



# Sourcebook ★ Vol. 2

## Sourcebook: Women Veterans in the Veterans Health Administration

Volume 2: Sociodemographics and Use of VHA and Non-VA Care (Fee)

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Washington, DC

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U.S. Department  
of Veterans Affairs

WOMEN VETERANS HEALTH CARE

*Since the Revolutionary War, America's women have earned America's gratitude and respect for their contributions to the military and to the Nation. VA will continue to improve our benefits and services for women Veterans as we transform into a 21st century organization.*

Secretary of Veterans Affairs

Eric K. Shinseki

March 10, 2010

# Sourcebook: Women Veterans in the Veterans Health Administration

## Volume 2: Sociodemographics and Use of VHA and Non-VA Care (Fee)

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## List of Acronyms

ADUSH..... Assistant Deputy Under Secretary of Health	PACT..... Patient Aligned Care Team
CBOC..... Community Based Outpatient Clinic	PSSG ..... Planning Systems Support Group
CCS..... Clinical Classification Software	PTSD ..... Post Traumatic Stress Disorder
CMS..... Centers for Medicare and Medicaid Services	SC ..... Service-connected
CPT..... Current Procedural Terminology	SE/SF..... VHA outpatient encounter and visit files
DOD ..... Department of Defense	SUD ..... Substance Use Disorder
EKG..... Electrocardiogram	VBA ..... Veterans Benefits Administration
FY ..... Fiscal Year (October 1 to September 30)	VA ..... Department of Veterans Affairs
HCPCS..... Healthcare Common Procedure Coding System	VHA ..... Veterans Health Administration
HERC ..... Health Economics Resource Center	VIReC ..... VA Information Resource Center
HSR&D..... Health Services Research and Development	VSSC ..... VHA Support Services Center
GAO ..... Government Accountability Office	WHEI ..... Women’s Health Evaluation Initiative
MRI..... Magnetic Resonance Imaging	WHS ..... Women’s Health Services program

# Executive Summary

Despite women's service in every United States military conflict since the American Revolution, they were not recognized as Veterans when President Abraham Lincoln urged Congress to authorize Veterans benefits assistance "to care for him who shall have borne the battle, and for his widow, and his orphan." Even when Congress granted women eligibility for Veterans Health Administration (VHA) care, women represented an extreme numeric minority group within an organization originally designed to meet the health care needs of men.

Over the past two decades, VHA has rolled out numerous initiatives designed to improve access and quality of care for women Veterans. Since 2008, these efforts have been overseen nationally by the Women's Health Services (WHS) program.<sup>1</sup> Along with clinical advances, VHA women's health research has accelerated, providing an evidence base that further sharpens the focus on women Veterans.

Although highly informative data on women Veterans are available from the research literature<sup>2</sup> and from various VHA reports (e.g., VHA Office of Policy and Planning and the searchable VHA Support Services Center [VSSC] Data Cube), WHS identified the need for detailed data specifically tailored to its strategic planning objectives. A bridge has been created between clinical leadership and research, linking WHS to women's health investigators with expertise in large database analyses at the Center for Health Care Evaluation, a VHA Health Services Research & Development (HSR&D) Center of Excellence, and the Health Economics Resource Center at VA Palo Alto Health Care System.

This Sourcebook Volume 2 is the second product of the collaboration between WHS and VA Palo Alto Health Care System. Following Sourcebook Volume 1,<sup>3</sup> Volume 2 describes sociodemographic characteristics and health care utilization patterns of women Veteran patients<sup>4</sup> in the VHA. Its primary purpose is to present data to inform policy and program planning as VHA implements and evaluates new ways of providing care to women Veterans. It updates Volume 1 with Fiscal Year 2010 (FY10) data on the number of women Veterans, their ages, service-connected disability status, and VHA outpatient utilization. In addition, it builds on the prior report by providing data about women residing in rural versus urban areas and by examining use of health care through VHA's "Non-VA Care (Fee)" system, which is comprised of services provided to Veterans by non-VHA providers but reimbursed through VHA.<sup>5</sup>

All data in this report come from centralized, national VHA administrative databases of enrollment and outpatient care. The report describes women Veterans receiving VHA care in FY10 overall, and within key subgroups (i.e., within age groups and by urban/rural status). It also presents gender comparisons between women and men in FY10. Finally, it presents longitudinal trends over the past decade (FY01–FY10).

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1 VA Women Veterans Health Strategic Health Care Group was renamed Women's Health Services (WHS) in July 2012.

2 Bean-Mayberry B, Yano EM, Washington DL, Goldzweig C, Batuman F, Huang C, et al. (2011). Systematic Review of Women Veterans' Health: Update on Successes and Gaps. *Women's Health Issues*, 21(4 Suppl), S84-97. Yano EM and Frayne SM, (2011). Health and Health Care of Women Veterans and Women in the Military: Research Informing Evidence-based Practice and Policy. *Women's Health Issues*, 21(4 Suppl), S64-66.

3 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 Health Care Group, Veterans Health Administration, Department of Veterans Affairs, Washington DC. December 2010. Download: [www.va.gov/vhapublications/ViewPublication.asp?pub\\_ID=2455](http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2455).

4 The term "patient" is synonymous with the term "user" in this report.

5 Formerly known as "Fee" or "Fee-basis" care, VHA has renamed the program that administers reimbursements as the "National Non-VA Care Program Office" and now refers to this type of service as "Non-VA Care (Fee)."

This Sourcebook Volume 2 has several limitations: (1) The data represent only Veterans who used VHA care in FY10, rather than all Veterans. The characteristics of Veterans who did not choose to use VHA could differ from the characteristics of those who did. (2) This report does not examine non-Veteran women who used VHA services.<sup>6</sup> (3) This report does not include race/ethnicity among the sociodemographic characteristics due to issues about the available data for that variable. (4) Utilization data include outpatient VHA care and Non-VA Care (Fee), but do not include all care provided by VHA through contracts outside VHA, nor care received privately by women who use VHA. Thus, for women Veterans who used VHA for at least some of their care in FY10, total outpatient health care utilization across all systems of care is likely to be higher than the VHA-based utilization rates presented in this report. Note that the focus of this report is on outpatient care, not inpatient care. (5) Data in this Sourcebook Volume 2 are descriptive; no statistical significance testing is presented for the differences described here.

## Key Findings

**Rapid Growth of VHA Women Veterans, FY01–FY10.** The number of women Veterans using VHA has nearly doubled in the past decade, from 175,698 in FY01 to 316,903 in FY10.

**Shifting Age Distribution in VHA Women Veterans.** In FY01, the age distribution of women showed two main peaks: The tallest peak had a maximum at age 44, and the second peak had a maximum at age 77. By FY10, this pattern had shifted. The peak that had been tallest in FY01 was even taller in FY10 and had its maximum at age 48. The second peak had its maximum at age 86. Meanwhile, a substantial new third peak had appeared, with its maximum at age 27. In FY10, 42% of women Veteran patients were 18–44 years old, 45% were 45–64 years old, and 13% were 65+ years old.

**High Levels of Service-Connected Disability Status in VHA Women Veterans.** As of FY10, more than half of women Veteran patients in VHA had received a service-connected disability rating. The proportion of women Veterans receiving service-connected disability ratings increased over the decade. Further, in FY10, a higher proportion of women Veterans who were 18–44 years old had a service-connected disability rating than women who were 45–64 or 65+ years old.

**VHA Women Veterans Dwell in Both Urban Areas and Rural Areas.** A higher proportion of women Veteran patients lived in urban areas than in rural areas in FY10 (urban 64%; rural 36%). Among VHA women Veterans, young women (18–44 years old) were slightly more likely than older women (65+ years old) to live in large urban areas (66% vs. 61%).

**Frequent Use of Outpatient Care by Women Veterans.** Over half of women Veteran patients had six or more visits in FY10 (overall and within each of the three age groups). In addition:

- Eighty-nine percent of women Veteran outpatients had at least one primary care visit in FY10. Among primary care patients, women Veterans visited any of the primary care clinics an average of 3.4 times in FY10, compared to an average of 3.1 times in FY10 for men.
- Among women Veteran outpatients, 38% received mental health or substance use disorder (SUD) services in FY10. Women who used mental health/SUD care visited these clinics an average of 9.5 times in FY10.
- A substantial proportion of women Veteran outpatients relied on Non-VA Care (Fee) providers for some of their outpatient care. In FY10, 33% of women outpatients had at least one day on which they received Non-VA Care (Fee). Many women (17% of all women Veteran VHA outpatients) received a mammogram at a non-VHA location through Non-VA Care (Fee) in FY10.

**Gender Differences among VHA Veterans.** Women comprised 6% of Veteran patients in FY10. The number of women Veterans has been growing faster than the number of men Veterans. Compared to men, women were, on

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<sup>6</sup> See Technical Appendix, Section 2, for a more complete explanation of categories of non-Veteran women who use VHA services.

average, substantially younger: 42% of women and 12% of men were less than 45 years old. Women were more likely than men to carry a service-connected disability status and to have a service-connected disability rating of at least 50 percent,<sup>7</sup> and were more likely than men to live in a large urban area.

Within every age group, a greater proportion of women than men had six or more outpatient visits. A higher proportion of women than men used frequent primary care services: 45% of women versus 40% of men had at least three primary care visits. Additionally, 14% of women versus 10% of men had at least six primary care visits in FY10. A higher proportion of women than men used frequent mental health/SUD services; 15% of women and 9% of men had six or more mental health/SUD visits in FY10. Also, women were more likely than men to use Non-VA Care (Fee) (33% vs.16%), a finding that held among both single-day and multiple-day Non-VA Care (Fee) users (single-day of Non-VA Care [Fee]: 16% of women vs. 7% of men; 2–11 days of Non-VA Care [Fee]: 13% of women vs. 6% of men).

**Comparison with Sourcebook Volume 1 Data (FY09).** Overall, Sourcebook Volume 2 confirms stability in many of the proportions reported in Volume 1, including demographic characteristics, overall VHA outpatient use, primary care use, and mental health use. However, one notable exception is in data reporting where women receive primary care. The proportion of women who received primary care in both women’s health clinics and in other primary care clinics was 24% in FY09 and 22% in FY10.<sup>8</sup>

## Key Implications for Policy and Practice

Implications that are new compared to Sourcebook Volume 1 are noted with a blue, star-shaped bullet.

- The *number* of women Veterans using VHA services has nearly doubled in the past decade. If growth continues at this pace, and especially if more eligible women Veterans begin to use VHA,<sup>9</sup> there will be increasing demands upon VHA delivery systems to care for women Veterans.
- The number of young women in VHA has been growing rapidly in recent years. This rapid demographic shift highlights the need to assure ample capacity for clinical services necessary for women in their reproductive years and to assure that healthcare providers’ knowledge and skills are up to date in this clinical domain.
- The tallest peak in the age distribution of women Veteran patients was at age 48 in FY10. Twenty years from now, this large group of women will be nearing their seventies. These women could require more intensive healthcare services as they age, including geriatric and extended care services and, where applicable, support for their role as caregivers. Also, as these women become Medicare-eligible, coordination of care across healthcare systems may become increasingly important.
- The proportion of women Veteran patients with a service-connected disability rating, as well as the proportion with ratings of 50 percent or more, has increased over the decade. More than half of women Veterans in VHA now carry a service-connected disability rating, some of whom are very young. These women will be eligible for lifelong VHA care for their service-connected conditions.
- ★ Although a smaller proportion of women than men live in rural areas, many women do live in rural areas. Specifically, in all age categories, at least a third of women Veteran patients live in rural areas. This suggests the importance of assuring access to gender-specific VHA primary care in rural areas and the potential niche for programs that extend access to women’s health screening and specialty care (e.g., outreach screening programs and telemedicine). Furthermore, a moderately higher proportion of older women Veteran patients live in rural areas,

<sup>7</sup> To enhance the clarity and readability of this report, an editorial decision has been made to spell “percent” in reference to service-connected disability ratings, e.g., “SC disability rating of 70 percent.” In all other measures of percentage, the percent symbol (%) is used.

<sup>8</sup> The proportion of women receiving primary care in both women’s health clinics and in other primary clinics in FY10 reported here differs from that reported in Sourcebook Vol. 1, because we have re-run the FY09 analysis using the definition of women’s health clinic used in Sourcebook Vol. 2. This makes possible comparable numbers for FY09 and FY10.

<sup>9</sup> In FY10, WHEI data indicate that 316,903 women Veterans received VHA care. In that same year, there were approximately 1,840,380 women Veterans living in the United States (based upon Vetpop data, accessed at [www.va.gov/vetdata/Veteran\\_Population.asp](http://www.va.gov/vetdata/Veteran_Population.asp)). Thus, the majority of women Veterans do not receive care in VHA.



highlighting the need for gender-specific geriatric care in these areas.

- ★ Within all age groups and all urban/rural status groups, women use outpatient care more heavily than do men. Women's heavier utilization should be taken into account as VHA projects the resources needed for the future care of the growing population of women Veterans.
- ★ A large proportion of rural women use outpatient services frequently. If this implies that they are relying heavily on VHA care, then this highlights the importance of their ready access to the full spectrum of care, including gender-specific, mental health, and specialty services.
- ★ Nearly 90% of women Veterans were seen by a VHA primary care provider in FY10. VHA's efforts to assure that all patients are connected with a primary care provider appear to be successfully reaching women Veterans. The small group not receiving primary care merits further scrutiny to determine whether they have unmet primary care needs, whether they are receiving primary care outside VHA, or whether they are relatively healthy and have fewer care needs.
- ★ Women are disproportionately represented among heavy users of primary care (i.e., 14% of women versus 10% of men had at least six primary care visits in FY10), despite women's younger average age. These findings support the concept that clinicians with a large number of women in their panels will likely require adjustments in panel size and scheduling profiles to assure that women have sufficient access to care. Further, as VHA refines its new Patient Aligned Care Teams (PACT) system, customization may be needed in primary care clinics caring for women.
- ★ VHA policy now sets the expectation that women will receive Comprehensive Women's Health Care (i.e., both gender-neutral primary care services and gender-specific primary care services from a *single* designated women's health provider), to reduce fragmentation of care.<sup>10</sup> Women who receive all their primary care from a designated women's health provider in a primary care clinic or in a women's health clinic receive Comprehensive Women's Health Care, while those receiving primary care in both primary care and women's health clinics may not be receiving this model of care. Technical issues with the coding of women's health clinic care preclude precise estimation of how many women have already transitioned to care consistent with this new policy. However, while it is promising that the proportion who appear to be receiving care in dual settings was lower in FY10 than it had been in FY09, the fact that 22% of women received care in both primary care and women's health clinic settings in FY10 motivates a continued push towards a system that ensures that all women have access to Comprehensive Women's Health Care.
- ★ Many women Veteran patients use mental health services. Those who use mental health services tend to have many (six or more) visits. Further, a far greater proportion of women than men use any mental health/Substance Use Disorder (SUD) services (38% vs. 26%) and likewise a far greater proportion of women than men use mental health/SUD care at least six times (15% vs. 9%). VHA is recognized for its longstanding expertise in mental health and for its ongoing efforts to remain a leader in mental health care (e.g., through integration of mental health in primary care, increases in mental health care capacity, research funding, provider training, etc.). It appears that such services may be of particular importance for a substantial subset of women Veterans. Recent research efforts to examine whether mental health service delivery systems need adaptations to ensure they are meeting women Veterans' treatment needs are timely.
- ★ One of every three women Veteran patients receives at least some of her care through the Non-VA Care (Fee) system. Ongoing efforts to examine the quality of such Non-VA Care (Fee) and the coordination between VHA and Non-VA Care (Fee) are of particular importance for women.<sup>11</sup>

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

11 Bastian L & Mattocks K, Principal Investigators. *Evaluation of Quality and Coordination of Outsourced Care for Women Veterans*. Veterans Health Administration, HSR&D grant CRE 12-008.

# Introduction

## Background

Despite women's service in every United States military conflict since the American Revolution, they were not recognized as Veterans when President Abraham Lincoln urged Congress to authorize Veterans benefits assistance "to care for him who shall have borne the battle, and for his widow, and his orphan." When the congressional Government Accountability Office (GAO) released its first comprehensive report on Veterans Health Administration (VHA) care for women Veterans in 1982, women represented an extreme numeric minority group within an organization originally designed to meet the health care needs of men. Reports by the GAO and the VA Office of Inspector General in the late 1980s and early 1990s documented quality gaps in VHA women's health care delivery.

By the mid-1990s, major change had begun. Over the past two decades, VHA has rolled out numerous initiatives designed to improve access and quality of care for women Veterans. Among these were Comprehensive Women Veterans Health Centers, Continuing Medical Education offerings in women's health, post-doctoral fellowship training programs in women's health, the Women's Health Sciences Division of the National Center for Post Traumatic Stress Disorder (PTSD), women's mental health specialty programs, a national Military Sexual Trauma Support team, and active solicitation of women's health services research projects.

Building on these earlier achievements, in late 2008 Women's Health Services (WHS) in VA Central Office launched a five-year plan to redesign the women's health care delivery system in VHA nationally.<sup>12</sup> A fundamental component of this new vision has been assuring that women Veterans receive comprehensive primary care from providers skilled in women's health care. Every VHA health care system in the country now has a full-time Women Veterans Program Manager tasked with advocating for the health care needs of women using that facility. Mini-residencies in women's health have been disseminated system-wide to enhance clinician competencies in women's health. WHS oversees these efforts nationally.

As part of this dynamic systems redesign, WHS identified the need for data to inform policy and program planning. While highly informative data on women Veterans are available from the research literature<sup>13</sup> and from various VHA reports (e.g., VHA Office of Policy and Planning, and the searchable VSSC Data Cube), WHS identified the need for detailed data specifically tailored to its strategic planning objectives and available to be queried in a timely way as issues emerge in VHA women's health care delivery.

To address this need, WHS approached women's health investigators with expertise in large database research at the Center for Health Care Evaluation, a VA Health Services Research & Development (HSR&D) Center of Excellence, and the Health Economics Resource Center at VA Palo Alto Health Care System. The resulting partnership was called the *Women's Health Evaluation Initiative*, or WHEI. Since 2009, WHEI has been conducting analyses in

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12 Veterans Health Administration (2010). Health Care Services for Women Veterans (VHA Handbook 1330.01). Washington, DC: U.S. Department of Veterans Affairs.

13 Bean-Mayberry B, Yano EM, Washington DL, Goldzweig C, Batuman F, Huang C, et al. (2011). Systematic Review of Women Veterans' Health: Update on Successes and Gaps. *Women's Health Issues*, 21(4 Suppl), S84-97. Yano EM & Frayne SM (2011). Health and Health Care of Women Veterans and Women in the Military: Research Informing Evidence-based Practice and Policy. *Women's Health Issues*, 21(4 Suppl), S64-66.

response to queries by WHS. The analyses that WHEI produces are relevant to groups besides WHS, including policymakers, clinicians, researchers, advocates, and women Veterans. To facilitate dissemination of major findings to a broader audience, key sociodemographic and VHA health care utilization data are presented in Sourcebook Volume 2. This Sourcebook Volume 2 builds upon the prior Volume 1, which described FY09 VHA care of women Veterans; subsequent volumes of the Sourcebook are being developed to describe additional characteristics of women Veteran patients and their health care.

## Methods

**Overview.** This report presents the number, age, service-connected disability status and urban/rural status of women Veterans who received medical care in the VHA (Part 1), along with information about their utilization of outpatient VHA services and Non-VA Care (Fee)<sup>14</sup> services (Parts 2, 3, and 4).

Data for this report were derived from centralized VHA administrative files (ADUSH Monthly Enrollment File, PSSG geographic files, SE Outpatient Encounter File, Non-VA Care [Fee] outpatient file, all described in the Technical Appendix) spanning a 10-year period from Fiscal Year 2001 through Fiscal Year 2010 (FY01–FY10). Non-Veterans who use VHA services are excluded from this report.

**Characteristics examined.** *Sociodemographic* characteristics examined in this report are age, service-connected disability status, and urban/rural status. Note that race/ethnicity is not included among the sociodemographic characteristics due to data quality concerns about race/ethnicity data.<sup>15</sup> This report examines several specific types of *outpatient utilization*: total outpatient utilization, primary care visits (total primary care visits as well as visits to primary care clinics and women’s health clinics, defined in Part 3), gynecology, and mental health/substance use disorder care. (See Technical Appendix for details of the algorithms used to create these variables and the data validity checks completed.) To accommodate the addition of a detailed new section examining use of outpatient Non-VA Care (Fee), inpatient utilization of VHA care and Non-VA Care (Fee) are not characterized in this report; however, data on inpatient utilization are available in Sourcebook Volume 1.

**Analyses.** All data in this report are descriptive. The analyses in “Part 1: Sociodemographics” are organized as follows:

- Number of women Veteran patients<sup>16</sup>
- Age distribution
- Service-connected disability status
- Urban/rural status

The analyses in Parts 2, 3, and 4 describe outpatient service utilization by women Veterans in FY10 based on types of care (e.g., VHA primary care, VHA women’s specialty care,<sup>17</sup> VHA mental health/substance use disorder care, specific types of Non-VA Care [Fee]). Patterns of utilization are reported for:

- Overall women Veteran patients
- Key women Veteran sub-populations (i.e., by age group and urban/rural status)
- Women Veteran patients’ utilization compared to men Veteran patients’ utilization.

14 Formerly known as “Fee” or “Fee-basis” care, VHA has renamed the program that administers reimbursements as the “National Non-VA Care Program Office” and now refers to this type of service as “Non-VA Care (Fee).”

15 The VA Information Resource Center has published recommendations for an approach to identifying race/ethnicity by linking VHA/Centers for Medicare and Medicaid Services (CMS)/Department of Defense (DOD) data sources. See: VA Information Resource Center (Sept 2011). VIREC Technical Report: VA Race Data Quality: Hines, IL: U.S. Dept. of Veteran Affairs, Health Services Research and Development Service, VA Information Resource Center. It is anticipated that race/ethnicity information will become available in a future Sourcebook report.

16 The term “patient” is synonymous with the term “user” in this report.

17 This category is separated into two subsets: Gynecology and Women’s Surgery Clinic.

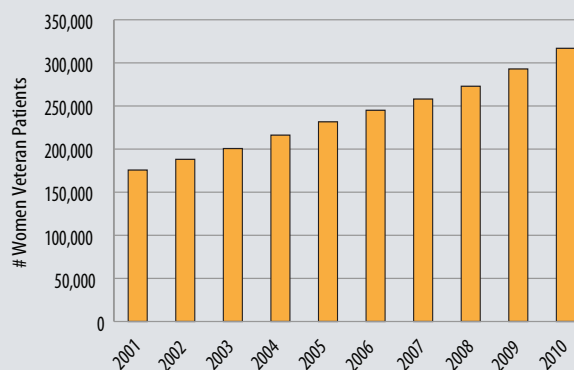
# Part 1: Sociodemographics

## Women Veteran Patient Cohort Size

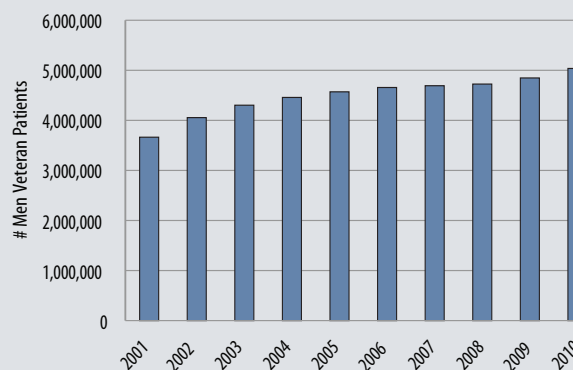
**Growth in number of women Veterans using VHA, FY01–FY10.** While women Veterans remain a numerical minority group in VHA, the number using VHA services has nearly *doubled* in the past decade, growing from 175,698 to 316,903—an 80% increase—over 10 years (Figure 1). In contrast, the number of men Veterans in VHA has grown more slowly, from 3,663,637 to 5,036,990—a 37% increase (Figure 2). Between FY01 and FY10, VHA cared for a total of 487,222 women Veterans. The 316,903 women Veterans who used any VHA care in FY10 represent about 6% of all Veterans using VHA in that year.

Since 2004, the annual percent increase in the number of women Veteran patients<sup>18</sup> has been consistently four percentage points higher than the same increase for men Veterans: Between FY09 and FY10, the increase in the number of women Veteran patients was 8%, compared to a 4% increase in the number of men. Since 2007, the annual percent increase in the number of women Veteran patients has grown by one percentage point in each year (FY07: 5%; FY08: 6%; FY09: 7%; FY10: 8%).

**Figure 1. Number of women Veteran patients in each year, FY01–FY10**



**Figure 2. Number of men Veteran patients in each year, FY01–FY10**



**Key:** FY—Fiscal Year

**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.

**Cohort:** Women and men Veteran patients in year. Women in FY10: N=316,903; Men in FY10: N=5,036,990.

**Source:** WHEI Master Database

**NOTES TO INTERPRETATION:** These data reflect the VHA system at a national level. Specific geographic regions or individual VHA facilities may have experienced greater or lesser increases in the women Veteran patient population.

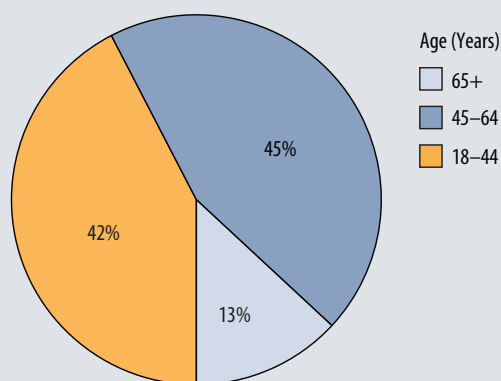
<sup>18</sup> The term “patient” is synonymous with the term “user” in this report.

**IMPLICATIONS** The *number* of women Veterans using VHA services has nearly doubled in the past decade. If growth continues at this pace, and especially if market penetration increases among the large group of women Veterans who currently do not use VHA, increasing demands upon VHA delivery systems for women are anticipated.

## Ages of Women Veteran Patients

**Age mix, FY10.** Women Veteran patients span the full adult lifespan, from late teen years to older than 100 years. The history of U.S. military conflicts influences their age distribution. Many of those who join the military do so in their late teens or early 20s. Thus, the age distribution of women in part reflects war era cohort effects.

**Figure 3. Age distribution of women Veteran patients, FY10**



**Key:** FY—Fiscal Year  
**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.  
**Cohort:** Women Veteran patients with non-missing ages 18–110 years (inclusive) in FY10, N=316,865  
**Source:** WHEI Master Database

In FY10, the majority of women Veterans in VHA were less than 65 years old, with approximately equal numbers in the 18–44 (42%) and the 45–64 (45%) age groups, and a smaller proportion (13%) in the 65+ year old age group (Figure 3). Substantial numbers of women were at the age extremes: 4% were younger than 25 and 4% were older than 85.

**Changes in age distribution, FY01–FY10.** Figure 4 shows the number of women at each age in FY01 (dotted line), and in FY10 (bold line). In FY01, the distribution had two main peaks: The tallest peak had a maximum at age 44, and the second peak had a maximum at age 77. By FY10, the peaks had shifted forward. The peak that had been tallest in FY01 was even taller and had its maximum at age 48. The second FY10 peak had its maximum at age 86; notably, the number of women around this age did not shrink substantially between FY01 and FY10, despite the potential for loss from the system

(e.g., due to death or transfer to non-VHA long-term care facilities). Furthermore, by FY10 a substantial new third peak had appeared, with its maximum at age 27.

