychosocial factors.

33 Carcinoma in Situ can in some cases represent a condition managed as cancer (e.g., ductal breast carcinoma in situ) and in other cases can represent a non-cancer condition (e.g., cervical carcinoma in situ). However, because the latter is serious and on the pathway toward cancer, all Carcinoma in Situ is grouped within the Cancer condition category.

A.6.3 Phase 3: Generating Person-Level Variables for Each Condition within Each Data Source

In this phase, we processed raw record-level data from the four FY13 source files (VHA outpatient, VHA inpatient, Non-VA [Fee] Medical Care outpatient, and Non-VA [Fee] Medical Care inpatient), with a goal of generating six person-level variables for each of the 202 conditions: count variables for each of the outpatient files, and indicator variables for each of the source files. For example, in the case of the condition "Diabetes Mellitus," the goal of Phase 3 was to create six variables, as follows:

1. From the VHA outpatient file: a person-level *count variable* indicating the number of times any Diabetes Mellitus ICD-9-CM code appeared in the file, and a person-level *indicator variable (yes/ no)* indicating whether at least one instance of a Diabetes Mellitus ICD-9-CM code appeared in the file;
2. From the VHA inpatient file: a person-level *indicator variable (yes/no)* indicating whether at least one instance of a Diabetes Mellitus ICD-9-CM code appeared in the file;
3. From the Non-VA (Fee) Medical Care outpatient file: a person-level *count variable* indicating the number of times any Diabetes Mellitus ICD-9-CM code appeared in the file, and a person-level *indicator variable (yes/no)* indicating whether at least one instance of a Diabetes Mellitus ICD-9-CM code appeared in the file; and
4. From the Non-VA (Fee) Medical Care inpatient file: a person-level *indicator variable (yes/no)* indicating whether at least one instance of a Diabetes Mellitus ICD-9-CM code appeared in the file.

The FY13 source files used for database processing were:

1. VHA outpatient files
    - SE files
2. VHA inpatient files
    - Acute, Extended Care, and Observation files (Main)
    - Acute, Extended Care, and Observation files (Bed Section)
    - Acute, Extended Care, and Observation files (Census)
3. Non-VA (Fee) Medical Care outpatient files
    - Outpatient Services file
4. Non-VA (Fee) Medical Care inpatient files
    - Inpatient Stay file
    - Inpatient Ancillary file

Creating these person-level variables involved modifying the raw record-level files in four steps, described next.

Step 1: Exclude outpatient records not representing a face-to-face encounter with a clinician. In the outpatient files,[34] we excluded records that did not represent a face-to-face encounter with a clinician (based upon clinic stop codes for VHA outpatient records and CPT codes for Non-VA [Fee] Medical Care outpatient records), such as Laboratory encounters and most Radiology encounters,[35] telephone encounters, Store & Forward encounters, Home Telehealth encounters, and Secure Messaging encounters. The resulting outpatient files contained only records for face-to-face encounters with a clinician, i.e., settings in which a diagnosis can

34 Step 1 was not necessary for inpatient files, because all inpatient stays are considered face-to-face encounters with a clinician.

35 Some Radiology encounters were considered face-to-face encounters with a clinician, such as invasive radiology procedures that require a Radiologist evaluation (and thus a clinical diagnosis) prior to performing the procedure.

legitimately be made by a clinician.

Step 2: Elongate the record-level file. To address the fact that a single utilization record may contain more than one ICD-9-CM diagnosis field (and that the number of diagnosis fields differs in different source files), we created an elongated file with one non-missing ICD-9-CM diagnosis per record. For instance, a single record with 10 diagnoses in the raw data file was elongated into 10 records, each with a single diagnosis, while all of the other fields remained constant.

NOTE: Non-VA (Fee) Medical Care outpatient files have only one diagnosis per record. However, after WHEI's initial processing of Non-VA (Fee) Medical Care outpatient files, there is more than one diagnosis field per record; this is a byproduct of our approach to deleting duplicated records without deleting information about diagnoses. See Sourcebook Volume 3, Technical Appendix, Section 9.6 for more explanation of this process.[36]

This step was completed for all VHA/Non-VA (Fee) Medical Care outpatient/inpatient files. The outpatient files required one additional step of processing (Step 3), whereas the inpatient files required no further processing beyond this Step (Step 2).

Step 3: Process duplicates in outpatient data. To avoid inflating the count of instances of an ICD-9-CM code in outpatient data, we processed duplicate records in these elongated VHA and Non-VA (Fee) Medical Care outpatient files in the manner below.