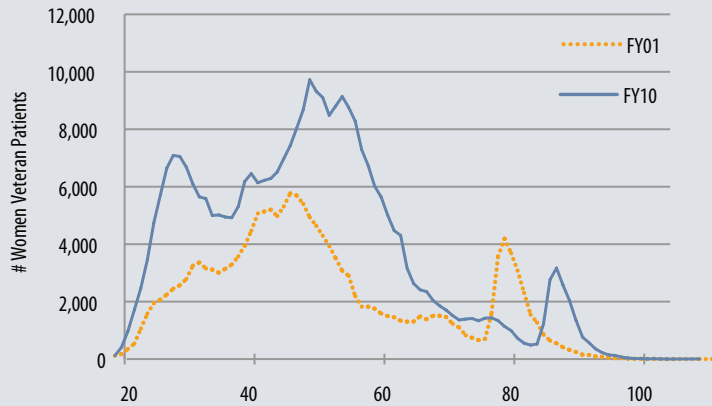
Even though the total *number* of women under age 45 increased from 83,561 in FY01 to 134,359 in FY10, the *proportion* of women under age 45 actually decreased, from 48% in FY01 to 42% in FY10 (Figure 5). However, the youngest group (18–34 year olds) has increased both numerically (from 36,807 in FY01 to 74,409 in FY10) and proportionally (from 21% of the women Veteran VHA patient population in FY01 to 23% in FY10) (age group not represented in Figure 5).

Over this same period, the 45–64 year old cohort became much larger, both numerically (55,950 in FY01, 141,036 in FY10) and as a proportion of all women patients (32% in FY01, 45% in FY10) (Figure 5).

Compared with the numbers of women in the 18–44 and 45–64 age groups, relatively fewer women were 65+ years old. Between FY01 and FY10, the number of women in this age cohort grew from 36,069 to 41,470, but this group decreased as a proportion of all women Veteran patients, from 21% to 13% (Figure 5).

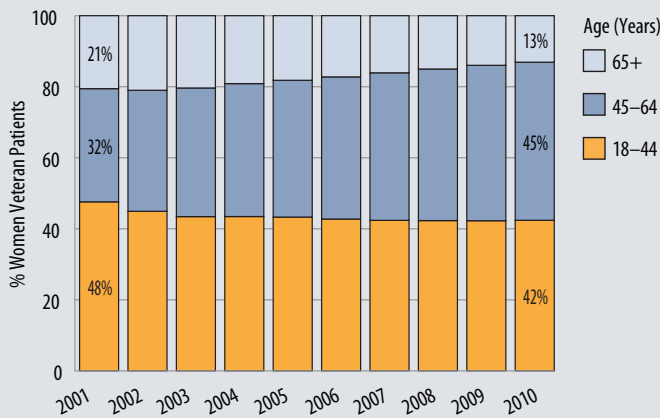
**Women compared to men, FY10.** Figure 6 indicates that, compared to men Veteran patients in FY10, the population of women was substantially younger: 87% of women compared to 55% of men were less than 65 years old, and 42% of women compared to 12% of men were less than 45 years old.

**Figure 4. Age distribution of women Veteran patients, FY01 and FY10**



**Key:** FY—Fiscal Year  
**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.  
**Cohort:** Women Veteran patients with non-missing ages 18–110 years (inclusive) in FY01 and FY10. Women in FY01: N=175,580; FY10: N=316,865.  
**Source:** WHEI Master Database

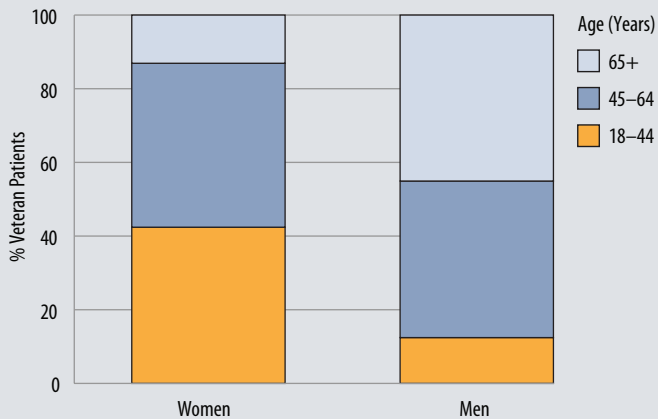
**Figure 5. Age distribution of women Veteran patients, FY01–FY10\***



**Key:** FY—Fiscal Year  
**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.  
**Cohort:** Women Veteran patients with non-missing ages 18–110 years (inclusive) FY01–FY10. Women in FY01: N=175,580; FY10: N=316,865.  
**Source:** WHEI Master Database

\*Due to rounding, percentages may not sum to 100%.

**Figure 6. Age distribution of women and men Veteran patients, FY10**



**Key:** FY—Fiscal Year  
**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.  
**Cohort:** Women and men Veteran patients with non-missing ages 18–110 years (inclusive) in FY10. Women: N=316,865; Men: N=5,036,895.  
**Source:** WHEI Master Database

**IMPLICATIONS** The number of young women using VHA has been growing rapidly in recent years. This rapid demographic shift highlights the need to assure ample capacity for clinical services necessary for women including reproductive health services, and to assure that healthcare providers' knowledge and skills are up to date in this clinical domain. Secondly, the tallest peak in the age distribution of women Veteran patients was at age 48 in FY10. If this cohort of women Veterans does not leave the VHA system in significant numbers, the number of women Veterans reaching age 65 or older can be expected to steeply and steadily increase each year for the next 15–20 years. These women could require more intensive healthcare services as they age, including geriatric and extended care services and, where applicable, support for their role as caregivers. Also, as these women become Medicare-eligible, coordination of care across healthcare systems may become increasingly important.

## Service-Connected Disability Status of Women Veteran Patients

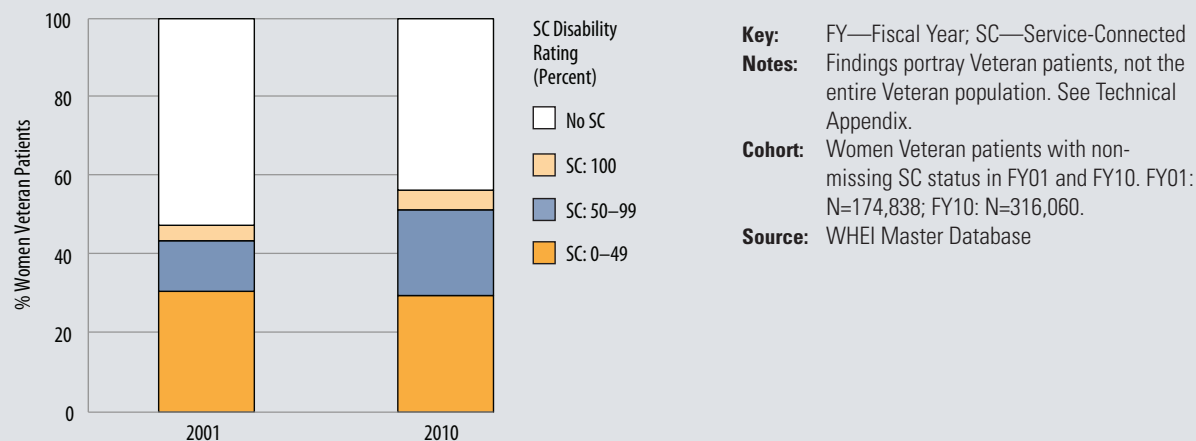
Service-connected status indicates an injury or illness deemed to have been incurred or aggravated while serving in the armed forces. The Veterans Benefits Administration (VBA) reviews disability compensation claims using a multi-step process. VBA first determines whether the disability was incurred or aggravated during active military service—if so, the Veteran receives “service-connected” (SC) disability status. The Veteran’s SC disability is then assessed and rated for severity from 0 to 100 percent.<sup>19</sup>

**Service-connected status, FY10.** More than half (56%) of women Veteran patients in FY10 had an SC disability rating (Figure 7).

Among all women Veterans using VHA in FY10, 15,791 (5%) had an SC disability rating of 100 percent. About a quarter of women (27%, or 84,651 women) had an SC disability rating of 50 percent or higher.

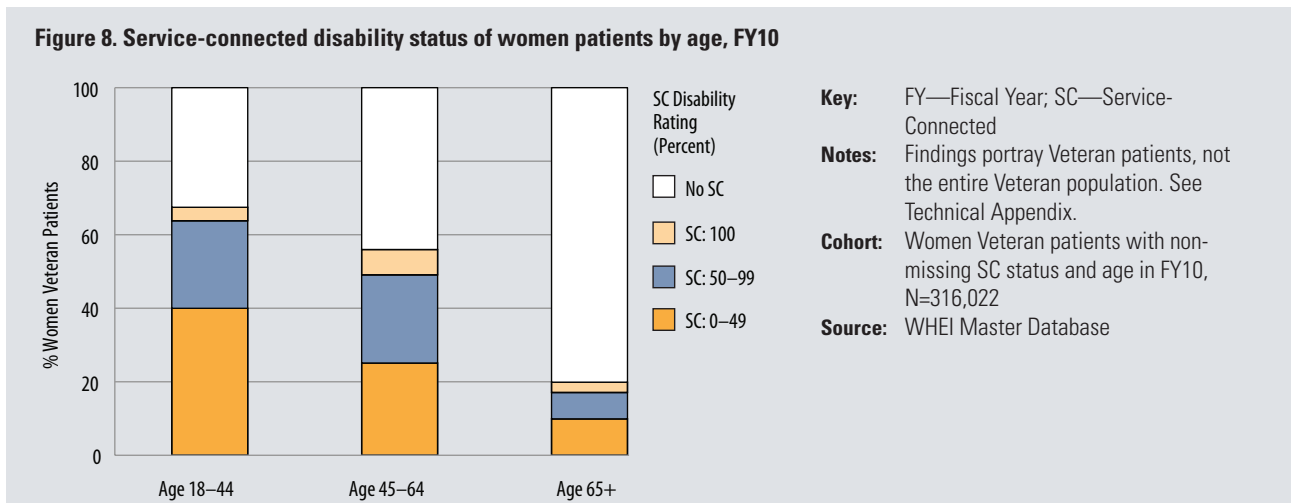
**Changes in proportion of women with service-connected disability status over time, FY01 vs. FY10.** Also shown in Figure 7, the proportion of women Veteran patients with any SC disability rating increased, from 47% in FY01 to 56% in FY10 (representing a numeric increase from 82,886 women to 177,112 women). The proportion of women Veterans with SC disability ratings of 50 percent or higher increased over this 10-year period as well: Those with ratings of 50–99 percent increased from 13% to 22%, and those with a rating of 100 percent increased from 4% to 5%.

**Figure 7. Service-connected disability status of women Veteran patients, FY01 and FY10**

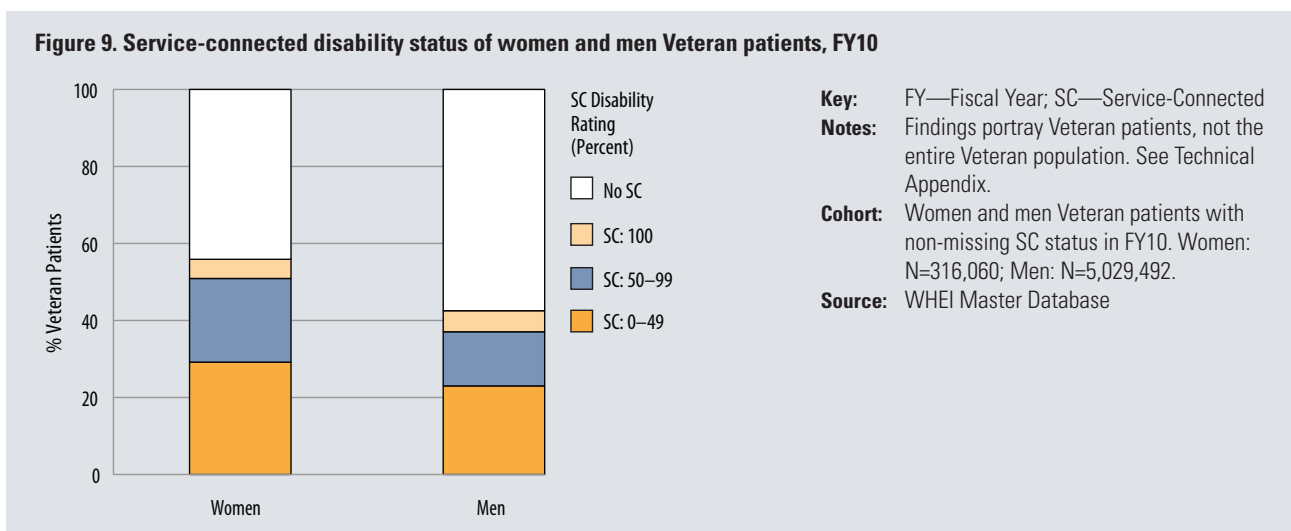


<sup>19</sup> To enhance the clarity and readability of this report, an editorial decision has been made to spell out “percent” in reference to service-connected disability ratings, e.g. “SC disability rating of 70 percent.” In all other measures of percentage, the percent symbol (%) is used. Also note that “0 percent” refers to a patient who does have service-connected disability status, but whose severity rating is 0 (zero) percent; this is distinct from a patient who has no service-connected disability status.

**Service-connected disability status by age, FY10.** Figure 8 shows that 67% of women Veteran patients who were 18–44 years old had an SC disability rating, compared with 56% of those who were 45–64 years old and 20% of those who were 65+ years old. More women Veteran patients in the 45–64 age groups had an SC disability rating of 100 percent (7%) compared to the other age groups (4% of 18–44 years; 3% of 65+ years).



**Women compared to men, FY10.** A higher proportion of women Veteran patients than men had SC disability ratings (Figure 9). Fifty-six percent of women Veterans had any SC disability rating, compared with 43% of men. Among these Veteran patients, 27% of women and 20% of men had an SC disability rating higher than 50 percent.



NOTES TO INTERPRETATION: First, SC disability status can result from a variety of exposures including, but not limited to, combat. The administrative data used for this report do not indicate the diagnoses associated with an individual’s SC disability rating. Second, these data show the proportion of women and men VHA patients who carry SC disability status. These data do not show the total number of Veterans nationally who carry SC disability status: Veterans who do not use VHA care are excluded from the cohort examined in this study. Therefore, no conclusions can be drawn about what proportion of all women and men Veterans in the U.S. population carry an SC disability status. Third, these data identify only Veterans who have been formally granted SC disability status; VHA patients who have a military service-related illness or disability, but who have not applied for SC disability status, are





not identified in these data as having an SC disability rating. Likewise, Veterans who have only recently applied for SC disability status will appear in the database as “non-SC” until the time, if any, that they are granted SC disability status and VHA is updated regarding this change.

Higher proportions of VHA patients with SC disability status in one group compared to another group (e.g., women versus men) could imply either that the proportion of Veterans in that group applying for and being granted SC disability status is greater, or that Veterans in that group who have SC disability status are more likely to be using VHA services. Similarly, higher proportions of VHA patients in one group compared to another group carrying higher SC disability ratings could imply either that the proportion of Veterans in that group applying for and being granted higher SC disability ratings is greater, or that Veterans in that group who have higher SC disability ratings are more likely to be using VHA services.

**IMPLICATIONS** The proportion of women Veteran patients with an SC disability rating, as well as the proportion with SC disability ratings of 50 percent or more, has increased over the decade. More than half of women Veteran patients now carry an SC disability rating, some of whom are very young. These women will be eligible for lifelong VHA care for their SC conditions.

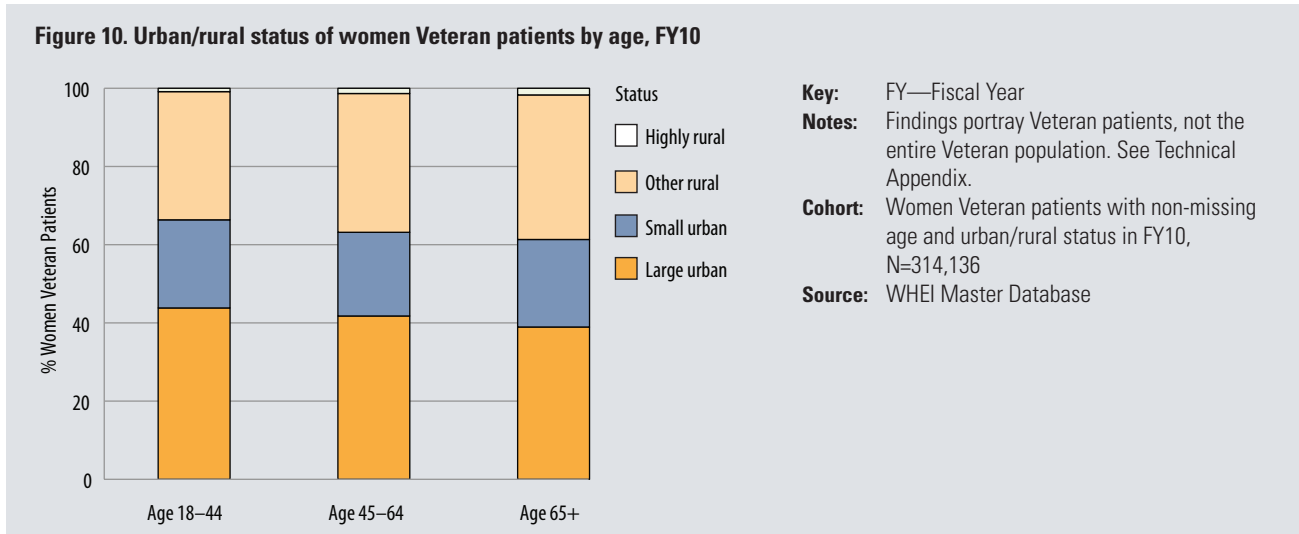
## Urban/Rural Status of Women Veteran Patients

For initiatives aimed at optimizing access to care for special subgroups of Veterans residing in rural or urban areas, VHA classifies geographic areas as “highly rural,” “other rural,” and “urban.”<sup>20</sup> Sourcebook Volume 2 further subdivides the “urban” category into “large urban” (a Metropolitan Statistical Area with at least 500,000 residents) and “small urban” areas (all other urban areas).

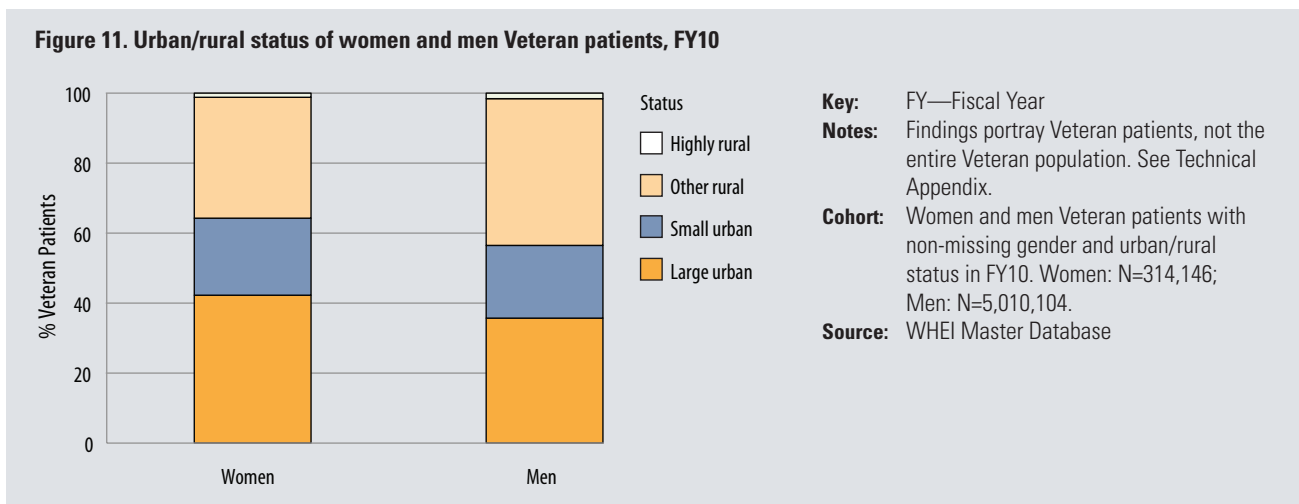
**Urban/rural status, overall and by age, FY10.** Over one third (36%) of all women Veteran patients resided in a rural area in FY10. There were 3,727 women (1%) residing in highly rural areas, and 108,510 women (35%) residing in other rural areas. Conversely, 64% of women Veteran patients had an urban address, with 132,765 (42%) women in large urban areas and 69,144 (22%) in small urban areas.

20 In the VHA definition, a patient is “highly rural” if their address lies in a county with < 7 residents per square mile (on average). Also in the VHA definition, a patient is “urban” if their address meets the following two criteria for a U.S. Census urbanized area: 1) 50,000 or more people in the urban nucleus and 2) Urban core has at least 1,000 residents per square mile (may also have adjoining territory with at least 500 residents per square mile). A patient living in any other remaining area is “rural” in the VHA definition. Source: Spont M, Greer N, Su J, Fitzgerald P, Rutks I, and Wilt TJ. *Rural vs. Urban Ambulatory Health Care: A Systematic Review*. VA-ESP Project #09-009;2011.

Compared to older women Veterans, a moderately higher proportion of women who were younger than 45 years old lived in small or large urban areas (18–44: 66%; 45–64: 63%; 65+: 61%) (Figure 10). Among the three age groups, the highest proportion of rural dwellers is seen among women Veterans who are aged 65 or older. However, women 45–64 years old, who make up 45% of all women Veteran patients, represent the largest group of rural dwellers (18–44: 44,683; 45–64: 51,585; 65+: 15,964).



**Urban/rural status, by gender, FY10.** As seen in Figure 11, the proportion of women Veteran patients who lived in highly rural, other rural, small urban and large urban areas are, respectively, 1%, 35%, 22%, and 42% compared to 2%, 42%, 21%, and 36% for men Veterans.<sup>21</sup> A higher proportion of women Veteran patients than men lived in urban areas (64% vs. 56%). This difference is driven by the higher proportion of women than men in high density population centers (42% vs. 36%).



<sup>21</sup> Due to rounding, percentages do not sum to 100%.

**IMPLICATIONS** Although a lower proportion of women than men live in rural areas, many women do live in rural areas: In all age categories, at least a third of women Veteran patients live in rural areas. A moderately higher proportion of older women Veteran patients live in rural areas. This suggests the importance of assuring access to gender-specific VHA primary care in rural areas and the potential niche for programs that extend access to women's health screening and specialty care (e.g., outreach screening programs and telemedicine, etc.). Furthermore, a moderately higher proportion of women aged 65 years or older live in rural areas, highlighting the need for gender-specific geriatric care in these areas.

# Part 2: Women Veterans' Total Utilization (VHA or Non-VA Care [Fee]), FY10

## Overview of Parts 2, 3, and 4

Sourcebook Volume 1<sup>22</sup> described utilization at VHA facilities. This updated Sourcebook Volume 2 extends this information in several ways. First, it provides more recent utilization data (FY10). Second, it shows utilization data stratified by patients' urban/rural status. Third, it distinguishes between use of mental health services and use of substance use disorder services at VHA facilities, to account for the high rate of substance use disorders seen in VHA.<sup>23</sup> Finally, Volume 1 includes not only data on use of care at VHA facilities, but also data on Non-VA Care (Fee)<sup>24</sup>—services provided by non-VHA providers but reimbursed through VHA—to more comprehensively describe all care that VHA provides to women.

As illustrated below, Sourcebook Volume 2 presents utilization data in three parts:

Part 2— Total VHA utilization, which describes all VHA *and* Non-VA Care (Fee)

Part 3— Utilization of VHA care, which describes care given *within VHA facilities only*

Part 4— Utilization of Non-VA Care (Fee), which describes care given by non-VHA providers but reimbursed through VHA

Part 2	Part 3				Part 4			
Utilization, Total (VHA and Non-VA Care [Fee])	Utilization of VHA Care (Days/Encounters)				Utilization of Non-VA Care (Fee) (Days/Services)			
Total Outpatient DAYS of Care (Patients N:316,903)	VHA Outpatient DAYS of Care (Patients N:316,903)	ENCOUNTERS			Non-VA Care (Fee) Outpatient DAYS of Care (Patients N:316,903)	SERVICES		
		Overall (Patients N:316,903)	Encounter Types (Outpatients N:313,513)			Overall (Patients N:316,903)	Categories of Services (Outpatients N:313,513)	
			Primary Care	Gynecology Care			Mental Health/ SUD	Broad Groups

22 Frayne SM, et al. 2010. *Sourcebook: Women Veterans in the Veterans Health Administration. Volume 1*. Available at: [www.womenshealth.va.gov/WOMENSHEALTH/publications.asp#research](http://www.womenshealth.va.gov/WOMENSHEALTH/publications.asp#research).

23 Oliva E, Dalton A, Harris A, Trafton J (2011). *Health Services for VA Substance Use Disorder Patients: Comparison of Utilization in Fiscal Years 2010, 2009 and 2002*. Program Evaluation and Resource Center, Palo Alto, CA.

24 Formerly known as “Fee” or “Fee-basis” care, VHA has renamed the program that administers reimbursements as the “National Non-VA Care Program Office” and now refers to this type of service as “Non-VA Care (Fee).”

All three parts include data on “days of care.”<sup>25</sup> Parts 3 and 4 are further divided into sections that report data by encounter<sup>26</sup> and service<sup>27</sup> counts, overall, and by specific types of care.

All main analyses are presented by gender (except in the case of gender-specific services) and by age and urban/rural status.

Parts 2 and 4 describe new kinds of utilization not reported previously. Part 3 contains FY10 updates to the FY09 data reported in Sourcebook Volume 1. The findings in this report suggest a high degree of year-to-year stability in women Veterans' total outpatient, total primary care, and mental health use. One notable exception is a desirable trend towards more women receiving comprehensive primary care. Further description of this finding appears on pages 29–30.

Services provided through Non-VA Care (Fee) supplement services at VHA facilities when needed services are not available (e.g., due to staffing or distance factors). While both women and men Veterans may be eligible for Non-VA Care (Fee) services, some facilities may rely heavily on Non-VA Care (Fee) for some gender-specific services that are not available onsite, either because a nearby VHA facility lacks the necessary volume to support a program (e.g., mammography equipment) or because VHA does not routinely provide the service (e.g., obstetric services). Therefore, this type of care has the potential to be of particular relevance to women Veteran patients. Non-VA Care (Fee) can occur in outpatient or inpatient settings, but *only outpatient Non-VA Care (Fee) utilization* is presented in this Sourcebook Volume 2.

**Non-VA Care (Fee) denominators.** Most percentages presented in Parts 2, 3, and 4 include all VHA patients in the denominator. The exception is that percentages referring to specific types of care include only patients who use VHA and/or Non-VA Care (Fee) outpatient care, here referred to as “outpatients.” The table below defines the “Patient” and “Outpatient” denominators.