5. VHA outpatient files: Records with same person, date, STA5A, clinic stop code, and ICD-9-CM code were treated as duplicates. The final file retained only one of the duplicate records. Note that if two records appeared on the same day but were associated with different clinic stop codes, we did not treat those as duplicate records, because patients may schedule multiple independent visits with different providers on a single day.

6. Non-VA (Fee) Medical Care outpatient files: Records with same person, date, STA6A, and ICD-9-CM code were treated as duplicates. Note that records with duplicate CPT codes on the same day had already been deleted in a prior step of Non-VA (Fee) Medical Care database processing.

It was not necessary to process duplicates or overlapping admissions in VHA inpatient files nor in Non-VA (Fee) Medical Care inpatient files, because we were only interested in whether there was at least one instance of the condition in the fiscal year (i.e., we did not need to generate count variables for inpatient conditions).

Step 4: Create person-level variables for each condition within data sources:

- Person-level count variables: Using the outpatient record-level files generated at the end of Step 3, for each of the 202 conditions we generated a person-level variable indicating a count of the number of records containing an ICD-9-CM code mapping to that condition within the VHA outpatient file, and a person-level variable indicating a count of the number of records containing an ICD-9-CM code mapping to that condition within the Non-VA (Fee) Medical Care outpatient file.
- Person-level indicator variables: For each of the 202 conditions we generated a person-level variable indicating whether an ICD-9-CM code mapping to the condition appeared at least once in any VHA outpatient record (yes/no), and we generated a person-level variable indicating whether an ICD-9-CM code mapping to the condition appeared at least once in any Non-VA (Fee) Medical Care outpatient record (yes/no). Using the inpatient record-level files generated at the end of Step 1, for each of the 202 conditions we generated a person-level variable indicating whether an ICD-9-CM code mapping

36 Frayne SM, Phibbs CS, Saechao F, Maisel NC, Friedman SA, Finlay A, Berg E, Balasubramanian V, Dally SK, Ananth L, Romodan Y, Lee J, Iqbal S, Hayes PM, Zephyrin L, Whitehead A, Torgal A, Katon JG, Haskell S. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 3. Sociodemographics, Utilization, Costs of Care, and Health Profile. Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. February 2014. Available at: http://www.womenshealth.va.gov/WOMENSHEALTH/docs/Sourcebook_Vol_3_FINAL.pdf

to the condition appeared at least once in any VHA inpatient record (yes/ no), and we generated a person-level variable indicating whether an ICD-9-CM code mapping to the condition appeared at least once in any Non-VA (Fee) Medical Care inpatient record (yes/no).

Step 4 yielded two person-level, file-specific count variables for each condition, and four person-level, file-specific indicator variables for each condition.

A.6.4 Phase 4: Generating Final Person-Level Variables for Each Condition across Data Sources

To generate the final person-level variable for each condition, we created an additional across-file condition indicator variable (yes/no for presence of the condition) that synthesized information from the within-file person-level condition variables.

All analyses presented in this report use the following algorithm for conditions:

> A patient is considered to have a particular condition if she/he has **at least one instance of an ICD-9-CM code mapped to the condition in FY13 in an outpatient record (VHA or Non-VA [Fee] Medical Care files, limited to face-to-face visits with a clinician) or in an inpatient record (VHA or Non-VA [Fee] Medical Care files).**

A.6.5 Phase 5: Generating Final Person-Level Variables for Each Condition Category

Finally, using the person-level condition variables generated in Step 1 of Phase 4, and applying the mapping strategy described in Phase 2, for each of the 17 condition categories we created a person-level indicator variable (yes/no) indicating whether the patient had at least one condition falling within that condition category.

A.7 Algorithms for Establishing a Hierarchy of Mental Health Conditions

To create the Mental Health Disorder special population categories described in Chapter 7, we used, as a starting point, the existing conditions mapped to the "Mental Health/SUD" condition category defined in Section A.6.2 above.

This section describes the four steps of variable creation.