**Table 1. Description of Denominators for Utilization Data**

Denominator name	N*, Women, FY10	Definition	How patients are identified
Patient	316,903	Users of any VHA care	Patient appears in the FY10 ADUSH <i>Enrollment File</i> , and the Enrollment file identifies the patient as having used any VHA care in FY10 <sup>25</sup>
Outpatient	313,513	Users of VHA and/or Non-VA Care (Fee) outpatient care	Patient appears in the FY10 SE Outpatient Encounter File or the Non-VA Care (Fee) Outpatient Encounter file (or both)

\* Analyses comparing women to men use separate denominators for women and men. Denominators change slightly when reporting results by age and urban/rural status, because we exclude women with missing data.

Three general notes should be kept in mind when interpreting utilization data throughout Sourcebook Volume 2. First, it is important to recognize that some women and men Veterans use health care services outside of VHA (e.g., reimbursed with Medicare, Medicaid, private insurance, etc.). The use presented in this report may underestimate

25 In Parts 2, 3, and 4, “days” are defined as the number of total days on which a patient had at least one outpatient service (of any type of care appearing in outpatient data files) in FY10. Days with more than one service are not counted more than once. Patients can have a minimum of 0 and maximum of 365 days of care in FY10.

26 In Part 3, “encounters” are defined as the number of visits to different VHA outpatient clinics in FY10.

27 In Part 4, “services” are defined as the number of services provided to a patient by a Non-VA Care (Fee) provider in FY10. Note that VHA utilization databases and Non-VA Care (Fee) utilization databases are structured differently. For example, in VHA utilization data, a patient’s visit to a Gynecology Clinic (at which she sees the gynecologist who performs an office procedure), would count as a single “encounter.” In contrast, the same visit in the Non-VA Care (Fee) system could be recorded as multiple “services.” These might include the gynecologist’s service to evaluate the patient, the office procedure performed during the visit, and the materials used for the procedure. See Technical Appendix, Section 5, for more details.

28 See Technical Appendix, Section 3.1, for an explanation of how VHA users were identified in the ADUSH Enrollment File. In this file, use of VHA care refers to use of outpatient VHA care, outpatient Non-VA Care (Fee), inpatient VHA care, inpatient Non-VA Care (Fee), or several other categories of care.

the total amount of care women Veteran patients receive from all of the health care sources they use, combined. Second, long-term nursing home care and VHA pharmacy services are not included in any counts.<sup>29</sup> Third, when interpreting gender differences, 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 about gender differences in use of VHA services.<sup>30</sup>

## Total Outpatient Care

### DEFINITION OF TERMS

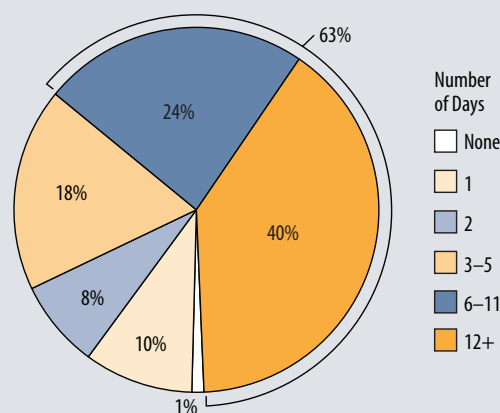
- *Total Outpatient Days* refers to the number of unique days in FY10 on which a patient received any kind of outpatient care (i.e., all encounter/service types appearing in the VHA or Non-VA Care [Fee] Outpatient Encounter Files) at a VHA facility and/or through the Non-VA Care (Fee) system. VHA facilities can include a medical center or a VHA community based outpatient clinic (CBOC). Non-VA Care (Fee) is delivered by providers in the private sector, reimbursed by VHA. If a patient received multiple services on a single day, whether at a VHA facility, through Non-VA Care (Fee), or both, that day is counted only once.

**Total outpatient days.** Among the 316,903 women Veteran patients in FY10, about 99% had at least one day of outpatient care through a VHA facility or Non-VA Care (Fee) in that year. This indicates that only a very small proportion (1%) of women used other types of VHA-funded care (e.g., inpatient care, pharmacy services etc.) as their exclusive type of VHA-funded care in FY10. As Figure 12 shows, a minority of women Veterans (10%) received VHA services on only one day in FY10, while a substantial proportion (63%) received VHA services on six or more different days, including 40% on 12 or more days.

Figure 13 compares total outpatient days of service for women and men. It shows that the same proportion of women and men Veteran patients had some days of service (at least 1 day of VHA or Non-VA Care [Fee]). However, a higher proportion of women than men fell into the most frequent level of outpatient utilization (12 or more days: 40% vs. 33%).

The proportion of women Veteran patients with any outpatient days varied slightly across the three age groups (18–44, 45–64, and 65+ years old). A slightly lower proportion of the oldest women Veterans had any outpatient days (18–44: 99%; 45–64: 99%; 65+: 97%). Frequent use (12 or more days), though, occurred most among the large group of women Veterans in the middle age group (18–44: 34%; 45–64: 47%; 65+: 35%). In contrast, higher proportions of the youngest and oldest women Veteran patients had relatively low use (5 or fewer days of outpatient care) (18–44: 41%; 45–64: 28%; 65+: 41%) (Figure 14).

**Figure 12. Proportion of women Veteran patients by total (VHA/Non-VA Care [Fee]) outpatient days, FY10\***



**Key:** VHA—Veterans Health Administration;  
FY—Fiscal Year

**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.

**Cohort:** Women Veteran patients in FY10, N=316,903

**Source:** WHEI Master Database

\* Due to rounding, the aggregated percentage does not equal the sum of the bracketed percentages.

29 Vet Centers, which offer readjustment counseling services, are also not included. For more information, see [www.vetcenter.va.gov/Vet\\_Center\\_Services.asp](http://www.vetcenter.va.gov/Vet_Center_Services.asp) (last accessed February 2012).

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

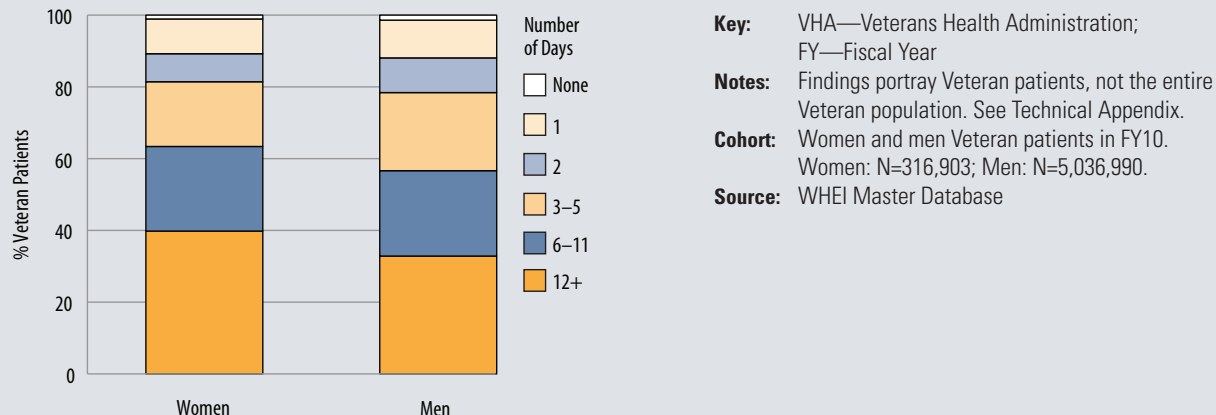
**Figure 13. Proportion of women and men Veteran patients by total (VHA/Non-VA Care [Fee]) outpatient days, FY10**

Figure 14 also reveals that, within each age group, comparable proportions of women and men used any VHA/Non-VA Care (Fee) outpatient care. However, within each age group, frequent use (12 or more days) of VHA/ Non-VA Care (Fee) outpatient care was more common among women than men, especially among the youngest patients (18–44: 34% vs. 25%; 45–64: 47% vs. 40%; 65+: 35% vs. 28%).

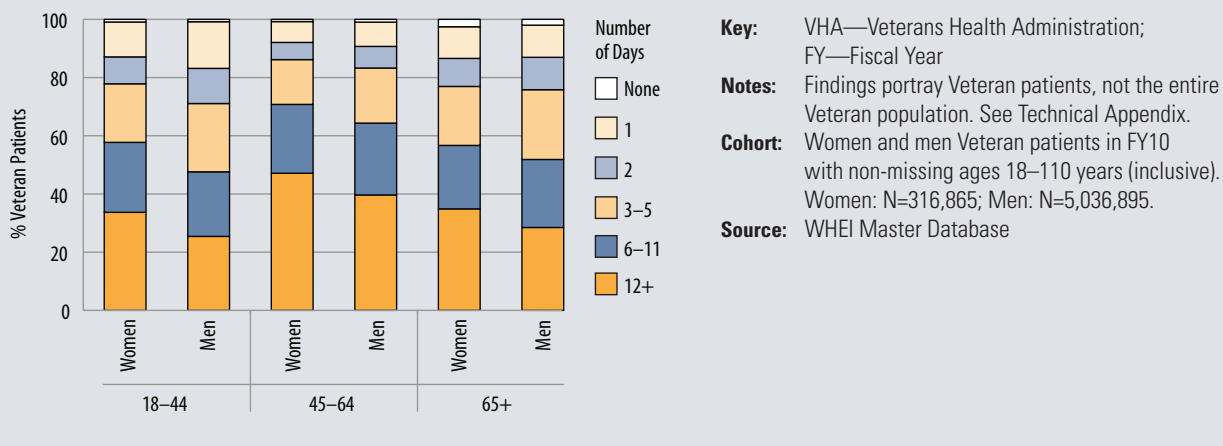
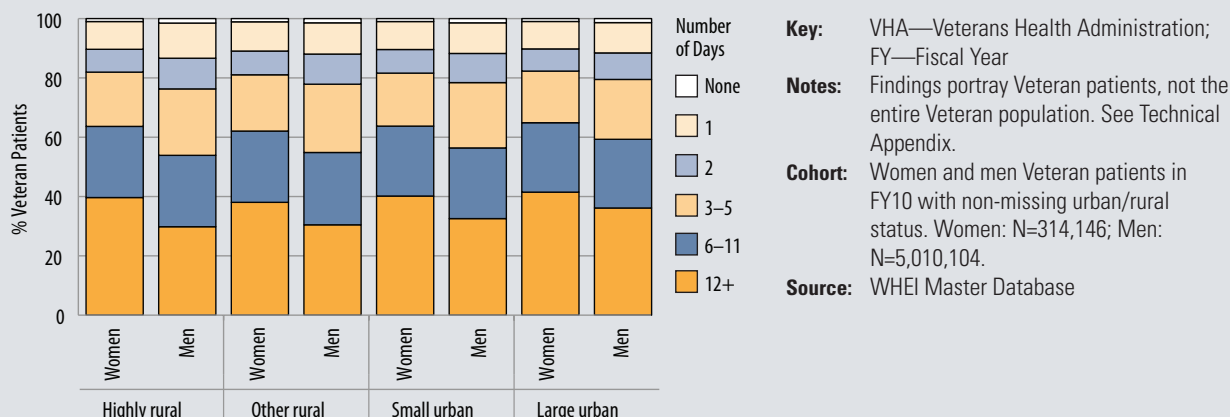
**Figure 14. Proportion of women and men Veteran patients by total (VHA/Non-VA Care [Fee]) outpatient days and age, FY10**

Figure 15 examines the count of total outpatient days by urban/rural status (highly rural, other rural, small urban, and large urban).<sup>31</sup> The proportions of women Veteran patients with any VHA/Non-VA Care (Fee) outpatient days do not vary across urban/rural categories, and they are nearly the same as the proportions of men with some VHA/ Non-VA Care (Fee) outpatient days within each category. About the same proportion of women Veterans used frequent VHA/Non-VA Care (Fee) outpatient care in each of the categories (highly rural: 40%; other rural: 38%; small urban: 40%; large urban: 41%). These proportions for women are higher than the comparable ones for men in every category (highly rural: 40% vs. 30%; other rural: 38% vs. 30%; small urban: 40% vs. 33%; large urban: 41% vs. 36%).

<sup>31</sup> These categories are based on the FY10 VHA urban/rural definition: In the VHA definition, patients are “highly rural” if their address lies in a county with < 7 residents per square mile (on average). Patients with other non-urban addresses are “other rural.” Patients are “urban” if their addresses meet the following two criteria for a U.S. Census urbanized area: 1) 50,000 or more people in the urban nucleus and 2) Urban core has at least 1,000 residents per square mile. (Source: Spoon M, et al. 2011. *Rural vs. Urban Ambulatory Health Care*.) Sourcebook Volume 2 further subdivides the “urban” category into “large urban” (county is in a Metropolitan Statistical Area with at least 500,000 residents) and “small urban” areas (all other urban areas).

**Figure 15. Proportion of women and men Veteran patients by total (VHA/Non-VA Care [Fee]) outpatient days and urban/rural status, FY10**

**IMPLICATIONS** Across all age groups and all urban/rural status groups, women use the full range of outpatient services<sup>32</sup> more heavily than do men. As VHA projects resources needed for the future care of the growing population of women Veterans, women’s heavier utilization needs to be taken into account. Also, a large proportion of rural women use outpatient services frequently. If this implies that they are relying heavily on VHA care, then this highlights the importance of their ready access to the full spectrum of care, including gender-specific, mental health and specialty services.



NOTES TO INTERPRETATION: Non-VA Care (Fee) data limitations should also be understood when interpreting this section. VHA data capture different units of care than do Non-VA Care (Fee) data. In VHA data, the unit is the encounter (or visit) in a particular clinic, whereas in Non-VA Care (Fee) data the unit is the individual service.<sup>33</sup> Since multiple services can be provided during a single clinic encounter, summing a woman’s VHA clinic encounters together with her Non-VA Care (Fee) services does not produce a meaningful aggregate.<sup>34</sup> Therefore, to present total VHA and Non-VA Care (Fee) data together, the Sourcebook Volume 2 uses days of care

as an alternative “common denominator” unit of service that can be derived from both sets of data and combined for a meaningful measure of total outpatient care.

Although using “days” of care allows for integration of VHA and Non-VA Care (Fee) data, this approach is expected to under-count FY10 Non-VA Care (Fee) outpatient use for two reasons: 1) In some cases, Non-VA Care (Fee) data

32 As noted on page 17, counts of services here include any type of encounter recorded in the VHA outpatient encounter file or service recorded in the Non-VA Care (Fee) outpatient file. This includes in-person services as well as telehealth modalities.

33 Instead of the clinic codes used to describe VHA data, Non-VA Care (Fee) uses the Current Procedural Terminology (CPT) coding system, also used by Medicare and private insurers. In this report, any reference to CPT codes includes Healthcare Common Procedure Coding System (HCPCS) codes, which are codes created by CMS to capture healthcare services that are not classified in the CPT coding system.

34 As noted in Footnote 27, in VHA utilization data, a patient’s visit to a Gynecology Clinic (at which she sees the gynecologist who performs an office procedure), would count as single “encounter.” In contrast, the same visit in the Non-VA Care (Fee) system could be recorded as multiple “services.” These might include the gynecologist’s service to evaluate the patient, the office procedure performed during the visit, and the materials used for the procedure. See Technical Appendix, Section 5, for more details.



do not report all of the dates on which services were provided; and 2) Non-VA Care (Fee) data do not comprehensively capture all days of Non-VA Care (Fee) provided in FY10. These caveats are explained in the next two paragraphs. The Technical Appendix, Section 5, contains additional description of how the Non-VA Care (Fee) data are structured differently from VHA data.

First, accurate measurement of “days” in Non-VA Care (Fee) is hindered by the fact that not all distinct Non-VA Care (Fee) procedures rendered have a date associated with them in the data. Each Non-VA Care (Fee) record reports a treatment date, a procedure (CPT code), and information about how many times a patient received that procedure in association with that particular record (i.e., a count of the number of “units” of care provided).<sup>35</sup> For example, a record with January 15, 2010 as the date of service and with 15 minutes of rehabilitative therapy services as the type of service might indicate that the number of units of services provided was six. It is not possible to distinguish whether these units of service refer to the date of the record (e.g., in this case, that six 15-minute physical therapy services occurred on January 15, 2010), versus whether some of these services occurred later in the month (e.g., in this case, that perhaps two of these 15-minute services occurred on January 15, 2010, and the remaining four 15-minute services were distributed on unknown dates, later in the month). In such cases, the number of unique days over which these procedures were performed cannot be determined. By counting the number of unique days recorded in the Non-VA Care (Fee) data for a given patient, the data in Sourcebook Volume 2 exclude the additional days on which the same procedure might have been repeated. This provides a conservative count (i.e., an under-count) of the number of days on which each person received Non-VA Care (Fee) outpatient care, and thus an under-count of the total days of VHA or Non-VA Care (Fee) outpatient care.

Second, the FY10 Non-VA Care (Fee) data reported in Sourcebook Volume 2 capture care *reimbursed* in FY10. Due to administrative delays, not all services *provided* in FY10 are reimbursed in FY10.<sup>36</sup> For example, a patient may receive Non-VA Care (Fee) late in FY10, and VHA may pay the Non-VA Care (Fee) provider in FY11; in this case, the FY10 instance of care will be recorded in the FY11 Non-VA Care (Fee) file, and will not appear in counts for Volume 2. Thus the FY10 Non-VA Care (Fee) data do not completely capture all care provided in FY10. However, the FY10 Non-VA Care (Fee) data do include some care provided in prior fiscal years (mostly FY09), which was reimbursed in FY10. The Sourcebook Volume 2 calculations of total days of care make the assumption that the same quantity of Non-VA Care (Fee) payments are delayed each year, and count any record appearing in the FY10 Non-VA Care (Fee) file as FY10 Non-VA Care (Fee), even if that care actually occurred in a prior year. In reality, because of ongoing growth of the number of patients in VHA, this approach probably *under-estimates* the number of patients actually receiving Non-VA Care (Fee) in FY10 (because the number of FY10 services reimbursed in FY11 would be greater than the number of FY09 services reimbursed in FY10).

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35 This caveat applies only to the 37% of Non-VA Care (Fee) records where the “unit” is greater than 1, based on the Volume Indicator field in FY10 Non-VA Care (Fee) outpatient data. In contrast, the remaining 63% of Non-VA Care (Fee) records have a “unit” of 1. For these records, the treatment date unambiguously corresponds to the day the service was provided, and the count of days is accurate.

36 In the raw FY10 Non-VA Care (Fee) outpatient file, 74% of records reflect FY10 care, 25% reflect FY09 care, and 1% reflect care prior to FY09.

# Part 3: Women Veterans' VHA Utilization, FY10

## VHA Outpatient Care

Part 3 focuses on the portion of patients' care that occurs at VHA facilities (primarily in VHA medical centers and community based outpatient clinics (CBOCs). In Part 3, Non-VA Care (Fee) is not considered.

### DEFINITION OF TERMS

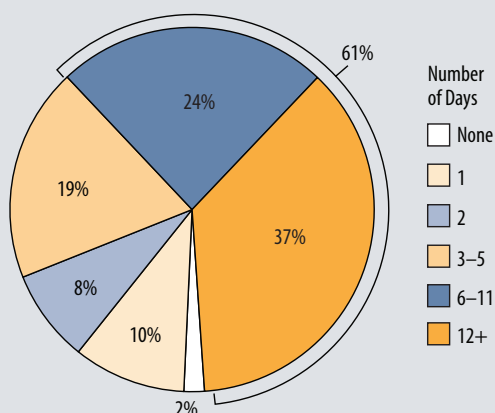
- *VHA outpatient days* count the total number of unique days on which a patient received any kind of outpatient care at a VHA facility in FY10. If a patient had multiple encounters on a single day, that day is counted only once.
- *VHA outpatient encounters* count the total number of visits during which a patient received any kind of outpatient service at a VHA facility in FY10. If a patient visits two or more different clinics (e.g., a primary care clinic followed by a cardiology clinic) on a single day, each visit counts as a different encounter (see Technical Appendix, Section 4, for a more complete description of which records were counted).
- Both *VHA outpatient days* and *VHA outpatient encounters* count all types of services appearing in the FY10 VHA Outpatient Encounter Files. VHA outpatient services include the full spectrum of in-person and telephone visits that a patient might have with a health care provider (including but not limited to physicians, nurse practitioners, psychologists, physical therapists, etc.) as well as laboratory testing, radiology studies, and other medical procedures. Outpatient care may occur at a VHA medical center, at a VHA CBOC, in the patient's home, or by telephone.

Like the Total Outpatient Care section, these counts exclude days on inpatient units, days on which filled prescriptions were the only source of VHA care, or days with contracted long-term nursing home care. Unlike the data reported in the "Total Outpatient Care" section, counts of VHA outpatient days and encounters exclude Non-VA Care (Fee).

Part 3 "VHA Outpatient Care" also includes data on a special case of outpatient service utilization: *VHA face-to-face outpatient encounters*. This describes services provided by a clinician able to make a diagnosis. Face-to-face encounters exclude lab, radiology, or telephone encounters.



**Figure 16. Proportion of women Veteran patients by VHA outpatient days, FY10**



**Key:** VHA—Veterans Health Administration; FY—Fiscal Year  
**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.  
**Cohort:** Women Veteran patients in FY10, N=316,903  
**Source:** WHEI Master Database

**VHA outpatient days.** Among the 316,903 women Veteran patients in FY10, about 98% had at least one day of outpatient care at a VHA facility.<sup>37</sup> Of these, 10% received only a single day of VHA services, while a larger proportion (61%) received VHA services on six or more different days, including 37% who received care on 12 or more different days (Figure 16). On average, women Veterans with any VHA outpatient care came to the VHA for care on 13.5 different days in FY10.

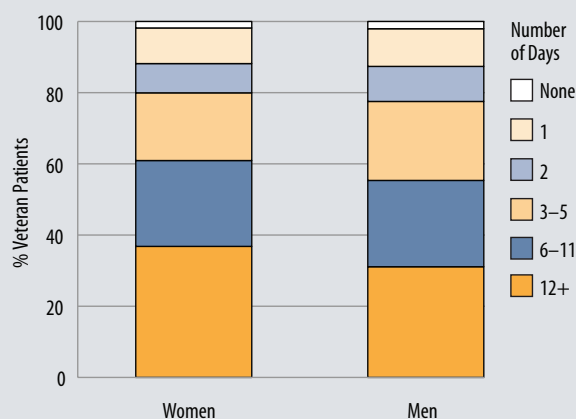
Figure 17 shows that the same proportions of women and men Veteran patients had at least one day of service at a VHA facility (98%). However, a higher proportion of women than men (37% vs. 31%) had frequent use (12 or more days).

Stratifying VHA outpatient days by age shows that roughly the same proportion of women in each age group had any VHA outpatient days (Figure 18), but that higher proportions of women Veterans aged 45–64 years old had frequent use (18–44: 31%; 45–64: 44%; 65+: 32%).

On average in FY10, women Veteran VHA outpatients who were 45–64 years old came to VHA for care on more days than did other age groups (18–44: 11.3 days; 45–64: 16.1 days; 65+: 11.7 days).

In each age group, higher proportions of women than men had regular to frequent VHA use (six or more days) during FY10, though the difference between women and men shrinks in the older age groups (18–44: 55% vs. 46%; 45–64: 68% vs. 63%; 65+: 55% vs. 51%).

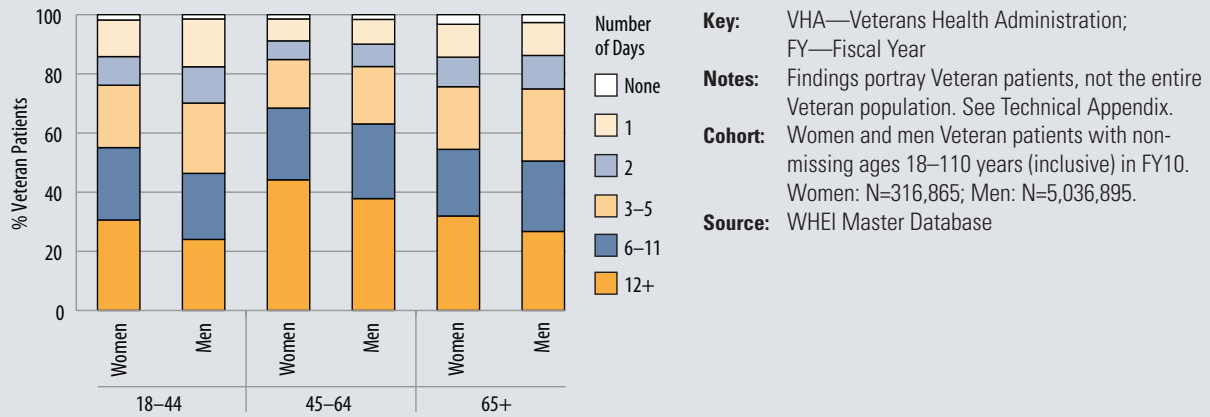
**Figure 17. Proportion of women and men Veteran patients by VHA outpatient days, FY10**



**Key:** VHA—Veterans Health Administration; FY—Fiscal Year  
**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.  
**Cohort:** Women and men Veteran patients in FY10. Women: N=316,903; Men: N=5,036,990.  
**Source:** WHEI Master Database

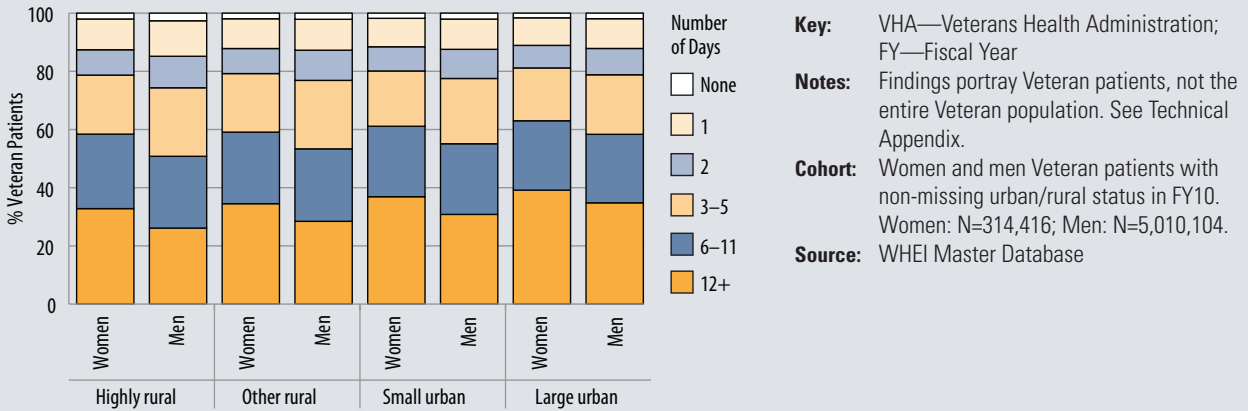
<sup>37</sup> Among the 5,764 women Veteran patients with no VHA outpatient care, ~41% had outpatient Non-VA Care (Fee), and are thus covered in other sections. Of the 3,390 women with no VHA or Non-VA Care (Fee) outpatient care, 7% received inpatient care in VHA and 3% received inpatient care in Non-VA Care (Fee). The remainder presumably had prescription care or contract care as their only sources of VHA care.

**Figure 18. Proportion of women and men Veteran patients by VHA outpatient days and age, FY10**



Stratifying VHA outpatient days by urban/rural status shows little variation in women (and men) Veterans' use of any VHA outpatient days (Figure 19). However, lower proportions of women living in highly rural and other rural areas had frequent use than women living in small urban or large urban areas (highly rural: 33%; other rural: 35%; small urban: 37%; large urban: 39%). Also, women Veterans had higher proportions of frequent use than men, regardless of where they lived (highly rural: 33% vs. 26%; other rural: 35% vs. 28%; small urban: 37% vs. 31%; large urban: 39% vs. 35%).

**Figure 19. Proportion of women and men Veteran patients by VHA outpatient days and urban/rural status, FY10**



**VHA outpatient encounters.** The next sections examine *encounters* (rather than days of care) as a measure of utilization.

In FY10, 98% of women Veteran patients, or 311,139 women, had at least one VHA outpatient encounter.

According to Figure 20, nearly half of women Veteran patients had 12 or more VHA outpatient encounters (48%). The remainder had between one and 11 VHA outpatient encounters in FY10 (1 encounter: 6%, 2 encounters: 6%, 3–5 encounters: 16%, 6–11 encounters: 22%).

**Figure 20. Proportion of women Veteran patients by VHA outpatient encounters, FY10**

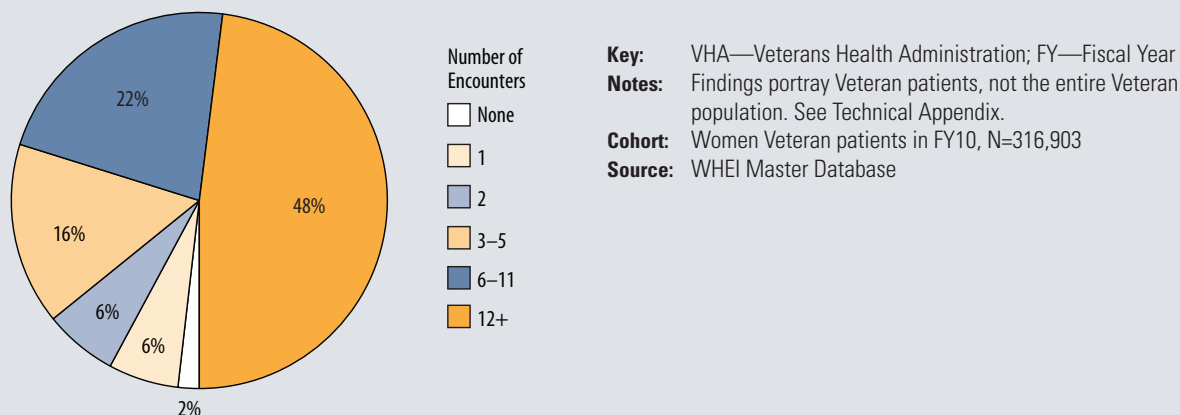
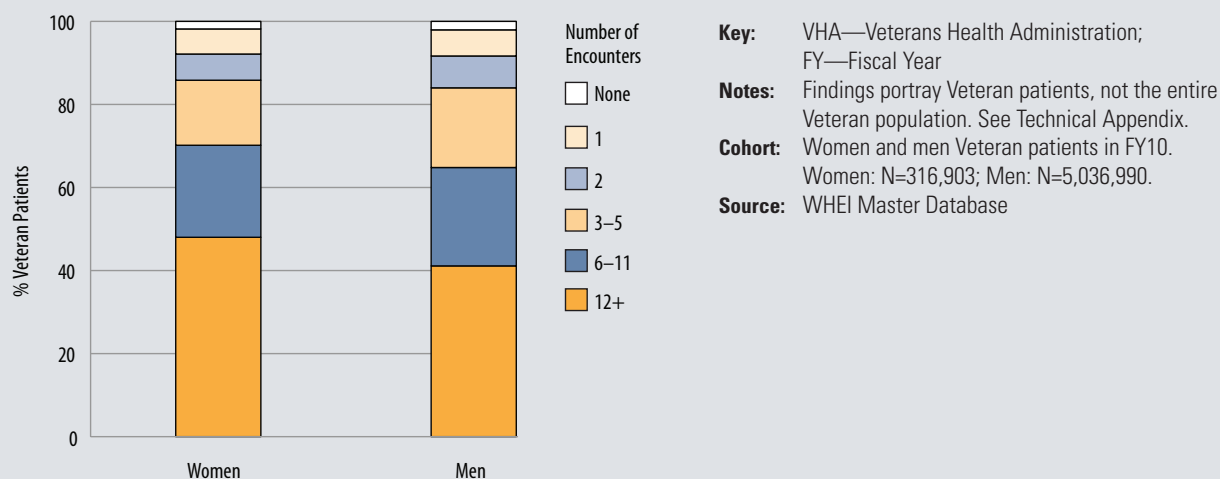


Figure 21 compares women Veterans' use of VHA outpatient encounters to men Veterans' use in FY10. Nearly the same proportions of women and men had at least one VHA outpatient encounter, but, as noted when examining VHA outpatient days by gender, a higher proportion of women than men (48% vs. 41%) had frequent use (12 or more encounters).

**Figure 21. Proportion of women and men Veteran patients by VHA outpatient encounters, FY10**



Comparing use of VHA outpatient encounters by gender and age groups (Figure 22) reveals a pattern nearly identical to the one produced using VHA outpatient days (Figure 18). Almost all women and men in each age group had at least one VHA outpatient encounter. A higher proportion of women who are 45–64 years old had frequent (12

or more) VHA outpatient encounters (18–44: 42%; 45–64: 56%; 65+: 41%). A higher proportion of women than men in all three age groups used VHA outpatient encounters frequently (18–44: 42% vs. 33%; 45–64: 56% vs. 49%; 65+: 41% vs. 36%).

**Figure 22. Proportion of women and men Veteran patients by VHA outpatient encounters and age, FY10**

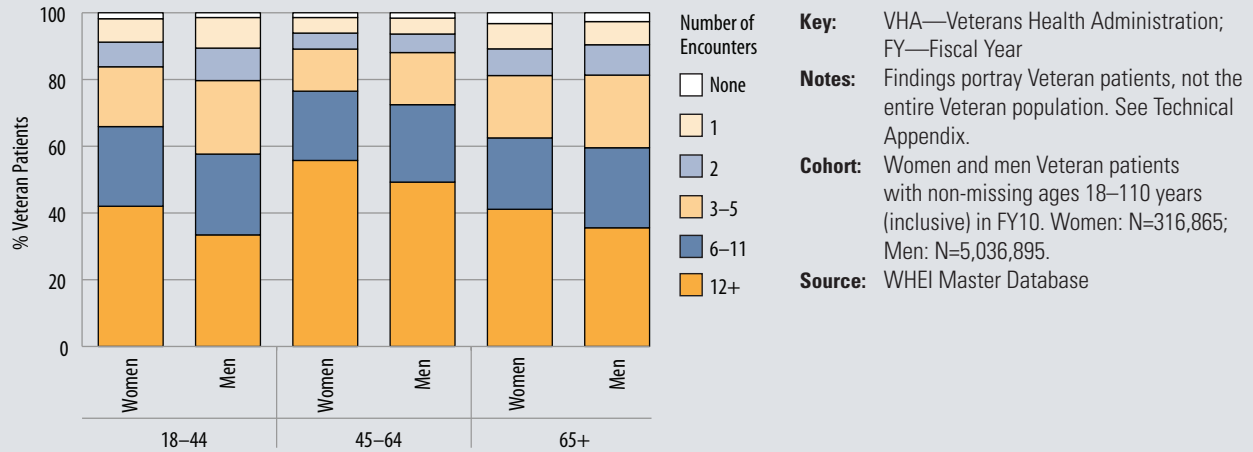
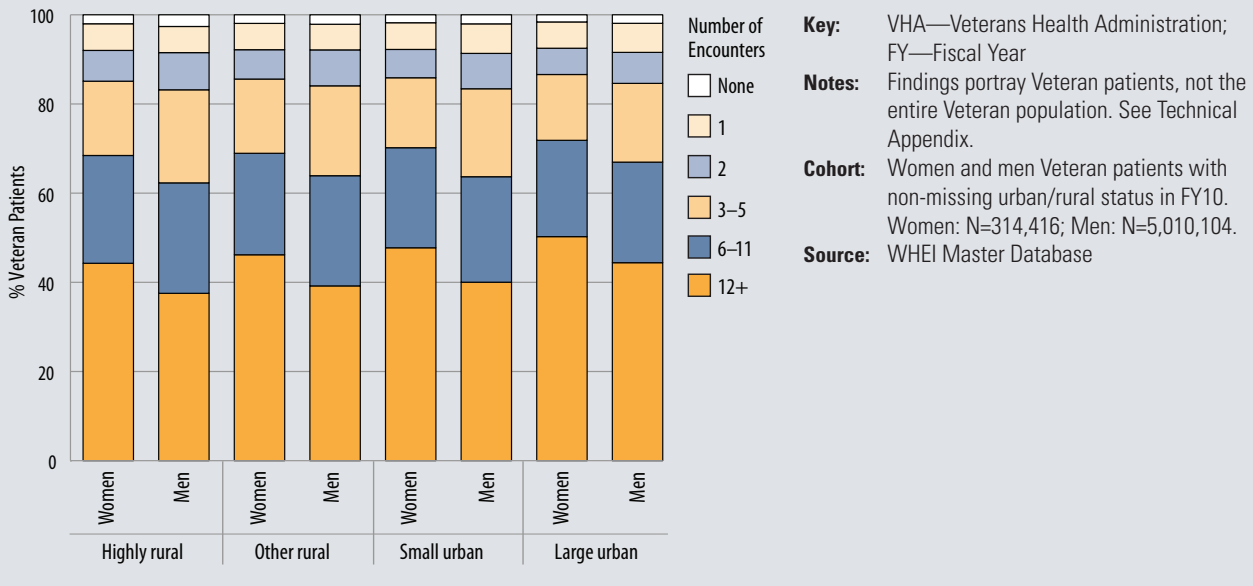


Figure 23 shows that, although the proportion of women Veteran patients with any VHA outpatient encounters in FY10 did not vary between those in rural areas and those in urban areas, the proportion of women with frequent use increased with increased population density (highly rural: 44%; other rural: 46%; small urban: 48%; large urban: 50%). Also, a higher proportion of women than men had frequent VHA use, independent of whether they lived in rural or urban areas.

**Figure 23. Proportion of women and men Veteran patients by VHA outpatient encounters and urban/rural status, FY10**



**VHA face-to-face encounters.** In FY10, 96% of the 316,903 women Veteran patients had at least one face-to-face encounter with a provider (data not shown graphically). Women Veteran patients' use of face-to-face services in FY10 was distributed as follows: 4% had zero encounters, 13% had exactly 1 encounter, 10% had exactly 2 encounters, 21% had 3–5 encounters, 22% had 6–11 encounters, and 30% had 12 or more encounters.

## Primary Care

### DEFINITION OF TERMS

This report uses the term *Total primary care encounters* to refer to care received in either of the following two settings in which women may receive VHA primary care services:

- *Primary care encounters* refer to primary care provided in a general medical clinic. Such clinics provide preventive care and care for a wide range of gender-neutral conditions (such as diabetes or upper respiratory tract infections). Such clinics may additionally provide gender-specific care to women (such as cervical cancer screening and breast exams).<sup>38</sup> In FY10, while implementation of Comprehensive Women's Health Care was still in process, providers in such clinics may alternatively have sometimes referred women to a different provider for such gender-specific services.<sup>39</sup> Additionally, note that some instances of care provided in a women's health clinic are also inadvertently counted as primary care encounters, due to inconsistencies in how women's health clinic care was coded in FY10 (see below).
- *Women's health clinic encounters* refer to primary care services provided in a clinic designed specifically for women. Some such clinics provide comprehensive primary care services to women (i.e., care for both gender-neutral and gender-specific conditions).<sup>40,41</sup>

NOTE ABOUT CODING OF PRIMARY CARE VISITS FOR WOMEN: There is substantial variability in how different VHA facilities code primary care for women.<sup>42</sup> This leads to an important caveat about women's health clinic data in this report: *While estimates of "Total Primary Care" (the sum of primary care and women's health clinic) are reliable, the proportion of that care occurring in women's health clinics cannot be estimated with confidence in FY10 data.* Changes in coding procedures for women's health clinic during FY10 and FY11 are expected to improve the interpretability of data for this specific type of care in future years.

NOTE ABOUT PRIMARY CARE BY TELEPHONE: VHA increasingly provides some primary care services by telephone. However, in this report, counts of primary care and women's health clinic encounters do not include these telephone services.

NOTE ABOUT DENOMINATOR: In contrast to analyses presented in prior sections in which the denominator was "patients" (defined on page 16), the following sections (use of primary care, gynecology care, and mental health care) all use "outpatients" as the denominator. This includes people who use VHA outpatient care and/or Non-VA Care (Fee) outpatient care.

38 Sourcebook Vol. 2 uses a slightly different set of primary care stop codes than Sourcebook Vol. 1 to define primary care. Of particular note is the addition of stop code 704 (Pap smear clinic) to the definition of primary care in Vol. 2.

39 Veterans Health Administration (2010). Health Care Services for Women Veterans (VHA Handbook 1330.01). Washington, DC: Department of Veterans Affairs.

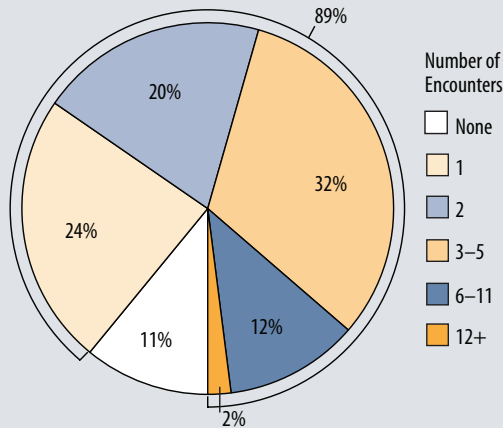
40 A limited number of encounters with providers who are not strictly primary care providers (such as a psychologist embedded in the women's health clinic primary care team) may be captured with clinic "stop code" 322, and thus included in the count of women's health clinic encounters.

41 Sourcebook Vol. 1 defines women's health clinic using stop code 322 (Women's Clinic) and 704 (Pap smear clinic). Sourcebook Vol. 2 defines women's health clinic using ONLY stop code 322 (stop code 704 was moved to primary care). This change was implemented to include only women who receive comprehensive primary care (i.e., both gender-neutral primary care services and gender-specific primary care services from a single designated women's health provider) in the women's health clinic definition, in accordance with VHA policy on women's health (Veterans Health Administration [2010]. Health Care Services for Women Veterans [VHA Handbook 1330.01]. Washington, DC: Department of Veterans Affairs).

42 Prior work has quantified this variability by examining the percent of women at a facility who had at least one women's health clinic visit (clinic type "stop code" 322). Some facilities known to have women's health clinics had no patients with 322 coded, suggesting variability in how this code was used and interpreted. Herrera L, Iqbal S, Hayes PM, Phibbs CS, Friedman SA, Laungani L, Berg E, Frayne SM. *Can Stop Codes Identify Women's Health Care?* Poster Presentation at VA HSR&D Women's Health Services Research Conference in Washington DC. July 2010.

**Total Primary Care (primary care and women's health clinic combined) encounters.** Among women Veteran outpatients in FY10, 89% were seen by a VHA primary care provider in a primary care setting and/or in a women's health clinic setting (see Technical Appendix, Section 4, for clinic code specifications). Regarding Total Primary

**Figure 24. Proportion of women Veteran outpatients by total primary care encounters, FY10\***



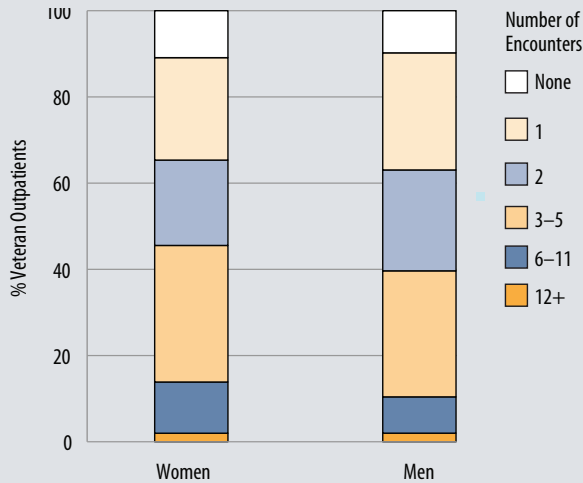
**Key:** FY—Fiscal Year  
**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.  
**Cohort:** Women Veteran outpatients in FY10, N=313,513  
**Source:** WHEI Master Database

\*Due to rounding, percentages do not sum to 100%.

Care visits in VHA in FY10, 24% of women Veterans had exactly one visit, 51% had 2–5, and 14% had six or more (Figure 24<sup>43</sup>). Among women Veterans who used any VHA primary care in FY10 (primary care and women's health clinic combined) (n=277,779), the average number of visits to any primary care clinic was 3.4 visits. Among men Veterans who received primary care in a primary care clinic in FY10 (n=4,480,794), the average number of visits to any primary care clinic was 3.1 per man.

Figure 25 compares women Veterans' total primary care encounters to that of men Veterans for FY10. Among both women and men Veteran outpatients, about 90% had any primary care visits in FY10. Among Veteran outpatients, a greater proportion of women than men had at least three primary care visits in FY10 (45% vs. 40%), and a greater proportion of women than men had at least six primary care visits (14% vs. 10%).

**Figure 25. Proportion of women and men Veteran outpatients by total primary care encounters, FY10**



**Key:** FY—Fiscal Year  
**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.  
**Cohort:** Women and men Veteran outpatients in FY10. Women: N=313,513; Men: N=4,966,090.  
**Source:** WHEI Master Database

43 Due to rounding, aggregated numbers reported in the text may be different from those shown in Figure 24.



Figure 26 demonstrates that, among women Veterans, total primary care use (primary care and women's health clinic combined) varied by age group. Regular use was most common in the middle age group: Among women 45–64 years old, 70% had two or more total primary care visits in FY10, compared with 60% of 18–44 year olds and 65% of 65+ year olds.

Figure 26 also compares women to men. Within each age group more women than men were frequent users of primary care (i.e., at least three visits in FY10); this was seen among 18–44 year olds (40% vs. 27%), 45–64 year olds (51% vs. 45%), and 65+ year olds (43% vs. 38%).

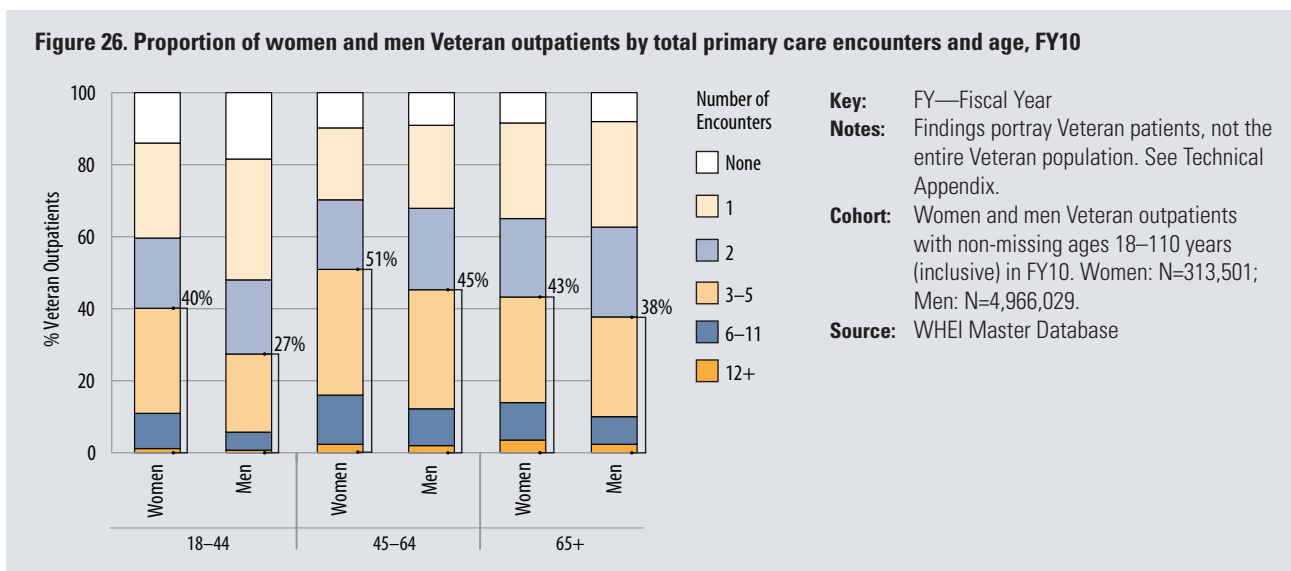
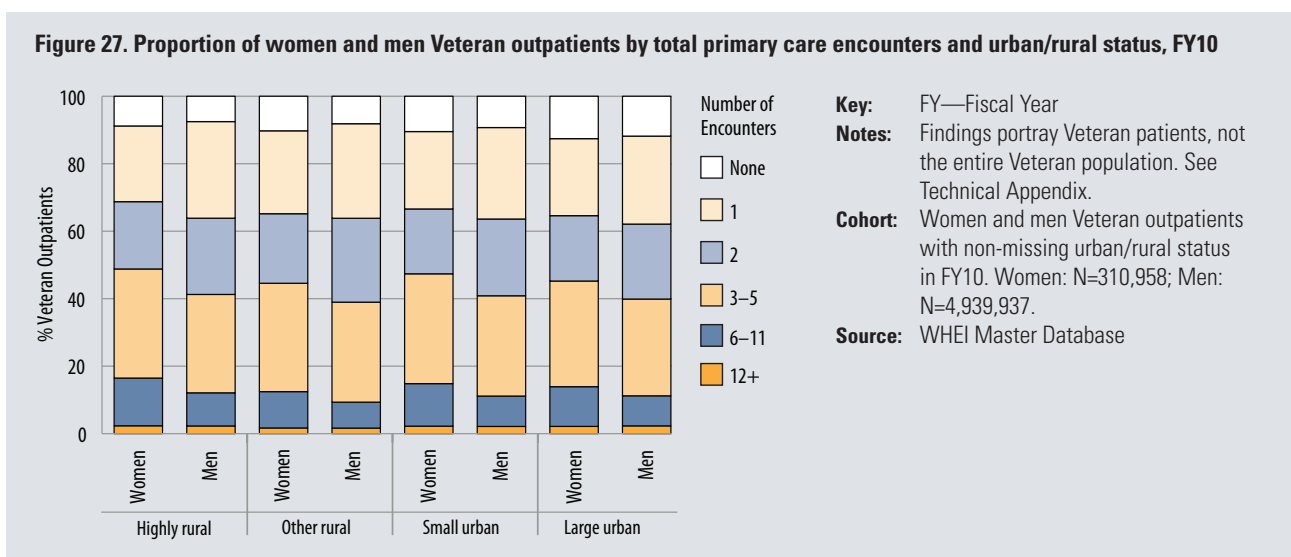


Figure 27 examines associations between primary care use, urban/rural status, and gender. Focusing first on the women Veterans shown in Figure 27, 91% of those living in a highly rural area had one or more primary care visits in FY10, compared with women living in other rural (90%), small urban (90%), and large urban (87%) areas. Forty-nine percent of women Veteran outpatients residing in highly rural areas visited primary care clinics three or more times in FY10, compared to women residing in other rural (45%), small urban (47%), and large urban (45%) areas.

Figure 27 also compares women to men. Within all urban/rural categories (highly rural, other rural, small urban, and large urban), the proportion of women and men Veteran outpatients who had one or more VHA primary care



encounters in FY10 was similar (within two percentage points). Within every urban/rural category, a higher proportion of women than men had three or more primary care encounters in FY10.

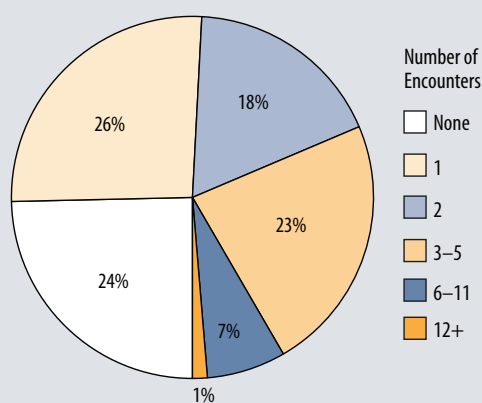
**IMPLICATIONS** Nearly 90% of women Veterans were seen by a VHA primary care provider in FY10. VHA's efforts to assure that all patients are connected with a primary care provider appear to be successfully reaching women Veterans. The small group not receiving primary care merits further scrutiny to determine whether they have unmet primary care needs, whether they are receiving primary care outside VHA, or whether they are relatively healthy and have lower care needs.

Also, women are disproportionately represented among heavy users of primary care (i.e., 14% of women versus 10% of men had at least six primary care visits in FY10), despite women's younger average age. These findings support the concept that clinicians with a large number of women in their panels will likely require adjustments in panel size and scheduling profiles to assure that women have sufficient access to care. Further, VHA's recent guidelines for customizing care for special populations (e.g., women) in the new Patient Aligned Care Teams (PACT) system emphasize the need for adequate primary care access for women.

**Primary care encounters.** Figure 28<sup>44</sup> shows that 76% of women Veteran outpatients received at least some of their primary care in a primary care clinic in FY10. Although 26% of women Veterans visited a primary care clinic only once in FY10, 50% visited at least twice, and 32% visited at least three times.

**Women's health clinic encounters.** Figure 29 shows that compared to their use of primary care clinics, fewer women received any of their primary care in women's health clinics: 35% of women Veteran outpatients received at least some of their primary care services in FY10 in a women's health clinic. (See Definition of Terms, page 26, and Notes to Interpretation, page 30, for limitations of women's health clinic data.) Among all women Veteran outpatients, 18% had exactly one women's health clinic visit. Among women Veterans who received primary care only in a women's health clinic setting in FY10 (n=40,227), the average number of women's health clinic visits was 2.4 per woman.

**Figure 28. Proportion of women Veteran outpatients by primary care clinic encounters, FY10\***



**Key:** FY—Fiscal Year

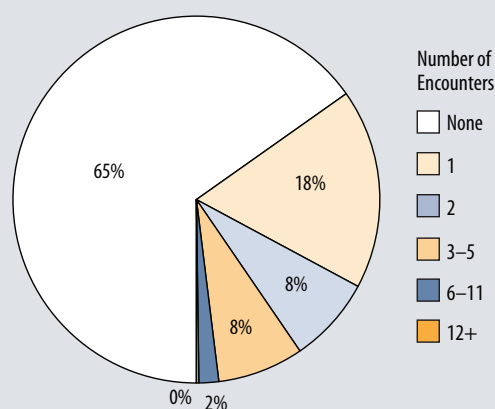
**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.

**Cohort:** Women Veteran outpatients in FY10, N=313,513

**Source:** WHEI Master Database

\*Due to rounding, percentages do not sum to 100%.