- Step 1 involved creation of two new condition variables: Major Depressive Disorder with psychosis and Major Depressive Disorder *without* psychosis. This phase required splitting the mapping of ICD-9-CM codes in the existing Major Depressive Disorder (MDD) condition into two new conditions:
    - MDD with psychosis: defined by ICD-9-CM codes 296.24 and 296.34
    - MDD without psychosis: All other ICD-9-CM codes in the WHEI MDD condition

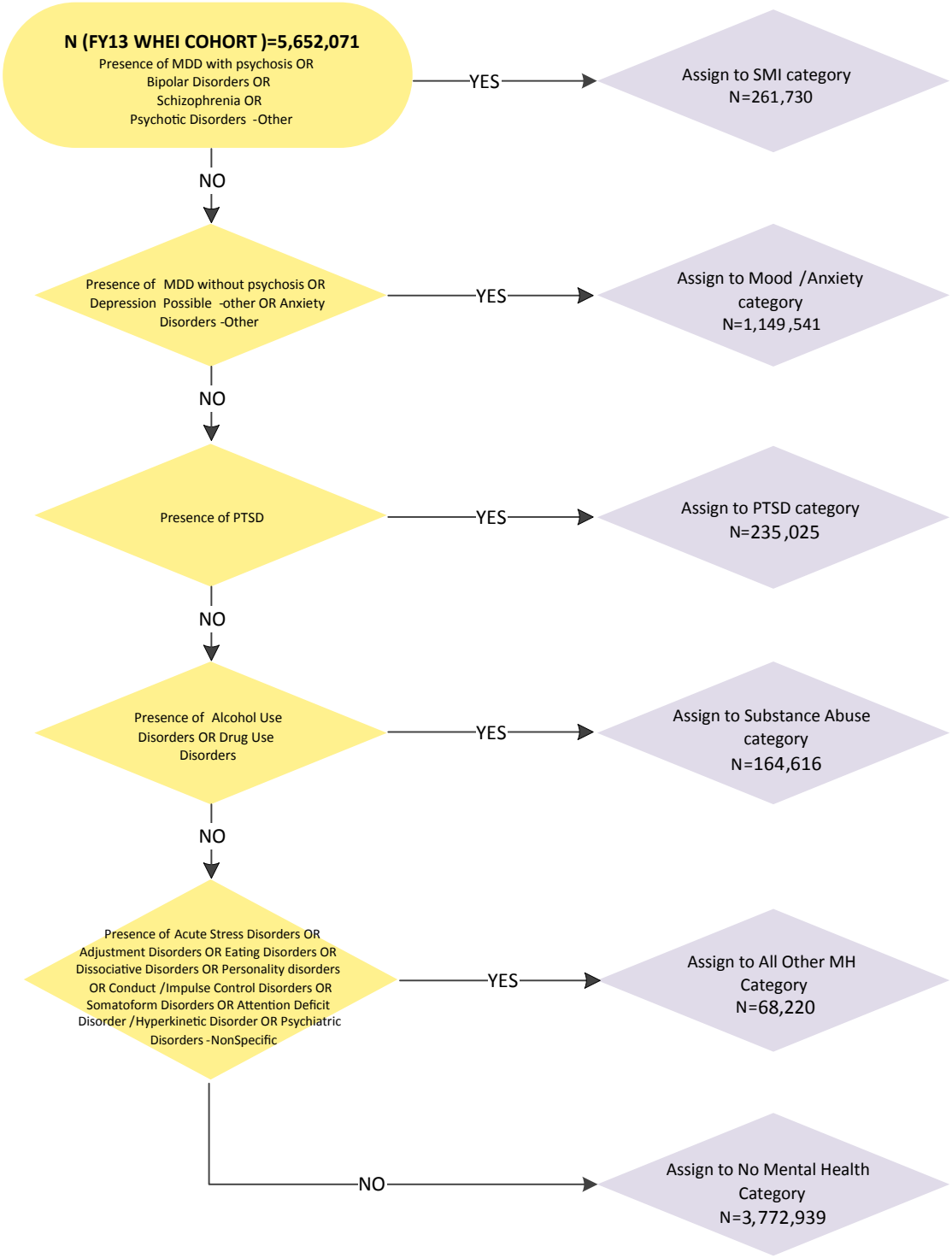
We then implemented the strategies described in Section A.6.3 and A.6.4 to create person-level variables for each of these new conditions.