**Figure 29. Proportion of women Veteran outpatients by women's health clinic encounters, FY10\***



**Key:** FY—Fiscal Year

**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.

**Cohort:** Women Veteran outpatients in FY10, N=313,513

**Source:** WHEI Master Database

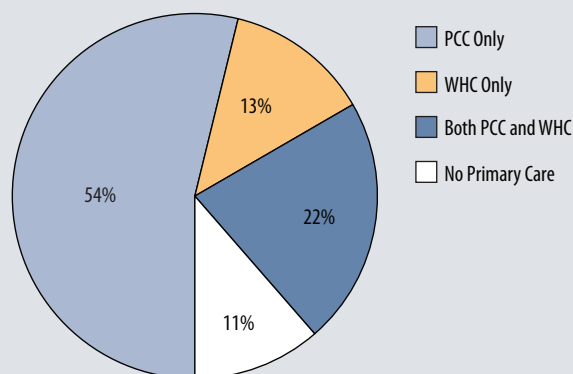
\*Due to rounding, percentages do not sum to 100%.

44 Due to rounding, aggregated numbers reported in the text may be different than those shown in Figures 28 and 29.

NOTES TO INTERPRETATION: The results for primary care and women's health clinic should be interpreted with substantial caution, due to variability in the ways different VHA facilities code primary health care for women (see Definition of Terms, page 26, for information about coding variability for women's health care). For example, the fact that so many women's health clinic users made only one visit to a women's health clinic in FY10 may reflect the fact that, at some facilities, women's health clinics have historically been used (in part or in whole) to provide gender-specific services like Pap smears (cervical cancer screening) to women who receive the rest of their primary care in general primary care clinics. Likewise, the proportion of women using a women's health clinic may actually be higher than reported here, because some facilities denote care received in women's health clinic with the codes used under this primary care definition.

With these caveats in mind, in FY10, among women Veteran outpatients, 54% received primary care in primary care clinics only (and not in women's health clinics); 13% received primary care in women's health clinics only; 22% received primary care in both settings; and 11% received no primary care (Figure 30). It is notable that the proportion of women Veteran outpatients who had both primary care and women's health clinic use in FY10 (22%) was lower than the corresponding proportion in FY09 (24%).<sup>45</sup>

**Figure 30. Proportion of women Veteran outpatients by which primary care clinics they use, FY10**



**Key:** FY—Fiscal Year; PCC—Primary Care Clinic; WHC—Women's Health Clinic

**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.

**Cohort:** Women Veteran outpatients in FY10, N=313,513

**Source:** WHEI Master Database

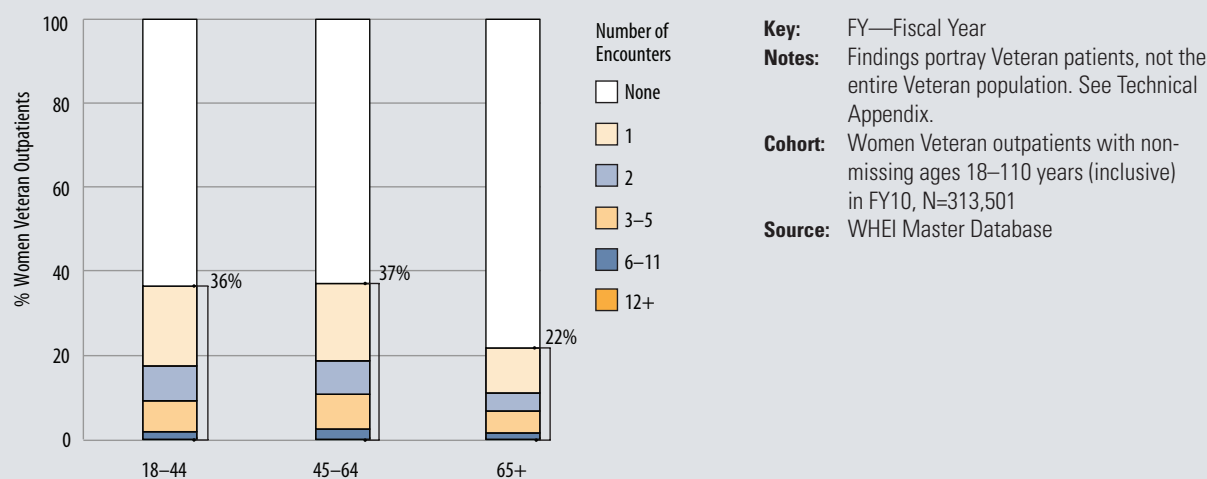
**IMPLICATIONS** VHA policy now sets the expectation that women will receive Comprehensive Women's Health Care (i.e., both gender-neutral primary care services and gender-specific primary care services from a *single* designated women's health provider) to reduce fragmentation of care.<sup>46</sup> Women who receive all their primary care from a designated women's health provider in a primary care clinic or in a women's health clinic receive Comprehensive Women's Health Care, while those receiving primary care in both primary care and women's health clinics may not be receiving this model of care. Technical issues with the coding of women's health clinic care preclude precise estimation of how many women have already transitioned to care consistent with this new policy. However, while it is promising that the proportion who appear to be receiving care in dual settings was lower in FY10 than it had been in FY09, the fact that 22% of women received care in both primary care and women's health clinic settings in FY10 motivates a continued push towards a system that ensures that all women have access to Comprehensive Women's Health Care.

<sup>45</sup> The proportion of women receiving primary care in both women's health clinics and in other primary clinics in FY09 reported here differs from the one reported in the Sourcebook Vol. 1, because we have re-run the FY09 analysis using the definition of women's health clinic used in Sourcebook Vol. 2. This makes possible comparable numbers for FY09 and FY10.

<sup>46</sup> Veterans Health Administration (2010). Health Care Services for Women Veterans (VHA Handbook 1330.01). Washington, DC: Department of Veterans Affairs.

The proportion of women Veterans receiving primary care in women's health clinics differed between those who were less than 65 years old and those who were 65 years old or older (Figure 31). Among women Veteran outpatients 18–44 years old or 45–64 years old, about 36% had at least one primary care visit in a women's health clinic in FY10. Among women Veterans 65+ years old, only 22% attended a women's health clinic in FY10. The reason for the lower rate of women's health clinic use in the oldest age group is unknown, but could reflect historical issues (e.g., they may have enrolled in VHA years ago, before women's health clinics were widely available, and prefer to continue with their established provider), or could reflect actual differences in care (e.g., lower rates of receipt of gender-specific services). Future work will need to explore the reason for this observed difference.

**Figure 31. Proportion of women Veteran outpatients by women's health clinic encounters and age, FY10**



## Gynecology Care

In addition to gender-specific care provided in primary care settings, VHA provides gender-specific specialty care to women in gynecology clinics (clinic “stop code” 404).

**Gynecology clinic encounters.** In FY10, about 14% (n=42,755 women) of women Veteran outpatients attended gynecology clinic at least once, and 5% attended this clinic at least twice. Those women Veterans who did attend a gynecology clinic attended an average of 1.5 times during FY10.

Among women 18–44 years old, 17% attended gynecology clinic at least once; in contrast, 13% of 45–64 year olds and 4% of 65+ year olds attended gynecology clinic. Use of gynecology clinic also varied by urban/rural status of women's residence: 5% of highly rural women, 12% of other rural women, 13% of women residing in small urban areas, and 16% of women residing in large urban areas visited gynecology clinic at least once. (Data not depicted graphically.)

NOTE: A very small number of women Veterans (about 750) obtained care at least once in a related clinic, women's surgery clinic (clinic “stop code” 426).

## Mental Health/Substance Use Disorder Care

### DEFINITION OF TERMS

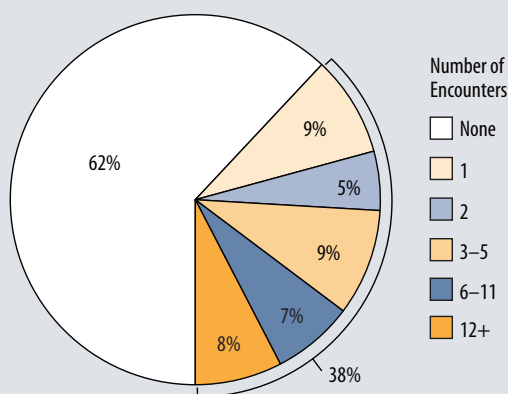
- *Mental Health/Substance Use Disorder care encounters* refer to visits to specialty clinics staffed by mental health professionals (such as psychiatrists or psychologists) with expertise in mental health and/or substance use disorders (SUDs). These clinics evaluate and treat patients with mental health conditions and/or SUDs.<sup>47</sup>

NOTE ABOUT DEFINITIONS: The definitions for both *mental health care encounters* and *SUD care encounters* are based solely on clinic stop codes and do not consider diagnosis. This leads to several important caveats. First, proportions of women Veterans who have a visit in one of these settings should not be interpreted as specifying mental health/SUD condition prevalence. Second, mental health treatment provided in clinics not predominantly offering mental health care services are not counted as mental health utilization. For example, primary care providers may manage uncomplicated depression with antidepressants and brief interventions that do not require referral to a mental health clinic; such mental health services provided in primary care settings would not count toward the total estimate of mental health/SUD care in VHA. Third, the *SUD care encounters* definition is restricted to SUD specialty care. Some SUD care additionally occurs in general mental health clinics, which is counted here as general mental health care. Fourth, the rate of use of mental health/SUD services reported here may underestimate actual *need* for services. For example, some patients receiving care in primary care settings may have undetected mental health conditions, or may have recognized mental health conditions but decline a referral to mental health/SUD specialty services.

**Mental health/SUD care encounters.** Among women Veteran outpatients, 38% used any mental health/SUD service through VHA in FY10. For those who used these services, use tended to be moderate or frequent. Among women Veteran outpatients, 9% had one visit, 14% had 2–5 visits, 7% had 6–11 visits, and 8% had 12 or more visits (Figure 32). Those women Veterans who attended VHA mental health/SUD clinics in FY10 (n=119,208) averaged 9.5 mental health visits during the year.

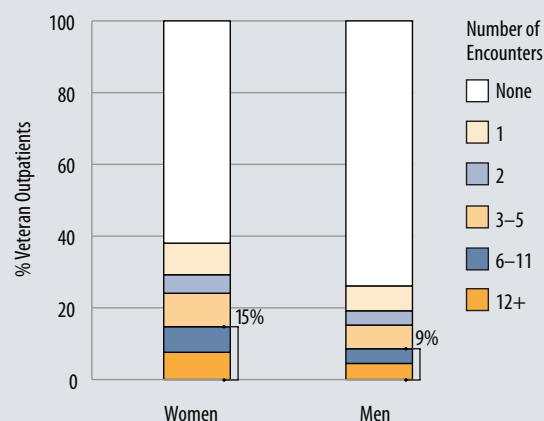
Figure 33 compares mental health utilization levels between women and men Veteran outpatients in FY10. Overall,

**Figure 32. Proportion of women Veteran outpatients by mental health/SUD encounters, FY10**



**Key:** SUD—Substance Use Disorder; FY—Fiscal Year  
**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.  
**Cohort:** Women Veteran outpatients in FY10, N=313,513  
**Source:** WHEI Master Database

**Figure 33. Proportion of women and men Veteran outpatients by mental health/SUD encounters, FY10**



**Key:** SUD—Substance Use Disorder; FY—Fiscal Year  
**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.  
**Cohort:** Women and men Veteran outpatients in FY10. Women: N=313,513; Men: N=4,966,090.  
**Source:** WHEI Master Database

<sup>47</sup> The definition of Mental Health/Substance Use Disorder care encounters used in this Sourcebook differs slightly from the definition used by VA Mental Health's North East Program Evaluation Center (NEPEC). This variation may lead to a reported difference when Sourcebook estimates of mental health encounters are compared to estimates provided by NEPEC.

a higher proportion of women than men used any mental health/SUD services. Among women versus men Veteran outpatients, 38% versus 26% had any mental health/SUD visit, 15% versus 9% had six or more visits in FY10, and 8% versus 5% had 12 or more visits in FY10.

**IMPLICATIONS** Many women Veteran patients use mental health/SUD services. Those who use mental health/SUD services tend to have many (six or more) visits. Further, a far greater proportion of women than men used any mental health/SUD (38% vs. 26%) and likewise a far greater proportion of women than men used mental health/SUD care at least six times (15% vs. 9%). VHA is recognized for its longstanding expertise in mental health/SUD and for its ongoing efforts to remain a leader in mental health care (e.g., through integration of mental health in primary care, increases in mental health care capacity, research funding, provider training, etc.). It appears that such services may be of particular importance for a substantial subset of women Veterans. Recent research efforts to examine whether mental health/SUD service delivery systems need adaptations to ensure they are meeting women Veterans' treatment needs are timely.

Among women Veterans, the middle age group (45–64 years old) tended to use mental health/SUD care services more frequently. Among all outpatient women Veterans, 15% of 18–44 year olds, 17% of 45–64 year olds, and 5% of 65+ year olds had six or more mental health/SUD visits in FY10 (Figure 34).

Figure 34 also shows that among the middle and older age groups of Veterans, a higher proportion of women than men had at least one mental health/SUD care visit in FY10 (45–64: 40% vs. 34%; 65+: 19% vs. 14%). Within the 18–44 year old age group, a similar proportion of women and men used mental health/SUD care (42% vs. 43%).

Within each age group, the same or a slightly higher proportion of women than men had six or more mental health/SUD visits in FY10. The difference is most pronounced in the 45–64 year old age group: Comparing women to men, six or more mental health/SUD visits were made by 15% vs. 15% of 18–44 year olds, 17% vs. 13% of 45–64 year olds, and 5% vs. 3% of 65+ year olds (adding together the proportions of women with 6–11 encounters plus the proportions of those with 12+ encounters) (Figure 34).

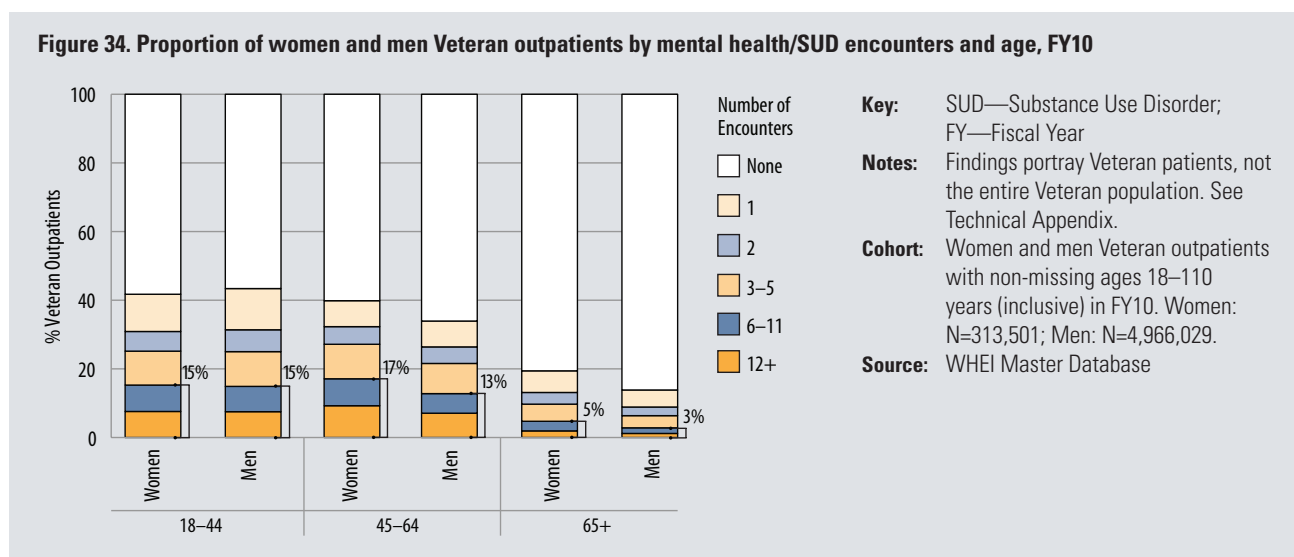
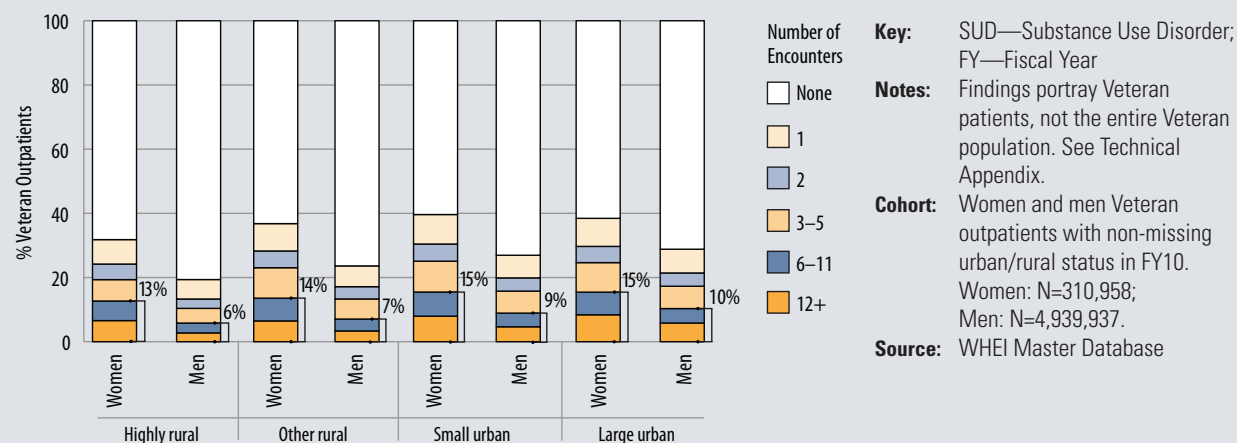


Figure 35 examines relationships between mental health utilization, urban/rural status, and gender. While women in all urban/rural categories used mental health/SUD clinics, a lower proportion of women residing in highly rural areas than women residing in other urban/rural categories used mental health/SUD clinics (highly rural: 32%; other rural: 37%; small urban: 40%; and large urban: 38%). Women living in urban areas were more often frequent

**Figure 35. Proportion of women and men Veteran outpatients by mental health/SUD encounters and urban/rural status, FY10**

users of mental health/SUD clinics: The proportion of women Veteran outpatients who visited mental health/SUD clinics six or more times in FY10 was 13% for highly rural, 14% for other rural, and 15% for small urban as well as large urban.

Figure 35 also shows that within each urban/rural category, a higher proportion of women than men used VHA mental health/SUD care in FY10 (highly rural: 32% vs. 19%; other rural: 37% vs. 24%; small urban: 40% vs. 27%; large urban: 38% vs. 29%). Within each urban/rural category, a higher proportion of women than men had six or more mental health/SUD visits in FY10 (highly rural: 13% vs. 6%; other rural: 14% vs. 7%; small urban: 15% vs. 9%; large urban: 15% vs. 10%).

**IMPLICATIONS** Women in highly rural areas use less mental health/SUD care than do women residing in other geographic areas. The methodology used here does not capture mental health services provided by telephone or via video conferencing; additional women with highly rural residences may actually be accessing mental health services via these newer modalities, which will be easier to detect in future VHA data. To address potential mental health service access issues in rural areas, VHA has been rolling out innovative tele-mental health programs for patients in remote locations, which may help to meet their mental health needs.

**NOTES TO INTERPRETATION:** The extent to which factors such as cultural differences, condition prevalence, or disease severity contribute to observed differences across subgroups (e.g., differences in utilization by gender, age, urban/rural status) cannot be determined from the available data sources.

**Substance use disorder (SUD) care encounters.** Among all women Veteran outpatients, a small number of women Veterans ( $n=7,304$ ), had specialty SUD encounters. Of these, 5,314 women had two or more SUD encounters, and 2,618 had 12 or more encounters (data not shown graphically). Women receiving some SUD treatment in FY10 had, on average, 16.3 SUD encounters in FY10.

A similar proportion of women as men Veterans used any specialty SUD encounters (2% vs. 3%), as well as two or more encounters (2% vs. 2%) and 12+ encounters (1% vs. 1%).

The 7,304 women receiving care in SUD clinics in FY10 represented 2% of 18–44 year olds, 3% of 45–64 year olds, and 0.3% of 65+ year olds. The 131,403 men receiving care in SUD clinics represented 5% of 18–44 year olds, 4% of 45–64 year olds, and 0.4% of 65+ year olds.

The proportion of women receiving SUD specialty treatment varied little by urban/rural status.

# Part 4: Women Veterans' Non-VA Care (Fee) Utilization, FY10

Non-VA Care (Fee) represents services provided by community-based, non-VHA providers but reimbursed by VHA. Non-VA Care (Fee) can occur in outpatient and inpatient settings; however, Sourcebook Volume 2 focuses only on *outpatient* Non-VA Care (Fee).<sup>48</sup> Non-VA Care (Fee) services are intended to supplement services at VHA facilities in special circumstances. For example, VHA may determine that an eligible patient should receive a needed clinical service through Non-VA Care (Fee) if the service is not available in VHA, or if the service is available in VHA but at excessive distance from the patient's home.

While both women and men Veterans are eligible for Non-VA Care (Fee), some facilities may rely heavily on Non-VA Care (Fee) for some female gender-specific services that are not available onsite, either because the facility lacks the necessary volume to support a program (e.g., mammography equipment or specialized gynecologic oncology services) or because VHA does not routinely provide the service (e.g., obstetric care). Therefore, utilization of Non-VA Care (Fee) has the potential to be of particular relevance to women.

## Non-VA Care (Fee) Outpatient Care

### DEFINITION OF TERMS

- *Non-VA Care (Fee) Outpatient Days* estimate the total number of unique days on which patients received any kind of outpatient care (i.e., all service types appearing in the Non-VA Care [Fee] Outpatient Encounter Files) through the Non-VA Care (Fee) system in FY10.<sup>49</sup> If a patient received multiple services on one day, that day is counted only once.
- *Non-VA Care (Fee) Outpatient Services* (first described on page 15) estimate the total number of unique outpatient services that patients received (i.e., all service types appearing in the Non-VA Care [Fee] Outpatient Encounter Files) through the Non-VA Care (Fee) system in FY10. A “service” is based upon CPT procedure codes in the Non-VA Care (Fee) 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.

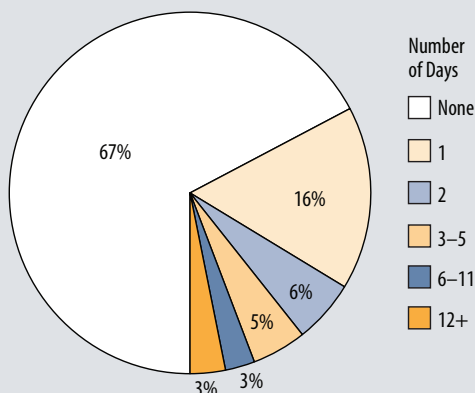
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<sup>48</sup> Sourcebook Vol. 2 does not draw from the Non-VA Care (Fee) inpatient files. Note that, among pregnant women, deliveries typically occur in an inpatient setting; this type of Non-VA Care (Fee) service thus is not explicitly captured in Sourcebook Vol. 2. However, the Non-VA Care (Fee) outpatient data do contain pregnancy-related care. These include all pre-natal visits as well as payments to the provider for delivering the baby. Such services are included when we report Non-VA Care (Fee) Outpatient Days and Services, but they are not separated out by service type.

<sup>49</sup> As explained in Part 2, Notes to Interpretation (pages 19–20), the FY10 Non-VA Care (Fee) encounter file contains a record of services reimbursed in FY10. This includes care received in FY10 and care received in previous years (26% of services in the FY10 file were provided prior to the start of FY10). Likewise, it excludes care received in FY10 that was reimbursed after FY10. Because of ongoing growth in numbers of Veterans seeking VHA care, the volume of services in later years has consistently tended to exceed the volume in prior years. Thus the net effect is that the FY10 Non-VA Care (Fee) file provides a conservative (low) estimate of Non-VA Care (Fee) actually provided in FY10.



**Figure 36. Proportion of women Veteran patients by Non-VA Care (Fee) outpatient days, FY10**



**Key:** FY—Fiscal Year  
**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.  
**Cohort:** Women Veteran patients in FY10, N=316,903  
**Source:** WHEI Master Database

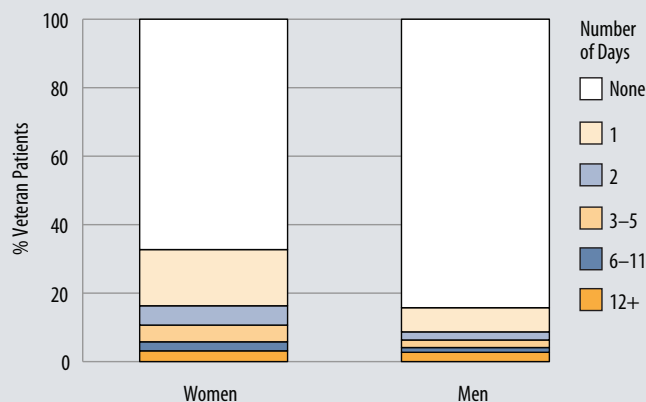
NOTE ABOUT DENOMINATOR: The following sections on “Non-VA Care (Fee) Outpatient Days” and “Non-VA Care (Fee) Outpatient Services” use the denominator “patients.” This includes all Veteran users of any VHA care in FY10. This is the same denominator used for reporting data on Total Outpatient Days (VHA/Non-VA Care [Fee]) (beginning on page 17) and VHA Outpatient Days (beginning on page 21).

**Non-VA Care (Fee) Outpatient Days.** Among the 316,903 women Veteran patients in FY10, VHA provided Non-VA Care (Fee) for a third (33%) of them, or 103,527 women. As Figure 36 shows, a substantial proportion of women Veteran patients (16%) received Non-VA Care (Fee) services on only one day in FY10, while smaller proportions received Non-VA Care (Fee) services on two or more days (2 days: 6%; 3–5 days: 5%; 6–11 days: 3%; 12 or more days: 3%). On average, women Veterans with at least one day of Non-VA Care (Fee) outpatient care used Non-VA Care (Fee) services on 7.3 different days in FY10.

**IMPLICATIONS** One of every three women Veteran patients receives at least some care through the Non-VA Care (Fee) system. Ongoing efforts to examine the quality of such care and the coordination between VHA and Non-VA Care (Fee) are of great importance for women.<sup>50</sup>

Figure 37 reveals that in FY10, Non-VA Care (Fee) was substantially more common among women than men. A higher proportion of women Veterans than men had at least one day of Non-VA Care (Fee) (33% vs. 16%).<sup>51</sup> Women were more likely than men to have exactly one day of Non-VA Care (Fee) (16% vs. 7%), but were also more likely to

**Figure 37. Proportion of women and men Veteran patients by Non-VA Care (Fee) outpatient days, FY10**



**Key:** FY—Fiscal Year  
**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.  
**Cohort:** Women and men Veteran patients in FY10. Women: N=316,903; Men: N=5,036,990.  
**Source:** WHEI Master Database

50 Bastian L & Mattocks K, Principal Investigators. *Evaluation of Quality and Coordination of Outsourced Care for Women Veterans*. Veterans Health Administration, HSR&D grant CRE 12-008.

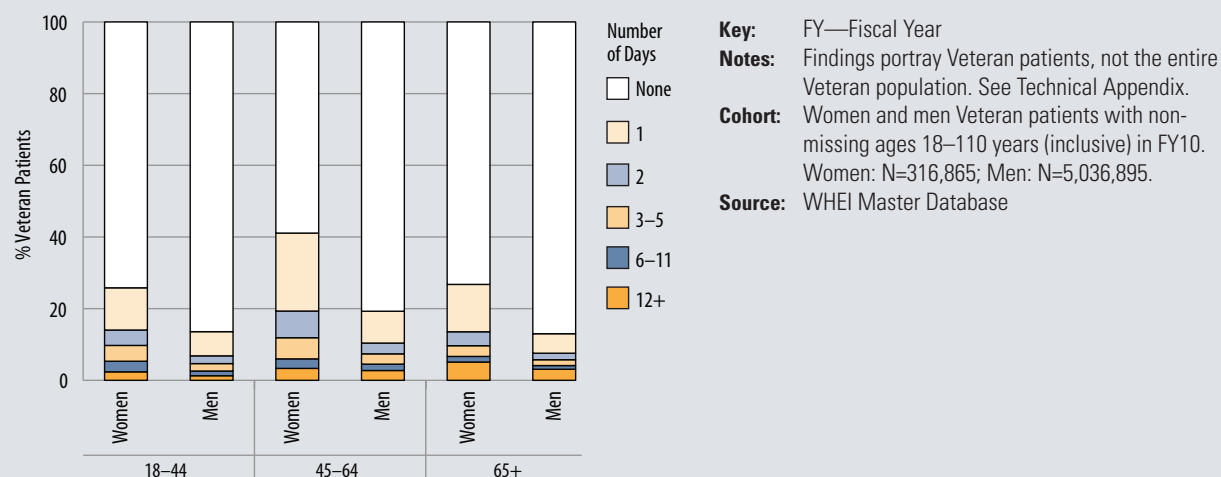
51 Some facilities may send lab specimens to private labs for processing and interpretation. These services may appear in the Non-VA Care (Fee) data and be counted in our data as Non-VA Care (Fee) services, even though they do not represent cases of women Veterans actually visiting Non-VA Care (Fee) providers for care. However, this cannot explain the higher Non-VA Care (Fee) use among women than men, since only 1,266 women (0.4% of women Veteran patients) had Non-VA Care (Fee) lab care as their only type of Non-VA Care (Fee) in FY10.

have between two and 11 days of Non-VA Care (Fee) over the year (13% vs. 6%). Only at the highest frequency of use (12 or more days) were the proportions of Non-VA Care (Fee) between women and men equal (3% vs. 3%).

Among women Veteran patients, use of *any* Non-VA Care (Fee) varies substantially by age. Figure 38 shows that among women aged 45–64 years old, 41% had at least one day of Non-VA Care (Fee) in FY10. This is higher than the proportions of 18–44 year olds and 65+ year olds who had at least one day of Non-VA Care (Fee) (18–44: 26%; 65+: 27%). Women aged 45–64 are also more likely than the youngest and oldest women to have Non-VA Care (Fee) services on five or fewer different days (18–44: 20%; 45–64: 35%; 65+: 20%). High frequency (12 or more days) Non-VA Care (Fee) use increased slightly with increasing age (18–44: 2%; 45–64: 3%; 65+: 5%). On average, in FY10, women Veteran Non-VA Care (Fee) outpatients who were 65+ years old used Non-VA Care (Fee) on more days than those who were 18–44 years old or 45–64 years old (18–44: 5.1 days; 45–64: 6.3 days; 65+: 19.3 days).

Across every age group, a higher proportion of women than men used Non-VA Care (Fee), and this difference was particularly pronounced among the middle age group (18–44: 26% vs. 14%; 45–64: 41% vs. 19%; 65+: 27% vs. 13%). Also in every age group, the same or slightly higher proportion of women than men had frequent Non-VA Care (Fee) use, i.e., 12+ days of Non-VA Care (Fee) (18–44: 2% vs. 1%; 45–64: 3% vs. 3%; 65+: 5% vs. 3%) (Figure 38).

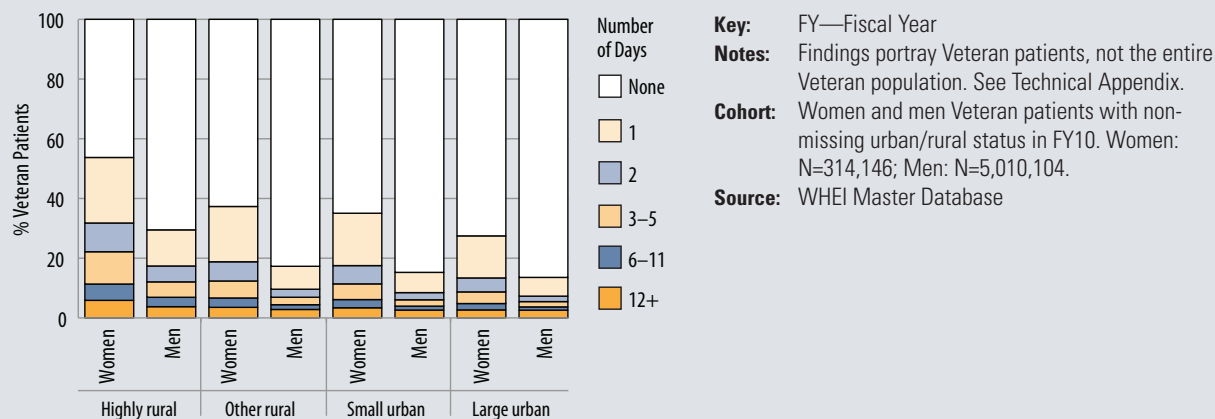
**Figure 38. Proportion of women and men Veteran patients by Non-VA Care (Fee) outpatient days and age, FY10**



**IMPLICATIONS** Within all age groups, higher proportions of women use Non-VA Care (Fee) than do men, both in single-day use and multiple-day use (single day: 16% of women vs. 7% of men; 2–11 days: 13% of women vs. 6% of men). Efforts to optimize the Non-VA Care (Fee) system and help patients navigate between distinct sources of care must take women’s needs into account.

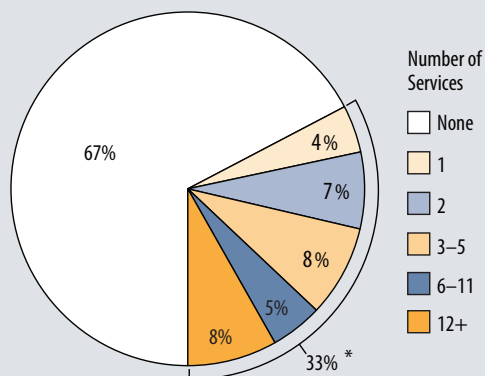
As shown in Figure 39, women Veteran patients' use of Non-VA Care (Fee) also varied by urban/rural status. Highly rural women had the highest proportion of any Non-VA Care (Fee) (54%). This proportion decreased as patients' residence status became more densely populated (other rural: 37%; small urban: 35%; large urban: 27%). A higher proportion of highly rural women than other rural urban women used Non-VA Care (Fee) regularly (6+ days) (highly rural: 11%; other rural: 7%; small urban: 6%; large urban: 5%).

**Figure 39. Proportion of women and men Veteran patients by Non-VA Care (Fee) outpatient days and urban/rural status, FY10**



Across the urban/rural status categories, a higher proportion of women than men used any Non-VA Care (Fee) (highly rural: 54% vs. 29%; other rural: 37% vs. 17%; small urban: 35% vs. 15%; large urban: 27% vs. 14%). Also across the urban/rural status categories, a slightly higher proportion of women than men had regular or frequent Non-VA Care (Fee) use (6+ days) (highly rural: 11% vs. 7%; other rural: 7% vs. 4%; small urban: 6% vs. 4%; large urban: 5% vs. 4%).

**Figure 40. Proportion of women Veteran patients by Non-VA Care (Fee) outpatient services, FY10**



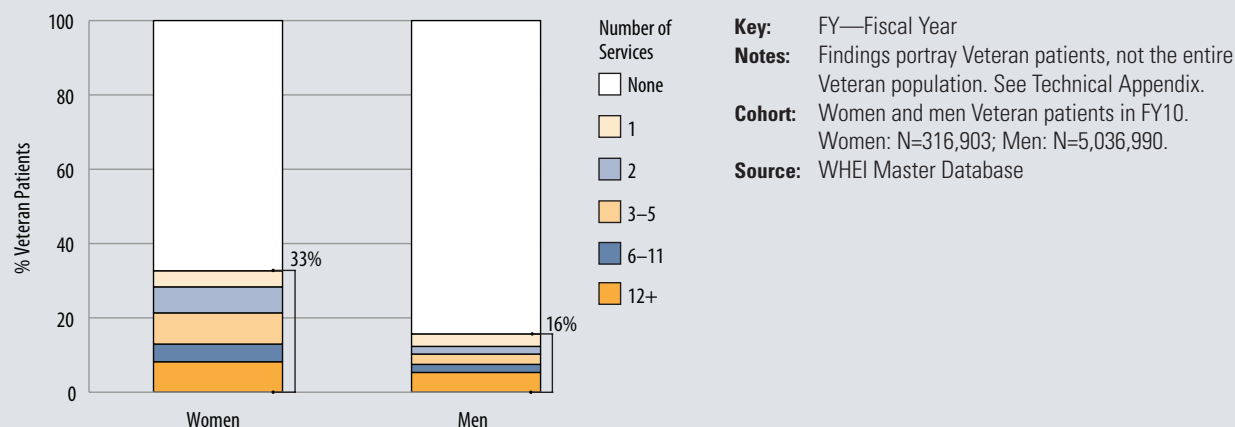
**Key:** FY—Fiscal Year  
**Notes:** Findings portray Veteran patients, not the entire Veteran population. See Technical Appendix.  
**Cohort:** Women Veteran patients in FY10, N=316,903  
**Source:** WHEI Master Database

\*Due to rounding, the aggregated percentage does not equal the sum of the bracketed percentages.

**IMPLICATIONS** Over half of women with a highly rural residence used Non-VA Care (Fee) in FY10. This may reflect VHA's efforts to accommodate patients for whom travel to a VHA facility would be a hardship. However, this finding raises the possibility that innovations aimed at coordination of care, such as care managers, may be of particular relevance to VHA facilities caring for a highly rural patient population, because care coordination is crucial.

**Non-VA Care (Fee) outpatient services.** Among women Veteran patients in FY10, 33% had at least one service performed by a Non-VA Care (Fee) provider. A small proportion of women had only one service performed (4%), while larger proportions had 2–5 services (15%) or 6+ services (13%) (Figure 40).<sup>52</sup>

52 Note that women who received two or more services could have received multiple services on one day, or could have received services on multiple days. For example, a woman who received a mammogram and a breast ultrasound on one day would have received two services. A woman who received an office visit with a cardiologist, an EKG, and an injection on one day, plus a home nursing care visit on another day, would have received a total of four services.

**Figure 41. Proportion of women and men Veteran patients by total Non-VA Care (Fee) outpatient services, FY10**

As Figure 41 reveals, a higher proportion of women than men Veteran outpatients had *any* Non-VA Care (Fee) services in FY10 (33% vs. 16%). This substantial difference can be attributed to higher proportions of women than men using Non-VA Care (Fee) services within every level of utilization, from one service to 12 or more. (Exactly 1 service: 4% vs. 3%; exactly 2 services: 7% vs. 2%; 3–5 services: 8% vs. 3%; 6–11 services: 5% vs. 2%; 12 or more services: 8% vs. 5%.)

NOTE TO INTERPRETATION. A general consideration is warranted about counts of Non-VA Care (Fee) services when interpreting this and subsequent sections: Non-VA Care (Fee) services represent a different unit of care than the “encounters” reported in Part 3 (VHA Utilization). Each VHA encounter encompasses an entire clinical visit, which may include more than one service. This is an important fact to consider when comparing utilization data in the VHA use versus Non-VA Care (Fee) use sections. See Technical Appendix, Section 4, for further details.

### Categories of Non-VA Care (Fee)

Non-VA Care (Fee) utilization data in this section are presented differently from the comparable VHA utilization data section. Unlike the VHA utilization section, which examines use of one category of care at a time (e.g., primary care, gender-specific services, mental health, etc.), this section first gives a broad overview of the types of care that women Veterans used through the Non-VA Care (Fee) system in FY10. The mutually exclusive categories of care described below comprehensively capture all outpatient services used in Non-VA Care (Fee).

This section examines women Veterans’ use of care across the categories described below. It shows use of those categories of services overall among women Veterans, and then compared to men, and then by age and by urban/rural status.

#### DEFINITION OF TERMS

The following categories are used to describe Non-VA Care (Fee) utilization. Current Procedural Terminology (CPT) codes are used to define each category. Each CPT code (including alphanumeric HCPCS codes) has been placed in only one broad category of care:

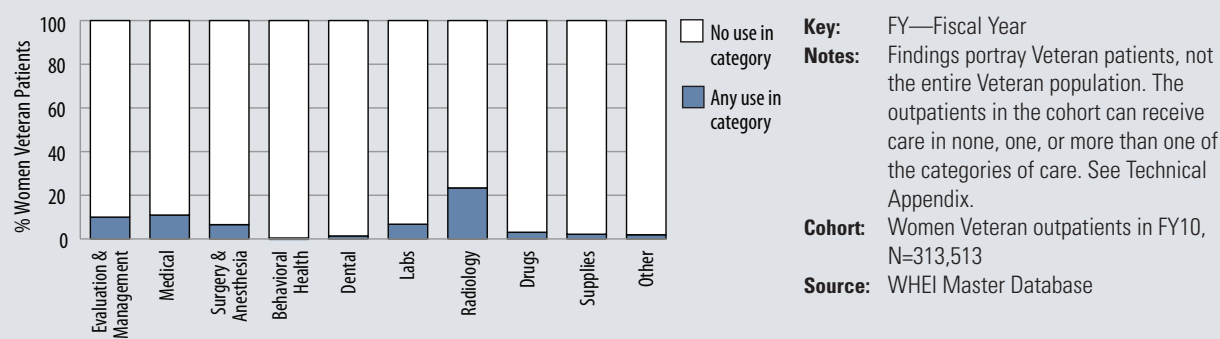
- *Evaluation and Management*—visits with primary care or specialist physicians or other clinicians for the purpose of assessing patients and managing their care.
- *Medical Care*—broad range of services including diagnostic, treatment, or preventive procedures. Also includes clinical home health visits, physical therapy sessions, and dialysis treatments.

- *Surgery and Anesthesia*—includes the full array of surgical and anesthesia services as well as care for pregnancy and venipuncture.
- *Behavioral Health*—includes individual and group counseling, psychiatric care, and addiction treatment.
- *Dental*—services by or overseen by a dentist.
- *Labs*—laboratory and pathology services provided by a physician or by a technologist under physician supervision.
- *Radiology*—includes, for example, diagnostic radiology procedures, diagnostic ultrasound, mammography, nuclear medicine studies, interventions performed under radiologic guidance, and radiation oncology.
- *Medications*—includes pharmaceuticals, intravenous solutions, and therapeutic medical supplies.
- *Supplies*—includes hospital supplies that do not add therapeutic value (e.g., syringes, needles, surgical masks, dressings, etc.).
- *Other*—includes diverse services that do not fit into other categories, such as ambulance transport and home health services provided by a non-clinician (e.g., home health aide services).

NOTE ABOUT DENOMINATOR: This section uses the “outpatient” denominator, which includes all Veteran patients who used VHA and/or Non-VA Care (Fee) outpatient care in FY10. Using this denominator facilitates comparison between utilization of specific types of care in VHA versus Non-VA Care (Fee). However, it also means that many patients within the denominator had no Non-VA Care (Fee) use.

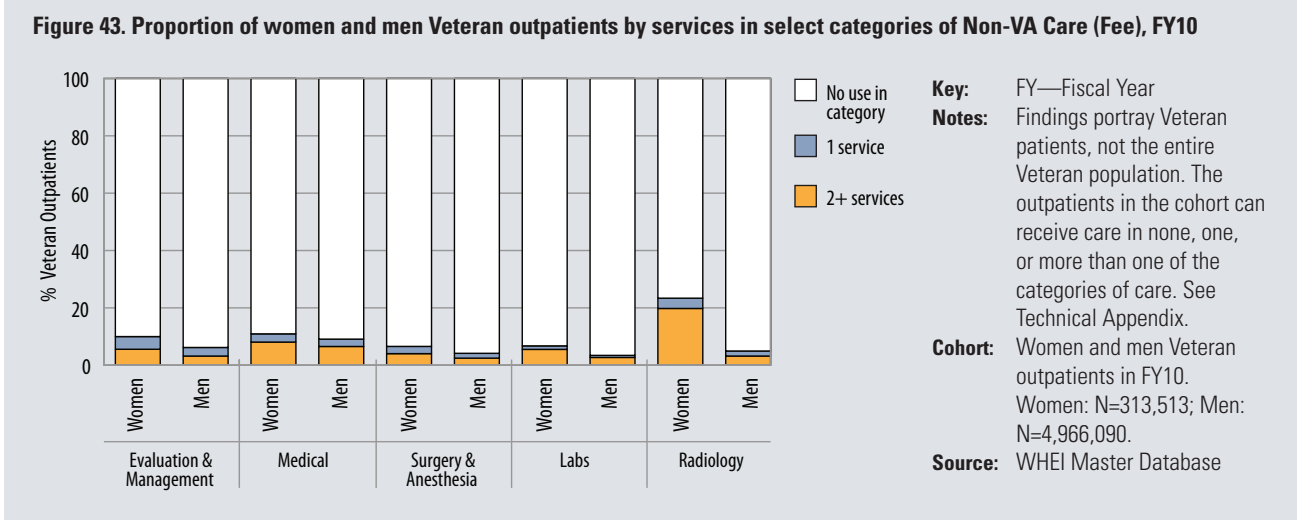
**Broad Groups of Non-VA Care (Fee).** Figure 42 shows the proportion of women Veteran outpatients who used each category of Non-VA Care (Fee) in FY10. The Non-VA Care (Fee) services most commonly used by women Veteran outpatients in FY10 were Radiology (23% of women Veteran outpatients or 73,280 women), Medical Care (11% or 34,265 women) and Evaluation and Management (10% or 31,326 women). Substantial proportions of women Veterans also used Surgical and Anesthesia services (7%) and Labs (7%). Fewer women received Medications (3%), Supplies (2%), or Other Services (2%) from Non-VA Care (Fee), and extremely few women used Non-VA Care (Fee) for Dental or Behavioral Health services.

**Figure 42. Proportion of women Veteran outpatients by “any use” of categories of Non-VA Care (Fee), FY10**

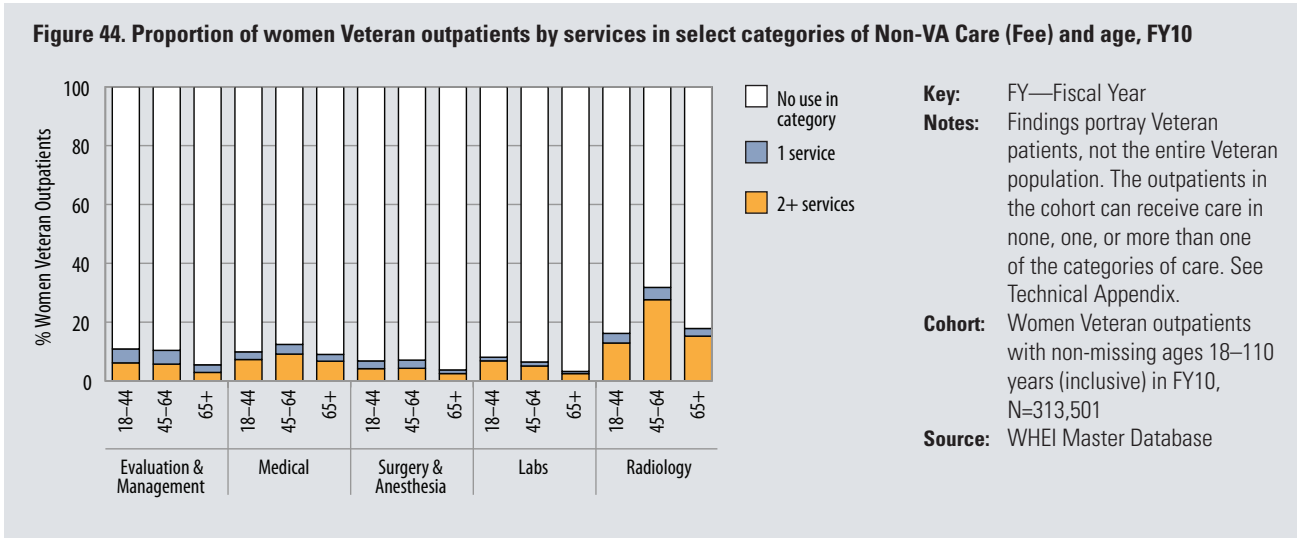


Figures 43 and 44 focus on the five categories of Non-VA Care (Fee) service used most frequently by women Veterans, (i.e., used by at least 5% of women Veteran outpatients).

Figure 43 compares counts of service use among women versus men in these most common care categories.<sup>53</sup> A much higher proportion of women than men Veteran outpatients used at least one radiology service in FY10 (23% vs. 5%). In every other category of care reported, slightly higher proportions of women than men Veterans used at least one service (Evaluation and Management: 10% vs. 6%; Medical Care: 11% vs. 9%; Surgery and Anesthesia: 7% vs. 4%; Labs: 7% vs. 3%).



Women Veterans' use of Non-VA Care (Fee) services varied by age within all the most common categories of Non-VA Care (Fee) (Figure 44). In Evaluation and Management, Surgery and Anesthesia, and Labs, any service use was slightly higher among the two youngest age groups than the oldest age group (Evaluation and Management, ages 18–44: 11%, 45–64: 10%, 65+: 6%) (Surgery and Anesthesia, ages 18–44: 7%, 45–64: 7%, 65+: 4%) (Labs, ages 18–44: 8%, 45–64: 7%, 65+: 3%). In Medical Care and Radiology, any service use was higher among 45–64 year olds than the youngest and oldest age group (Medical, ages 18–44: 10%; 45–64: 12%; 65+: 9%) (Radiology, ages 18–44: 16%; 45–64: 32%; 65+: 18%).

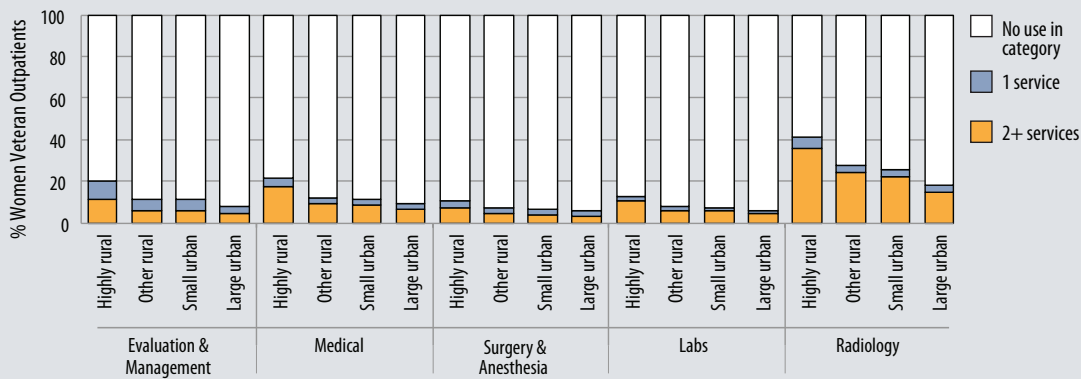


<sup>53</sup> In some instances, a count of two or more services reflects only one episode of care. For example, a woman who receives one mammogram (one episode of care) might receive two Radiology services: the performance of the mammogram by the technologist, and the reading of the mammogram by the radiologist. It is not possible to determine how often this scenario arises, so the text primarily focuses upon receipt of at least one instance of a service rather than upon the count of services.

**IMPLICATIONS** A far higher proportion of women (23%) than men (5%) use Radiology services through Non-VA Care (Fee). As described below, 17% of women Veterans had a mammogram through Non-VA Care (Fee) in FY10, and thus it is likely that mammography care is driving a substantial amount of the Non-VA Care (Fee) radiology utilization.

Some variation also occurs in women Veteran outpatients' Non-VA Care (Fee) service use by the urban/rural status of patients' homes (Figure 45). Within all categories of Non-VA Care (Fee), a higher proportion of patients in highly rural areas than all other areas received at least one Non-VA Care (Fee) service, and a lower proportion of patients in large urban areas than all other areas received at least one Non-VA Care (Fee) service. The proportion of women Veterans receiving Non-VA Care (Fee) is similar for those living in other rural and small urban areas.

**Figure 45. Proportion of women Veteran outpatients by services in select categories of Non-VA Care (Fee) and urban/rural status, FY10**

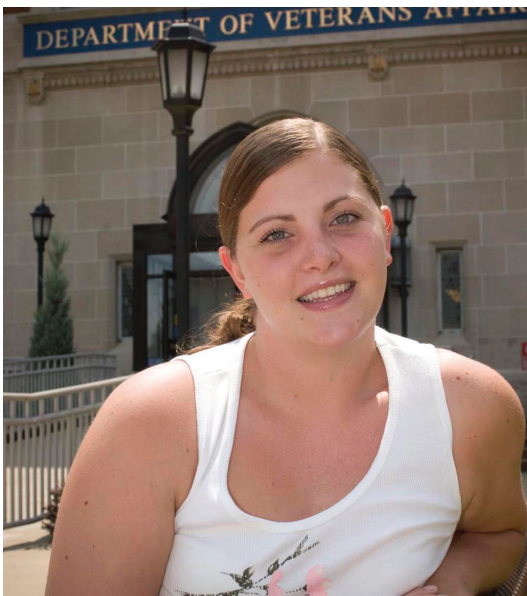


**Key:** FY—Fiscal Year

**Notes:** Findings portray Veteran patients, not the entire Veteran population. The outpatients in the cohort can receive care in none, one, or more than one of the categories of care. See Technical Appendix.

**Cohort:** Women Veteran outpatients with non-missing urban/rural status in FY10, N=310,958

**Source:** WHEI Master Database



## Gender-Specific Preventive Care through the Non-VA Care (Fee) System

The prior sections examined Non-VA Care (Fee) generally, and examined broad, comprehensive categories of Non-VA Care (Fee). This section and the one that follows examine specific types of Non-VA Care (Fee) of particular interest.

The text and charts in this section describe the proportions of women Veterans receiving Non-VA Care (Fee) mammography services (and other breast radiologic procedures) and cervical cancer screening (Pap smear) services in FY10. Mammography services are of interest in Non-VA Care (Fee) because some VHA facilities do not have a mammography machine onsite and use the Non-VA Care (Fee) system to provide this key service.