- Step 2 involved grouping the existing Mental Health/SUD conditions to one of five aggregated Mental Health Disorder condition categories. Each condition received a primary mapping to a single condition category. The five Mental Health Disorder condition categories are as follows.
    1. **Serious Mental Illness:** MDD with psychosis, Bipolar Disorders, Schizophrenia, Psychotic Disorders-Other
    2. **Mood/Anxiety:** MDD without psychosis, Depression, Possible-other, Anxiety Disorders-Other
    3. **PTSD:** PTSD
    4. **Substance Abuse:** Alcohol Use Disorders, Drug Use Disorders
    5. **All Others with Mental Health Disorders:** Acute Stress Disorders, Adjustment Disorders, Eating Disorders, Dissociative Disorders, Personality disorders, Conduct/Impulse Control Disorders, Somatoform Disorders, Attention Deficit Disorder/Hyperkinetic Disorder, Psychiatric Disorders-Non-Specific
- Step 3 generated person-level indicators for presence/absence of each aggregated Mental Health Disorder condition category within each data source (VHA outpatient, VHA inpatient, Non-VA [Fee] Medical Care outpatient, and Non-VA [Fee] Medical Care inpatient) using the indicator variables described in Section A.6.4.
- Step 4 then assigned each FY13 VHA Veteran patient uniquely to a single mutually-exclusive aggregated Mental Health Disorder condition based on the following hierarchy:
    1. **Serious Mental Illness**
    2. **Mood/Anxiety**
    3. **PTSD**
    4. **Substance Abuse**
    5. **All Others with Mental Health Disorders**
    6. The remaining were grouped into **"No Mental Health Diagnosis"**

For example, a patient with both serious mental illness and PTSD was assigned to the "Serious Mental Illness" condition category whereas a patient with mood/anxiety disorder, PTSD, and substance abuse was assigned to the "Mood/Anxiety" condition category. A patient with a chronic cardiovascular condition but no diagnosed mental health conditions was assigned to the "No Mental Health Disorder" group. See *Exhibit A-5* for further explanation of the hierarchical assignment of Mental Health Disorders.

EXHIBIT A-5

HIERARCHICAL ASSIGNMENT OF MENTAL HEALTH DISORDERS



Suggested Citation

The following citation is suggested:

VA Office of Health Equity. 2016. National Veteran Health Equity Report—FY2013. US Department of Veterans Affairs, Washington, DC. Available online at http://www.va.gov/healthequity/NVHER.asp.

Abbreviations

ADUSH	Assistant Deputy Under Secretary for Health
AI/AN	American Indian or Alaska Native
AIDS	Acquired Immune Deficiency Syndrome
AHRQ	Agency for Healthcare Research and Quality
ASCUS	Atypical Squamous Cells of Uncertain Significance
CCS	Clinical Classification Software
Ci2i	Center for Innovation to Implementation
COPD	Chronic Obstructive Pulmonary Disease
CSHIIP	Center for the Study of Healthcare Innovation, Implementation & Policy
DALY	Disability-Adjusted Life Years
DMDC	DOD, Manpower Data Center
DOB	Date of Birth
DoD	US Department of Defense
ED	Emergency Department
EES	Employee Education System
FTE	Full-Time Equivalent
FY	Fiscal Year
HCUP	Healthcare Cost and Utilization Project
HEAP	VHA Health Equity Action Plan
HHS	US Department of Health and Human Services
HIV	Human Immunodeficiency Virus
HSR&D	Health Services Research & Development
HUD	US Department of Housing and Urban Development
ICD	International Statistical Classification of Diseases and Related Health Problems
ICD-9	ICD, Ninth Revision
ICD-9-CM	ICD, Ninth Revision, Clinical Modification
ICD-10	ICD, Tenth Revision
IHS	Indian Health Service
MHICM	Mental Health Intensive Case Management
MH/SUD	Mental Health/Substance Use Disorder
NH/OPI	Native Hawaiian or Other Pacific Islander
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OHE	Office of Health Equity
OND	Operation New Dawn
PACT	Patient-Aligned Care Teams
PRRC	Psychosocial Rehabilitation Recovery Center
PTSD	Post-Traumatic Stress Disorder
QUERI	Quality Enhancement Research Initiative

RRTP	Residential Rehabilitation Treatment Program
RUCA	Rural-Urban Commuting Area
SC	Service-Connected
SCI	Spinal Cord Injury
SE	Outpatient Event
SF	Outpatient Visit
SMI	Serious Mental Illness
SMI-PACT	Serious Mental Illness-Patient-Aligned Care Team
SOP	Standards of Practice
SUD	Substance Use Disorder
TBI	Traumatic Brain Injury
UCLA	University of California, Los Angeles
URH	Urban/Rural/Highly Rural
US	United States
USDA	US Department of Agriculture
VA	US Department of Veterans Affairs
VASH	Veterans Affairs Supportive Housing
VBA	Veterans Benefits Administration
VHA	Veterans Health Administration
VIST	Visit Impairment Service Team
VSF	Vital Status File
WHEI	Women's Health Evaluation Initiative
WHS	Women's Health Service

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