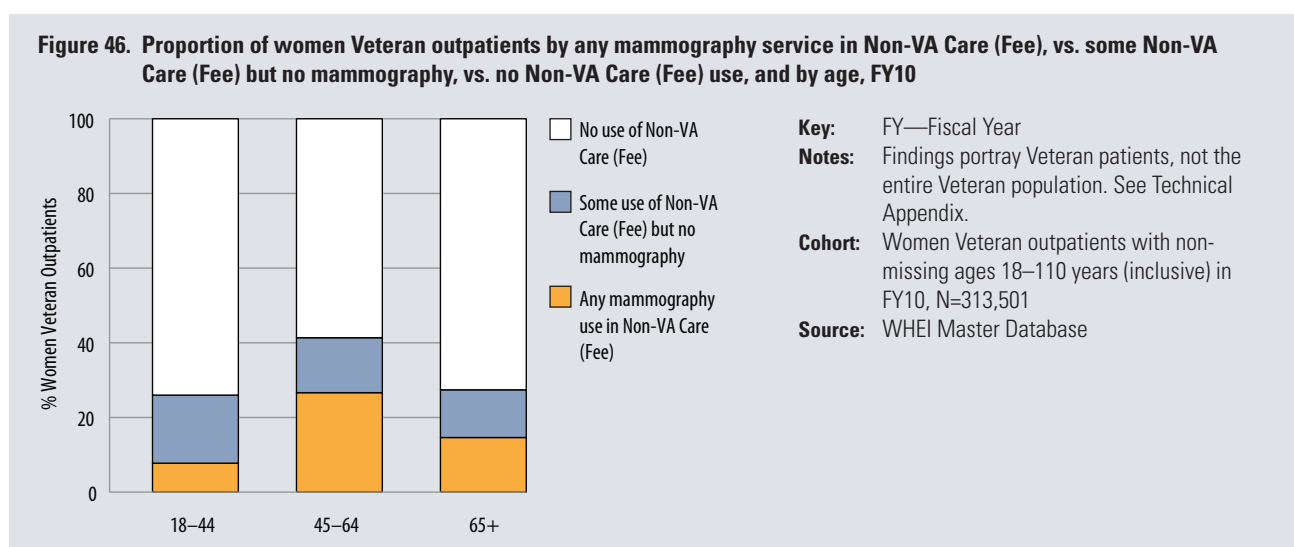
### DEFINITION OF TERMS

In this section:

- *Any mammography service* refers to receipt of at least one screening or diagnostic mammogram through a Non-VA Care (Fee) provider. Other breast radiological services refer to breast Magnetic Resonance Imaging (MRI) and breast Ultrasound through Non-VA Care (Fee).
- *Any Pap smear service* (i.e., cervical cancer screening) is defined as receipt of a screening Pap smear procedure from a Non-VA Care (Fee) provider. This definition does not include lab processing or interpretation of the smear.<sup>54</sup>

**Any mammography service.** Among women Veteran VHA outpatients, 17%, or 53,517 women, had any mammography service (at least one screening or diagnostic mammogram) in Non-VA Care (Fee) in FY10. Of these, 15% had a screening mammogram and 4% had a diagnostic mammogram; the numbers for screening and diagnostic mammograms add to more than 17% because some women had both.

A particularly large proportion of women Veteran outpatients who were 45 years old or older used Non-VA Care (Fee) mammography services (18–44: 8%; 45–64: 27%; and 65+: 15%) (Figure 46). In addition to showing the proportion of women in each age group who used any mammography service in Non-VA Care (Fee), Figure 46 also shows the proportion of women in each age group who used some Non-VA Care (Fee) but did not receive any mammography services.

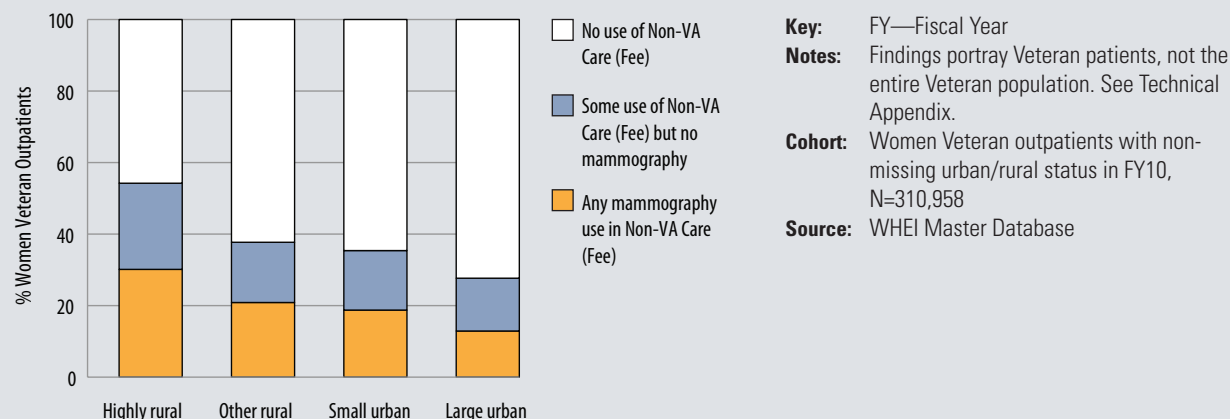


<sup>54</sup> Note: Some instances of lab processing of Pap smears appearing in the Non-VA Care (Fee) file may reflect a Pap smear that was performed at a VHA facility, and then sent out for reading to a private sector cytology laboratory. These lab processing services are not included in the Pap smear definition, because the focus of this section is upon women receiving direct care from a Non-VA Care (Fee) provider (i.e., performing a Pap smear or having a mammographic image taken) that involves the woman herself needing to be seen outside of VHA. See Technical Appendix, Section 5, for additional explanation.



Among the 53,517 women who received a mammography service in Non-VA Care (Fee) in FY10, the largest number lived in other rural areas (highly rural: 1,112; other rural: 22,394; small urban: 12,837; large urban: 16,959). An especially large proportion of highly rural women received any mammography service in Non-VA Care (Fee) (highly rural: 30%; other rural: 21%; small urban: 19%; large urban: 13%) (Figure 47). However, this high use of Non-VA Care (Fee) mammography care accounts for only part of the high rate of Non-VA Care (Fee) use among highly rural women: The proportion using some Non-VA Care (Fee) but no mammography care was also greatest among the highly rural women (highly rural: 24%; other rural: 17%; small urban: 17%; large urban: 15%).

**Figure 47. Proportion of women Veteran outpatients by any mammography service in Non-VA Care (Fee), vs. some Non-VA Care (Fee) but no mammography, vs. no Non-VA Care (Fee) use, and by urban/rural status, FY10**



**Any breast radiological service.** Among women Veteran VHA outpatients, 17% or 54,736 women, received mammography or any other breast radiological service in Non-VA Care (Fee) in FY10 (data not depicted graphically). A small minority of these women received a breast ultrasound ( $n=7,586$ ) and an even smaller number received a breast MRI ( $n=932$ ). Over half the women who had a breast ultrasound were 45–64 years old (18–44: 2,597; 45–64: 4,513; 65+: 476). Most women who received any breast radiological service received at least one mammography service.

**IMPLICATIONS** The use of mammography services is particularly high among women residing in rural areas. This is an expected result of a policy highlighting the importance of breast cancer screening. This policy states that women should receive mammography services within 50 miles of home.<sup>55</sup> Rural women may be less likely to live within 50 miles of a VHA facility that can provide mammograms, so these data suggest Non-VA Care (Fee) is being used to meet a critical need. The high proportion of highly rural women who are using Non-VA Care (Fee) for services other than mammography may suggest that Non-VA Care (Fee) is expanding the availability of a broader array of services to women Veterans.

**Any Pap smear service.** In FY10, Non-VA Care (Fee) provided any Pap smear service to a small minority of women. Only 883 women received a Pap smear service through Non-VA Care (Fee), representing 0.3% of all women Veteran outpatients, or less than 0.9% of the 103,572 women who had any non-VA Care (Fee) outpatient care in FY10.<sup>56</sup> Among the 883 women who received at least one Pap smear procedure, most ( $n=567$ ) were in the 18–44 age range. Residences of women with non-missing urban/rural status were: Highly rural: 9 women; other rural: 426; small urban: 262; and large urban: 183.

<sup>55</sup> Veterans Health Administration (2010). Health Care Services for Women Veterans (VHA Handbook 1330.01). Washington, DC: Department of Veterans Affairs.

<sup>56</sup> In FY10, 2,125 women Veteran outpatients had a service where their Pap smear specimen was processed and interpreted by Non-VA Care (Fee) lab technicians, but apparently did not have the specimen collected by a Non-VA Care (Fee) provider.

**IMPLICATIONS** The finding that Non-VA Care (Fee) provided exceedingly few Pap smears to women Veterans in FY10, combined with the finding that most women saw a VHA primary care provider in FY10, suggests that VHA clinical care has become compliant with VHA policy mandating access to a Comprehensive Women's Health Provider (who can provide primary care and women's health preventive care as part of one-stop shopping).<sup>57</sup> This finding is consistent with women receiving their Pap smears at VHA facilities rather than being sent out to the Non-VA Care (Fee) system. This Sourcebook Volume 2 does not characterize Pap smears performed in VHA; future analyses will examine the accuracy of the hypothesis that women are receiving Pap smears from their VHA providers. Meanwhile, the small number of Pap smears that were performed outside VHA are likely obtained as part of routine obstetrical care, or as part of a Non-VA Care (Fee) gynecologist's follow-up for a woman with a prior finding of cervical dysplasia.

### Other Common Types of Non-VA Care (Fee) Services

Other specific types of care that account for a high volume of services provided through the Non-VA Care (Fee) system include dialysis, home health, and rehabilitation therapy.<sup>58</sup> This section describes these specific types of Non-VA Care (Fee) (data not depicted graphically). The proportion of women Veteran outpatients receiving these specific Non-VA Care (Fee) services is not very high (dialysis: 0.1%; home health: 1.9%; rehabilitative therapy: 2.9%). However, because patients who receive these specific Non-VA Care (Fee) services often receive a very high volume of these types of care, these account for a substantial proportion of the Non-VA Care (Fee) services provided to women.

**Dialysis Non-VA Care (Fee) outpatient services.** Women Veteran outpatients were less likely than men to receive at least one instance of Non-VA Care (Fee) dialysis treatment in FY10 (0.1% vs. 0.2%). Although this amounts to a small percentage of the total VHA Veteran population who received any dialysis in FY10, these Veterans tended to be heavy utilizers, due to the typically chronic nature of renal failure. Among the subset of patients receiving dialysis through Non-VA Care (Fee), 71% of women versus 80% of men received 12 or more instances of dialysis services through Non-VA Care (Fee). Among women Veterans who used dialysis services through Non-VA Care (Fee) in FY10, women who were 65+ years old used, on average, more individual dialysis services during FY10 than did women in the other age groups (18–44: 51.8 services; 45–64: 90.5 services; 65+: 101.1 services).

**Home health Non-VA Care (Fee) outpatient services.** Women Veteran outpatients were also less likely than men to receive at least one Non-VA Care (Fee) home health service in FY10 (1.9% vs. 2.4%). However, among Veteran outpatients who were 65+ years old, a higher proportion of women than men received home health services through Non-VA Care (Fee) (18–44: 0.5% vs. 0.5%; 45–64: 2.1% vs. 2.1%; and 65+: 5.5% vs. 3.2%). Among the women Veterans who used home health services through Non-VA Care (Fee) in FY10, women in the oldest age group (n=2,215), used, on average, more individual home health services during FY10 than did women in the other age groups (18–44: 45.9 services; 45–64: 59.3 services; 65+: 81.6 services). Women Veterans' use of home health did not vary much across urban/rural categories (highly rural: 2.0%; other rural: 1.8%; small urban: 1.9%; and large urban: 1.9%).

**Rehabilitative therapy Non-VA Care (Fee) outpatient services.** A slightly higher proportion of women Veteran outpatients than men used at least one rehabilitative therapy service (such as physical therapy, occupational therapy, etc.) in FY10 through Non-VA Care (Fee) (2.9% vs. 1.9%). Women who were 45–64 years old were slightly more likely than women in other age groups to have received any rehabilitative therapy in FY10 (18–44: 2.6%; 45–64: 3.4%; 65+: 2.3%). Among every age group, a slightly higher proportion of women than men received rehabilitative

57 Veterans Health Administration (2010). Health Care Services for Women Veterans (VHA Handbook 1330.01). Washington, DC: Department of Veterans Affairs.

58 In FY10 Non-VA Care (Fee) outpatient file, among the 33,054,230 total services provided to women Veteran outpatients (a calculation that incorporates the Volume Indicator variable from the Non-VA Care (Fee) file, not just a raw count of records), 4% were dialysis services, 58% were home health services, and 10% were rehabilitation therapy services.

therapy (18–44: 2.6% vs. 2.2%; 45–64: 3.4% vs. 2.3%; and 65+: 2.3% vs. 1.3%). Among women Veterans who used rehabilitative services through Non-VA Care (Fee) in FY10, women who were 65+ years old used, on average, more rehabilitative services than women in the other age groups (18–44: 9.8 services; 45–64: 11.8 services; 65+: 18.2 services).

A higher proportion of women in highly rural areas received any rehabilitative therapy service in FY10 through Non-VA Care (Fee) (highly rural: 6.4%; other rural: 3.8%; small urban: 2.9%; and large urban: 2.2%). Additionally, a higher proportion of women than men received any rehabilitative therapy across each urban/rural category (highly rural: 6.4% vs. 3.7%; other rural: 3.8% vs. 2.2%; small urban: 2.9% vs. 1.7%; and large urban: 2.2% vs. 1.4%).

# Part 5: Technical Appendix

## 1. Data Sources

Data for Sourcebook Volume 2 came from centralized VHA administrative data files. The source files used to create the Sourcebook database are:

**ADUSH:** Monthly VHA Enrollment data files maintained by the office of the Assistant Deputy Under Secretary for Health, containing records of patient characteristics (sex, Veteran status, VHA user status, date of birth, service-connected disability status, etc.). Enrollment files used span an 11-year period from Fiscal Year 2000 through Fiscal Year 2010 (FY00–FY10).<sup>59</sup>

**VHA outpatient encounter files** (SAS Medical Dataset from VHA’s National Patient Care Database, FY00–FY10): The 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. The SF file rolls up 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.).

a. MDPPRD.MDPSAS.SEyy (SE)

b. MDPPRD.MDPSAS.SFyy (SF)

**Non-VA Care (Fee) outpatient encounter file** (FY10): Called “MDPPRD.MDPSAS.FEN.FY10.MED,” the Non-VA Care (Fee) Outpatient File reflects services provided through the Non-VA Care (Fee) care system. It includes services provided by non-VHA providers in FY10 or services provided in prior years that VHA reimbursed in FY10.

**PSSG geographic file** (FY10): Maintained by the Planning Systems Support Group, these data indicate geographic characteristics, including urban/rural status of patients’ residences.

All programming was performed using SAS 9.2<sup>®</sup>, and all programs were independently validated by at least one other data analyst. Data presented in this report were analyzed for program evaluation purposes.<sup>60</sup>

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<sup>59</sup> FY10 is October 1, 2009, through September 30, 2010.

<sup>60</sup> These program evaluation analyses are for non-research purposes. Research publications and presentations derived from these data are covered by an approval by the Stanford University Institutional Review Board and the VA Palo Alto Health Care System Research and Development Service.

## 2. Cohort Creation

Sourcebook Volume 2 reports on characteristics of women and men Veterans<sup>61</sup> who, based on the ADUSH Enrollment File, used VHA for outpatient and/or inpatient care and/or Non-VA Care (Fee) services and/or non-VA contract care and/or pharmacy services at least once in the years being examined, from FY01–FY10.<sup>62</sup>

Starting with the record-level files cited above, we created person-level analytical files with one observation for each person—identified by scrambled Social Security Number—found in the data sources. Our complete Women’s Health Evaluation Initiative (WHEI) Master Database includes the following types of people:

- Users and non-users of VHA care,
- Veterans and non-Veterans, and
- Women and men.

Year-specific variables indicate whether an individual was a VHA user or a Veteran in a given year, since these are characteristics that may legitimately change over time. Single variables were created for sex and date of birth, which are constant across years. Table 2 shows the number of people in the WHEI Master Database in each year examined: The number within the WHEI Master Database who were VHA users (Veterans and non-Veterans combined), and the number within the WHEI Master Database who were Veteran VHA users.<sup>63</sup>

**Table 2. Number of people in WHEI Master Database (overall, and Veteran VHA users) by year**

Fiscal Year	Total in WHEI Master Database (women and men, Veterans and non-Veterans, VHA users and non-users)	Total Veteran VHA users*
2001	6,379,138	3,843,832
2002	7,180,757	4,246,084
2003	7,581,489	4,505,433
2004	7,915,775	4,677,720
2005	8,206,947	4,802,582
2006	8,238,168	4,901,827
2007	8,394,406	4,950,501
2008	8,563,192	4,998,184
2009	8,869,648	5,140,379
2010	9,216,578	5,354,652

\* These numbers include those with missing sex values. For example, in FY10, there are 5,354,652 Veteran VHA users in the WHEI Master Database. This is 759 more people than the 5,353,893 women plus men Veteran users reported in Sourcebook Vol. 2 figures, because of missing data: Gender was not available for 759 Veteran users in FY10.

- 61 Non-Veterans who use VHA services are *not* included in the current report. Previous work (Frayne SM., Yano EM, Nguyen VQ, Yu W, Ananth L, Chiu VY, et al. (2008). Gender Disparities in Veterans Health Administration Care: Importance of Accounting for Veteran Status. *Med Care*, 46(5), 549-553.) has found that nearly half the women in the SE data files are non-Veterans, and the majority of these non-Veterans are employees. Employees appear in the database primarily due to their encounters with Employee Health (e.g., for mandatory tuberculosis screening or for influenza vaccines). Other non-Veterans who use VHA services include some active duty military personnel and some eligible spouses of Veterans. They are not a focus of this Sourcebook Vol. 2.
- 62 Because the ADUSH 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 examined in Sourcebook Vol. 2. In FY10, only 1.0% (3,055) of women Veterans who were identified as VHA users by ADUSH had no utilization of VHA outpatient or inpatient care (and thus were presumably VHA users by virtue of contract or pharmacy services only). Because the analyses in this Sourcebook Vol. 2 do not draw upon VHA’s contract care or pharmacy files, we do not explicitly characterize these types of utilization.
- 63 The definitions of variables for woman, Veteran, and VHA user are intended to replicate as closely as possible the definitions used by the VHA Support Service Center (VSSC) in their data report cubes, so as to maximize compatibility between data appearing in various VHA reports.

### 3. Algorithms for Sociodemographic Characteristics

The WHEI Master Database created for the Sourcebook series includes person-level sociodemographic indicators derived from data in the ADUSH Enrollment file (in some cases supplemented with data from the SE/SF files), for each year from FY00–FY10. These variables include use of VHA services, Veteran status, sex, date of birth, service-connected disability status, and urban/rural status. Data sources are described in Section 1 of this Technical Appendix.

#### 3.1 VHA Users

VHA users were identified from ADUSH files using a year-specific user variable labeled “FYyy,” and the following cost variables:

2001: CNHCOST; FEECOST; LTCCOST; MEDCOST; NVACOST; OPCCOST; PSYCOST; SURCOST  
 2002–2007: DSSCNHCOST; DSSFEECOST; DSSLTCCOST; DSSMEDCOST; DSSNVACOST; DSSOPCCOST; DSSPSYCOST; DSSSURCOST; CNHCOST; FEECOST; LTCCOST; MEDCOST; NVACOST; OPCCOST; PSYCOST; SURCOST  
 2008–2010: 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 a particular fiscal year if both the following were true:

1. “FYyy=1” for the specified year AND
2. Sum of all cost variables is >0 for the specified year.

All others were non-users. The term “user” is synonymous with the term “patient” in this report.

#### 3.2 Veterans

Two methods were employed to identify Veterans (1/0 variable) in each year over the 10-year period. Because true changes in Veteran status can occur, we did not require that Veteran status for a given individual be consistent across years.

FY03–FY10: Identified using variables labeled “PRIO1\_8” and “ELIG.”

A patient is considered a Veteran if either of the following is true:

1. PRIO1\_8 value is NOT missing OR
2. PRIO1\_8 value IS missing, AND the first letter of the ELIG variable value is NOT=“N”

FY01–FY02: In these years, the variable PRIO1\_8 was not available in the ADUSH file. Therefore, we used variables labeled “MATCH” and “ELIG.”

A patient is considered a Veteran if either of the following is true:

1. MATCH NOT=Cost Only, OR
2. The first letter of the ELIG value is NOT=“N”

#### 3.3 Sex

Sourcebook Volume 2 uses the sex variable reported in Volume 1, and updates it with FY10 data. Creating the sex variable reported in Volume 1 for each person involved three steps.

In Step 1, we created a sex variable for each year. Two different ADUSH variables were employed to identify sex (female/male) in each year over the 10-year period.

FY06–FY09: Identified using variable labeled “SEX\_BEST”<sup>64</sup>

FY00–FY05: In the years prior to “SEX\_BEST” becoming available, we used variable labeled “SEX.”

In Step 2, we assigned a single, constant sex value that is applied to each of the 10 years. We did this to address the fact that the sex variable may be missing (not coded) in some years, or that a patient’s sex could be discrepant across years. Specifically, we used the most recent (closest to FY09) non-missing value for sex. This step reduced the number of people who had missing sex values and assured that an individual was assigned the same value for sex in every year. The rationale for using the most recent value is the assumption that more recent values reflect “corrected” values.<sup>65</sup>

In Step 3, we addressed the issue of any remaining instances of missing values for the sex variable. Specifically, for any individuals whose sex value was still missing at the end of Step 2, we assigned the most recent non-missing value of sex from the SF outpatient utilization file.

To update the FY00–FY09 sex variable with FY10 data, we selected individuals who were still missing a sex value after step 3, or appeared for the first time in the VHA administrative data in FY10.

See Section 6.1 for the proportion of people who had at least one instance of discrepant values across the 10-year period. See Section 6.2 for the proportion of people in each fiscal year who were missing sex values at Step 1, at Step 2, and at Step 3.

### 3.4 Age

Creating a definitive age variable for each person involved four steps.

In Step 1, we created a date of birth variable for each year using ADUSH data.

FY06–FY10: Identified using variable labeled “DOB\_BEST”

FY00–FY05: In the years prior to DOB\_BEST becoming available, we used the variable labeled “DOB.”

In Step 2, we assigned a single, constant DOB value that is applied for each of the 11 years for which we had DOB data for our cohort (FY00–FY10). We did this to address the fact that the DOB variable may be missing (not coded) in some years, or that a patient’s DOB could be discrepant across years, or that the patient’s DOB could yield an out-of-range age (while an age of 17 years or 111+ years is theoretically possible, we assumed that the very small number of instances of ages <18 years or >110 years reflected data errors and were thus invalid). Specifically, we used the most recent (closest to FY10) non-missing, within-range value for DOB. This step reduced the number of people who had missing or out-of-range DOB values and assured that an individual was assigned the same value for DOB in every year. The rationale for using the most recent value is the assumption that more recent values reflect “corrected” values.

In Step 3, we addressed the issue of any remaining instances of missing values for the DOB variable. Specifically, for any individuals whose DOB value was still missing at the end of Step 2, we assigned the most recent

<sup>64</sup> Since FY06, the VA Information Resource Center (VIRc) Vital Status files include derived sociodemographic variables (SEX\_BEST, DOB\_BEST, DOD\_BEST). These variables incorporate information from multiple data sources and thus represent more complete/accurate variables. ADUSH files use these variables from FY06 onward.

<sup>65</sup> There were very few cases of discrepant sex in ADUSH: In only 0.12% of cases was there inconsistency in coding of female/male status across years. Instances of a change in the patient’s sex from one year to another year typically reflect data entry errors: The wrong sex is entered one year, and then the error is corrected in a subsequent year. True changes in the patient’s sex (e.g., through sex reassignment surgery) are likely less common. While these databases currently do not allow us to distinguish between data entry errors and true changes in sex, in both cases it seems reasonable to assign the last-recorded sex to the patient. New VHA policies encourage making corrections in the database for transgender patients (Veterans Health Administration [2011]. Providing Health Care for Transgender and Intersex Veterans [VHA Directive 2011-024]. Washington, DC: Department of Veterans Affairs).

non-missing, within-range value of DOB from the SF outpatient utilization file.

In Step 4, we calculated age in a given year by subtracting the DOB from the first day of the fiscal year.

See Section 6.2 for the proportion of people in each fiscal year who were missing DOB value at Step 1, at Step 2, and at Step 3.

### 3.5 Service-Connected Disability Status

The service-connected (SC) disability status variable is based on the variable “SCPER” in the ADUSH file. Like the Veteran variable, SCPER can potentially change across years for legitimate reasons (i.e., if the individual’s SC disability rating changes). If the SCPER variable was populated in ADUSH, we assigned the ADUSH SCPER value to the individual. If the SCPER variable was missing, we considered the individual as not having an SC disability status (i.e., the individual was either a non-SC Veteran, or a non-Veteran), except in the small number of instances where the ELIG variable in ADUSH indicated that the individual was an SC disability-rated Veteran. In the latter case, we counted the SCPER variable as missing, because true SC status could not be resolved. See Section 6.2.c for data quality control checks supporting this approach.

### 3.6 Urban/Rural Status

The urban/rural variable draws on the variable “URH” in the FY10 Planning Systems Support Group (PSSG) geographic file, which indicates the urban/rural status of the last known address in FY10 for each enrollee. PSSG defines its URH variable 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; 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.<sup>66</sup> The urban/rural variable in Sourcebook Volume 2 further subdivides the “urban” category into “large urban” (county is in a Metropolitan Statistical Area with at least 500,000 residents) and “small urban” areas (all other urban areas). In this report, PSSG’s “rural” category is renamed “other rural.”

## 4. Algorithms for VHA Utilization

### Outpatient Utilization

Outpatient utilization variables are derived from the SE outpatient encounter files.

The WHEI Master Database contains a variable counting *total days* on which patients received any VHA outpatient care in FY10. This variable was created for each patient by adding up the number of unique values of the VIZDAY variable in the SE outpatient encounter file. If a patient had multiple VHA encounters on the same date, that day was counted only once.

The WHEI Master Database also contains variables counting the number of VHA *encounters* (rather than days) that patients have within a specific type of care. Clinic “stop codes” (codes indicating clinic type) identify the clinical setting in which the patient received care.<sup>67</sup> This report examines the following specific types of outpatient care:

- **Total Outpatient Care** refers to any type of outpatient care (i.e., all clinic stop codes are considered outpatient care).
- **Face-to-Face Outpatient Care** represents face-to-face care with a clinician (such as primary care visits, mental

<sup>66</sup> Spoon M, et al. 2011. *Rural vs. Urban Ambulatory Health Care*.

<sup>67</sup> “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.



health visits, other specialty care visits, rehabilitation care visits, etc.). Other types of encounters that do not involve a face-to-face visit with a clinician (such as lab tests, radiology tests, and telephone encounters) are not included in this type of care.

- **Primary Care Clinic** refers to primary care received in a general medical clinic or equivalent setting. In addition to providing preventive care and care for gender-neutral conditions, such clinics sometimes provide gender-specific care to women (such as cervical cancer screening and breast exams), and sometimes refer women to a different clinic for gender-specific services.
- **Women’s Health Clinic**<sup>68</sup> refers to primary care services received in a clinic designed specifically for women. Such clinics sometimes provide comprehensive primary care services to women (i.e., preventive health care, care for gender-neutral conditions, and care for gender-specific conditions) and sometimes provide care only for gender-specific conditions (such as cervical cancer screening and breast exams for women who get most of their primary care in non-gender-specific Primary Care Clinics). Note: There is variability in how different VA facilities code primary care for women. Prior work has quantified this variability by examining the percent of women at a facility who had at least one women’s health clinic visit (stop code 322). In FY09, this percent ranged from 0–69% across facilities. Some facilities known to have women’s health clinics had no patients with 322 coded, suggesting variability in how the code was used and interpreted.<sup>69</sup> This is consistent with the fact that, since 2005, a number of facilities are known to have coded primary care received in women’s health clinics with codes that fall under the primary care definition employed here. This leads to an important caveat about women’s health clinic data in this report: While estimates of “Total Primary Care” (the sum of primary care and women’s health clinic) are reliable, the proportion of that care occurring in women’s health clinics cannot be estimated with confidence at present. Changes in coding procedures for women’s health clinic are expected to improve the interpretability of future data for this specific type of care.
- **Gynecology Care** refers to gynecology clinic and ambulatory surgery clinic for women.
- **Mental Health/Substance Use Disorder (SUD) Care** refers to care received in mental health or SUD clinics (e.g., psychiatric visits, psychology visits, individual or group therapy, substance use disorder treatment, and mental health/SUD rehabilitation treatment programs). Note: This category does not include services provided for mental health conditions or SUDs by primary care providers. Screening for these conditions occurs in primary care settings, and patients may receive pharmacotherapy or brief interventions for these conditions from primary care providers as well.
- **SUD Care** refers to treatment received in specialty clinics for substance use disorders. SUD care represents a subset of the care category above (Mental Health/SUD care). Note: This category does not capture SUD care provided in general mental health clinics.

For each type of care, we created in the WHEI Master Database a count of the total number of encounters occurring for a patient in one fiscal year (for each year FY00–FY10), 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, representing erroneous double-entry of a record), 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 but the lab visit would count toward the “face-to-face outpatient care” tally, and the primary care visit would count toward the “primary

68 The women’s health clinic stop code is officially described in the FY10 VHA coding manual as: “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 at separate but shared space Women’s Health clinics, or Comprehensive Women’s Health Centers. Subspecialty services may also be provided in the same physical location.”

69 Herrera L, et al. 2010. *Can Stop Codes Identify Women’s Health Care?* VA HSR&D poster presentation.

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). The frequency of duplicate records is described in Section 6.4.

**Outpatient variables stop codes.** The specific clinic stop codes from the SE file (CL variable) used to create counter variables for each type of care are listed here.

#### 4.1 Outpatient care encounters

Any stop code.

#### 4.2 Face-to-face outpatient care encounter

101,102,116,117,118,119,121,122,123,124,125,130,131,144,149,152,153,156,157,159,160,165,170,171,172,173,174,175,176,177,180,185,186,187,188,190,191,195,196,197,198,201,202,203,204,205,206,209,210,211,214,215,217,218,219,220,230,290,291,292,293,294,295,296,301,302,303,304,305,306,307,308,309,310,311,312,313,314,315,316,317,318,319,320,321,322,323,327,328,329,330,331,332,333,334,335,336,337,348,349,350,351,352,370,372,373,394,401,402,403,404,405,406,407,408,409,410,411,412,413,414,415,416,418,419,420,422,426,427,429,430,431,432,433,434,435,436,437,438,439,457,480,501,502,503,504,505,506,509,510,512,513,514,516,519,520,521,523,524,525,529,531,532,533,534,538,540,547,550,551,552,553,554,556,557,558,559,560,561,562,563,564,565,566,567,568,571,572,573,574,576,577,578,580,581,582,583,589,590,591,593,594,595,596,602,603,604,606,607,608,610,650,651,652,653,654,655,656,658,681,691,704,707,708,709,712,713,716,718,725,726,727,728,730,731

In addition, the count of face-to-face encounters excludes records where the Current Procedural Terminology (CPT) code is between 80048 and 89399 (laboratory codes) for all non-missing SE variables CPT1 through CPT20.

#### 4.3 Primary care clinics (other than Women’s Clinic)

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)
210	Spinal Cord Injury
301	General Internal Medicine
318	Geriatric Clinic
319	Geriatric Evaluation and Management (GEM) Clinic
323	Primary Care Medicine <sup>70</sup>
348	Primary Care Group
350	Geriatric Primary Care
563	Mental Health Primary Care Team-Group
531	Mental Health Primary Care Team-Individual
704	Pap Smear clinic

<sup>70</sup> 323 is the stop code most commonly used for primary care clinics.

**4.4 Women's health clinics**

322 Women's Clinic

**4.5 Gynecology care**

404 Women's Specialty Care

426 Women's Surgery

**4.6 Mental health care clinics**

125 Social Work

156 Home Based Primary Care-Psychologist

157 Home Based Primary Care-Psychiatrist

165 Bereavement Counseling

173 Home-Based Primary Care-Social Work

292 Observational Psychiatry

501 Homeless Mentally Ill

502 Mental Health - Individual

503 Mental Health Residential Care

504 Intensive Psychiatric Community Care Medical Center VI

505 Day Treatment - Individual

506 Day Hospital - Individual

509 Psychiatry - Individual

510 Psychology (PSO) - Individual

512 Mental Health Consultation

516 Post Traumatic Stress Disorder Group

519 Substance Use Disorder/Post Traumatic Stress Disorder Teams

524 Active Duty Sex 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

538 Psychological Testing

539 Mental Health Integrated Care Group

540 Post Traumatic Stress Disorder Clinical Team - Individual

550 Mental Hygiene - Group

551 Intensive Psychiatric Community Care Community Clinic

552 Mental Health Intensive Case Management

553 Day Treatment - Group

554 Day Hospital - Group

557 Psychiatry - Group

558 Psychology - Group

559 Psycho/Social Rehab - Group

561 Post Traumatic Stress Disorder Clinical Team- Group

562 Post Traumatic Stress Disorder - Individual

564 Mental Health Team Case Management

565 Mental Health Medical Care Only - Group

566 Mental Health Risk-Factor-Reduction Education - Group

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
576	Psychogeriatric Clinic - Individual
577	Psychogeriatric Clinic - Group
578	Psychogeriatric Day Program
580	Post Traumatic Stress Disorder Day Hospitalization
581	Post Traumatic Stress Disorder Day Treatment
582	Psychosocial Rehabilitative and Recovery Center-Individual
583	Psychosocial Rehabilitative and Recovery Center - Group
588	Residential Rehabilitation Treatment Programs Aftercare Individual
589	Non-Active Duty Sexual Trauma
591	Incarcerated Veterans Reentry
592	Veterans Justice Outreach
598	Residential Rehabilitation Treatment Programs Pre-Admit Individual
599	Residential Rehabilitation Treatment Programs Pre-Admit Group
713	Gambling Addiction
725/593	Residential Rehabilitation Treatment Programs Outreach Services
726/594	Residential Rehabilitation Treatment Programs Aftercare – Community
727/595	Residential Rehabilitation Treatment Programs Aftercare – VA
728/596	Residential Rehabilitation Treatment Programs Admission Screening Services
730	Residential Rehabilitation Treatment Programs – General Care

**4.7 Substance use disorder (SUD) care clinics**

513	Substance Use Disorder - Individual
514	Substance Use Disorder Home Visit
523	Opioid Substitution
547	Intense Substance Use Disorder - Group
548	Intense Substance Use Disorder - Individual
556	Alcohol Treatment - Group
560	Substance Use Disorder – Group

NOTE: Clinic stop code 519 “Substance Use Disorder/Post Traumatic Stress Disorder Teams” is not included in the SUD category because we are unable to determine which visits represent SUD care and which represent Post Traumatic Stress Disorder care; instead, it is counted in the broader “Mental health care clinics” category.

## 5. Algorithms for Non-VA Care (Fee) Utilization

### Non-VA Care (Fee) Utilization

Non-VA Care (Fee) utilization variables are derived using the FY10 Non-VA Care (Fee) outpatient data file.

NOTES ABOUT NON-VA CARE (FEE) DATA: Differences in organization between the FY10 Non-VA Care (Fee) outpatient data file and the FY10 VHA outpatient data require additional processing to create utilization variables for this report. This processing as well as the decisions behind the processing, are summarized below.

The FY10 Non-VA Care (Fee) outpatient data file includes only services that were reimbursed by VHA in FY10. Table 3 shows three possible combinations of the year in which a service was provided and the year in which the service was reimbursed (and appeared in Non-VA Care [Fee] outpatient data).

Scenario 1 shows a service both provided and reimbursed in FY10.

Scenario 2 shows a service provided in FY09 but which appeared in the FY10 Non-VA Care (Fee) file rather than FY09 Non-VA Care (Fee) file due to a lag between service provision and service reimbursement,<sup>71</sup> and thus we consider it an “extra” service in the FY10 Non-VA Care (Fee) file.

Scenario 3 shows a similar lag, where the service was provided in FY10 but was reimbursed in FY11; this service appears in the FY11 file but not in the FY10 file, and thus we consider it “excluded” from the FY10 Non-VA Care (Fee) file.

**Table 3. Three scenarios observed in FY10 Non-VA Care (Fee) outpatient data**

<b>X</b> = Record reimbursement date, indicating the fiscal year of Non-VA Care (Fee) file in which record appears. <b>↓</b> = Fiscal year in which service occurred.			
Combination 1: Service provided in FY10 and appears in FY10 Non-VA Care (Fee) file		<b>↓X</b>	
	FY09	FY10	FY11
Combination 2: Service provided in FY09 and appears in FY10 Non-VA Care (Fee) file (“extra”)	<b>↓</b>	<b>X</b>	
	FY09	FY10	FY11
Combination 3: Service provided in FY10 and appears in FY11 Non-VA Care (Fee) file (“excluded”)		<b>↓</b>	<b>X</b>
	FY09	FY10	FY11

WHEI decided to create Non-VA Care (Fee) utilization variables based on care reimbursed in FY10 on the basis of two justifications: First, for administrative purposes, it may be useful to track the volume of services that were reimbursed in FY10, rather than the services that were provided in FY10. Second, for program evaluation purposes, volume of services reimbursed in FY10 appears to be an acceptable proxy for services provided in FY10. WHEI estimates that the number of “extra” services in the FY10 file (those provided prior to FY10 but reimbursed in FY10) will compensate for the “excluded” services in the FY10 file (those provided in FY10 but reimbursed after FY10). However, annual increases in the numbers of Veterans in VHA and corresponding increases in service volume each year may mean that the number of FY10 services “excluded” exceeds the number of “extra” FY09 services included. Therefore, approximating services provided in FY10 using the FY10 Non-VA Care (Fee) outpatient data probably somewhat undercounts the services actually provided in Non-VA Care (Fee) in FY10.

<sup>71</sup> In the raw FY10 Non-VA Care (Fee) outpatient file, 74% of records reflect FY10 care, 25% reflect FY09 care, and 1% reflect care prior to FY09. See Technical Appendix Section 6.5 for further description quantifying records reflecting treatment from prior years.

In addition, before creating day- and person-level service count variables, WHEI modified the raw record-level Non-VA Care (Fee) data to improve the accuracy of the final variables in three ways:

1. To only count services for which the data indicate a positive, non-missing payment amount.
2. To ensure that “multiple records” were counted only once (where the same person received the same service from the same provider on the same day), and
3. To account for the “VOLUMIND” in Non-VA Care (Fee) data, which counts how many times a service occurs.

These three modifications are explained below.

**Payment amount.** Records in the FY10 Non-VA Care (Fee) outpatient data listing a service (CPT variable) but not specifying a payment amount (i.e., DISAMT variable value missing or equal to 0), were removed as the first processing step. This was done because this report focuses primarily on services reimbursed by VHA. It also increases consistency between the service count data reported in Sourcebook Volume 2 and Non-VA Care (Fee) cost data to be reported in future WHEI publications. Some people in the FY10 Non-VA Care (Fee) outpatient file had only records where DISAMT was either missing or equal to 0. Due to this processing step, these people were removed from the file (n=2,585 people, or 0.04% of Veteran patients).

**Multiple records.** WHEI’s initial investigation of the FY10 Non-VA Care (Fee) outpatient file revealed that over 1 million records appeared to be part of a set of multiple records (i.e., more than one record where the same person received the same service (CPT variable) from the same provider (NPI and VENDID variables) on the same day (TREATDAY variables). To avoid over-counting services, WHEI identified three categories of duplicate record sets:

1. Where additional records showed a second “part” of the same service, as indicated by a CPT modifier in the MOD variable of the Non-VA Care (Fee) data (e.g., a record set might include one record for the professional component and another for the technical component of an x-ray; another record set might include one record for an arthroscopic surgery on the left knee and another for the same surgery on the right knee, with the surgeries occurring in tandem).
2. Where additional records showed additional quantities (e.g., volume of a drug or saline solution, minutes of a physical therapy visit, or miles of emergency transport, etc.).
3. Where additional records showed additional administrative processing or re-processing (e.g., due to a payment adjustment, etc.)

WHEI determined that despite being on different rows of data, each of the multiple records represented a part of a single service. Regardless of how many multiples there were, WHEI added the costs across the multiple records so that cost information in the original records would be captured for future work. Ultimately, however, the data retained only one record from each set of multiple records. This processing reduced the number of records used in counts of services from 21,572,933 to 19,735,958.

NOTE: Data processing related to multiple records changed the number of records but did not change the total number of people in the Non-VA Care (Fee) data. Technical Appendix Section 6.6 presents a flow chart containing the number of records resolved at each step of multiple record processing.

**Volume indicator.** One feature that distinguishes the way utilization records are recorded in Non-VA Care (Fee) versus VHA data is that in Non-VA Care (Fee) data, the number of “units” of a service is recorded in a variable called “VOLUMIND.” This variable’s values indicate how many times a service is repeated over a month. A record

for a patient who had six physical therapy sessions in a month might have a VOLUMIND=6, (assuming the same CPT code was used in each session).<sup>72</sup> By condensing the information from six nearly identical records into a single record, the VOLUMIND variable economized data space, but also posed challenges to obtaining accurate counts of service use. In particular, this characteristic of the data structure affects creation and interpretation of the counts of days of Non-VA Care (Fee) and the counts of Non-VA Care (Fee) service variables.

The VOLUMIND obscured information about the days of care, leading to underestimates in the day count variable. When VOLUMIND=1, there was no ambiguity: The specified service was provided one time on the specific day recorded. However, when the VOLUMIND value was greater than 1, then multiple services could be concentrated on one single day or could be dispersed across different days. It is not possible to tell which scenario occurred for any given record. For example, a record with January 15, 2010, as the date of service and 15 minutes of physical therapy services as the type of service might indicate that the number of units of services provided was six. It is not possible to distinguish whether these units of service refer to the date of the record (e.g., in this case, that six 15-minute physical therapy services occurred on January 15, 2010) versus whether some of these services occurred later in the month (e.g., perhaps two of these 15-minute services occurred on January 15, 2010, and the remaining four 15-minute services were distributed later in the month). Without knowing the true number of days on which Veterans received Non-VA Care (Fee) services, it was not possible to accurately count all days of service on which care was provided. WHEI did not attempt to address this when creating the day count variable, and thus the resulting variable undercounts the true number of days on which Non-VA Care (Fee) was provided.

WHEI's service count variables, which count the number of Non-VA Care (Fee) services received by each Non-VA Care (Fee) patient, were calculated by summing together each person's VOLUMIND values across the person's records. These count variables were therefore highly dependent on VOLUMIND values. If the VOLUMIND was entered incorrectly into the data system (either too large or too small), the number of services reported by the WHEI service count variables either under or over count services. An early investigation found that in FY10, 260,954 Non-VA Care (Fee) records had a VOLUMIND larger than 100, and 2,799 Non-VA Care (Fee) records had a VOLUMIND larger than 1,000. Although a high volume may be reasonable for some types of care (e.g., multiple units of drugs or supplies, etc.), for other types of care it is likely unreasonable (e.g., biopsy, most surgical procedures, etc.).

For records with a VOLUMIND greater than 1, WHEI developed a hierarchy of rules that identify records that likely contain data entry errors and created a modified VOLUMIND variable that was used to calculate best estimates for the final service count variables. This section provides a text summary of the steps used to modify the VOLUMIND, while the Technical Appendix Section 6.7 documents the steps in greater detail.

The WHEI-modified Volume Indicator value was set to 1 when the original VOLUMIND contained the same numerical values as the diagnosis code, payment amount, or CPT procedural code (these were ruled to be data entry errors) (n=17,940 records)<sup>73</sup>, or when the CPT code indicated an anesthesia service (n=432,478). For remaining records with VOLUMIND greater than 1, WHEI divided each record's cost (payment amount variable in the Non-VA Care [Fee] data) by the number of units (VOLUMIND) to calculate an observed unit cost, which could then be compared to an expected unit cost for the specific service.<sup>74</sup> When there was a substantially smaller observed unit cost than expected (n= 1,418,672 records), we hypothesized that either the recorded payment was smaller than the actual payment or the recorded number of units (VOLUMIND) was bigger than the actual number of units.

<sup>72</sup> Alternatively, the same six physical therapy visits could each be recorded in a separate record, each with a VOLUMIND of 1.

<sup>73</sup> For example, if the CPT code was 97853 and the VOLUMIND was 97853, the VOLUMIND was judged a data entry error and reset to 1.

<sup>74</sup> Phibbs CS, Scott JY, Flores NE, Barnett PG. HERC's Outpatient Average Cost Dataset for VA Care: Fiscal Year 2010 Update. Guidebook. Menlo Park, CA. VA Palo Alto, Health Economics Resource Center; 2011.

Since we assumed that the payments recorded in the file were correct, the latter situation was considered to be the more likely explanation for the unreasonably low unit cost. Therefore, in these records the VOLUMIND values were considered data entry errors, and the modified VOLUMIND value was set to 1.<sup>75</sup> An additional handful of remaining records (n=3,334) with original VOLUMIND greater than 1 were also given modified Volume Indicators equal to 1 because their original values seemed to indicate more service than a single person could receive in a month (e.g., a code that indicates “per diem” being provided more than 31 times in a month). It is probable that by employing these rules, some records without data entry errors were erroneously modified, with the overall effect of undercounting total services. However, WHEI believes the modifier rules result in more reliable results than if no modifications had been made to the VOLUMIND value.

Unlike in the examples of correcting data entry errors discussed above, when the CPT code was a drug, supply, dental procedure, or travel distance, the modified Volume Indicator was also set to 1. These are services that can legitimately be provided in multiple units, but we did not want to count each individual unit as a distinct service (n=1,543,334 records). For a complete list of steps applied to create a modified Volume Indicator, see Section 6, Data Quality Control.

NOTE: The processing done by WHEI to modify the Volume Indicator variable did not change the number of records or the number of people in the raw Non-VA Care (Fee) data.

**Counting days of Non-VA Care (Fee) and counts of Non-VA Care (Fee) services.** The WHEI Master Database contains a variable that counts total days on which patients had any Non-VA Care (Fee) outpatient care in the FY10 file. This variable was created for each patient by adding up the number of unique values of the TREATDAY variable in the FY10 Non-VA Care (Fee) outpatient file after the file processing steps were completed. If a patient had multiple services on the same date, that day was counted only once for this variable. Also not counted were days where the CPT code was invalid for FY10 (n=44 records).

In addition to days of Non-VA Care (Fee), the WHEI Master Database has a single variable that counts the number of days on which either *VHA* or *Non-VA Care (Fee)* was used. This is the most accurate count we can provide for total aggregate care across VHA and Non-VA Care (Fee), since number of days provides a common quantifiable unit (rather than trying to aggregate across clinic stop encounters in VHA and CPT-based services in Non-VA Care [Fee]). In creating this variable, any day on which a patient used VHA care counts as “one day,” and any day on which a patient used Non-VA Care (Fee) counts as “one day.” If a patient uses both VHA and Non-VA Care (Fee) on the same day, then that day is counted only once.

The WHEI Master Database also contains variables counting the number of Non-VA Care (Fee) services received (rather than days) within a specific type of care. CPT procedural codes (the system used to facilitate medical care reimbursement outside of VHA) identify the type of service the patient received. Sourcebook Volume 2 reports total Non-VA Care (Fee) outpatient care, measured by a variable that counts any service that appears in the processed FY10 Non-VA Care (Fee) outpatient file. It also examines care across the following 10 specific categories, described in the next section.

<sup>75</sup> There were also cases where the observed unit cost was larger than the expected unit cost (i.e., recorded payment larger than actual payment or recorded number of units (VOLUMIND) smaller than the actual number of units). In these cases, setting the modified VOLUMIND to 1 would have worsened the problem, so the VOLUMIND was not modified for these records.



## Categorization of all CPT Codes into Broad Categories

The 10 broad groups below comprehensively classify all services defined by the Current Procedural Terminology (CPT) system. Further, each CPT code is mapped to only one group.

1. **Evaluation and Management Services** refer to visits (i.e., office, home, or hospital visits, and consultations) with a primary care physician or specialist. This category also includes care received in the emergency department. The highest-frequency CPT codes in this category for women Veterans were: (1) Home visit for the evaluation and management of an established patient, self limited/minor (99347) (n=23,932 instances of the code); (2) Office or other outpatient visit for the evaluation and management of an established patient, 15 minutes (99213) (n=14,991); and (3) Emergency department visit for the evaluation and management of a patient, high severity/urgent evaluation (99284) (n=9,387).
2. **Medical Care** encompasses a wide range of services including immunizations; dialysis; gastroenterology; ophthalmology; cardiology; neurology and neuromuscular procedures; and physical medicine and rehabilitation services, etc. This broad group category also includes non face-to-face non-physician services, such as telephone services and home health services provided by non-physician health care professionals. It does not include non-clinical home health services (often provided by aides or other allied health care providers). The highest-frequency CPT codes in this category for women Veterans were: (1) Home visit for assistance with activities of daily living and personal care (99509) (n=100,830 instances of the code); (2) Therapeutic procedure, one or more areas, each 15 minutes; therapeutic exercises (97110) (n=98,668); and (3) Manual therapy techniques, one or more regions, each 15 minutes (97140) (n=39,833).
3. **Surgery and Anesthesia** includes care involving surgical or anesthesia procedures. This category also includes maternity care; delivery-related services; and venipuncture. The highest-frequency CPT codes in this category for women Veterans were: (1) Collection of venous blood by venipuncture (36415) (n=10,948 instances of the code); (2) Fetal non-stress test (59025) (n=3,558); and (3) Colonoscopy, flexible, proximal to splenic flexure; diagnostic (45378) (n=2,268).
4. **Behavioral Health** refers to care received for the purpose of assessing and/or treating mental health conditions. The highest-frequency CPT codes in this category for women Veterans were: (1) Behavioral health day treatment, per hour (H2012) (n=3,005 instances of the code); (2) Pharmacologic management, including prescription, use and review of medication with no more than minimal medical psychotherapy (90862) (n=2,376); and (3) Group psychotherapy (other than of a multiple-family group) (90853) (n=1,947).
5. **Dental** refers to services provided by or overseen by a dentist. The highest-frequency CPT codes in this category, for women Veterans, were: (1) Dental prophylaxis adult (D110) (n=1,415 instances of the code); (2) Comprehensive oral evaluation, new or established patient (D0150) (n=1,386); and (3) Intraoral peri-apical first film (D0220) (n=1,220).
6. **Laboratory** refers to laboratory and pathology services provided by a physician or by technologists under physician supervision. The highest-frequency CPT codes in this category for women Veterans were: (1) Blood count, complete (CBC), automated (Hgb, Hct, RBC, WBC and platelet count) and automated differential WBC count (85025) (n=13,740 instances of the code); (2) Drug screen, qualitative; single drug class method, each drug class (80101) (n=10,598); and (3) Molecular diagnostics, amplification, target, each nucleic acid sequence (83898) (n=10,211).

7. **Radiology** includes all diagnostic radiology, ultrasound, and nuclear medicine (including mammography and bone/joint studies) and radiation oncology. The highest-frequency CPT codes in this category for women Veterans were: (1) Computer-aided detection with further physician review for interpretation, with or without digitization of film radiographic images; screening mammography (77052) (n=56,681 instances of the code); (2) Screening mammography, producing direct digital image, bilateral, all views (G0202) (n=44,487); and (3) Screening mammography, bilateral (two view film study of each breast) (76092) (n=23,504).
8. **Drugs** include pharmaceuticals, administered solutions, and some medical supplies. The highest-frequency CPT codes in this category for women Veterans were: (1) Injection, Epoetin Alfa, 100 units (for ESRD on dialysis) (Q4081) (n=6,647 instances of the code); (2) Injection, Paricalcitol, 1 mcg (J2501) (n=5,657); and (3) Injection, Heparin Sodium, per 1000 units (J1644) (n=3,755).
9. **Supplies** include hospital supplies that do not add therapeutic value (e.g., syringes, needles, surgical masks, dressings, etc.). The highest-frequency CPT codes in this category for women Veterans were: (1) Supplies and materials (except spectacles), provided by the physician over and above those usually included with the office visit or other services rendered (list drugs, trays, supplies, or materials provided) (99070) (n=3,208 instances of the code); (2) Syringe, with or without needle, each (A4657) (n=2,657); and (3) Low osmolar contrast material, 300-399 mg/ml iodine concentration, per ml (Q9967) (n=1,360).
10. **Other** includes transport (e.g., by ambulance) and miscellaneous measures, procedures, and services. This category also includes non-clinical home health services, such as homemaker services and respite care. The highest-frequency CPT codes in this category for women Veterans were: (1) Services of a Home Health Aide in home health setting, each 15 minutes (G0156) (n=416,885 instances of the code); (2) Home Health Aide or Certified Nurse Assistant, providing care in the home, per hour (S9122) (n=144,429); and (3) Homemaker service, NOS, per 15 minutes (S5130) (n=74,025).

WHEI selected these groups by starting with the CPT categories found in the 2010 CPT codebook<sup>76</sup> (i.e., Evaluation and Management Services, Medical, Surgery, Anesthesia, Laboratory, and Radiology) and then supplemented with commonly occurring groups within the Healthcare Common Procedure Coding System (HCPCS) (i.e., Drugs, Supplies, and Dental services). WHEI created the “Behavioral Health” broad group to distinguish behavioral health services from Medical care, aggregated Surgery and Anesthesia into a single group (because those services are frequently expected to be provided during the same encounter), and added an “Other” broad group to catch all codes that did not fit in an existing group.

To map each of the 10,876 CPT codes<sup>77</sup> to a group, WHEI began with the existing mapping documented in the 2010 CPT codebook. CPT codes that were previously included in the Psychiatry subsection of the Medicine section of the CPT codebook were moved to the Behavioral Health broad group category. HCPCS codes were first divided among the most commonly occurring HCPCS groups based on letter in the first position of the five-digit code. For example, HCPCS codes beginning with a “J” (n=557 codes) were placed in the “Drugs” broad group category; D codes (n=498) in Dental; and E codes (n=158), K codes (n=9), and L codes (n=310) were mapped to Supplies. The remaining codes were assigned to a group manually based on the code description. For example, C1879, “Tissue Marker, Implantable,” was mapped to Supplies while C8906, “MRI with contrast, breast, bilateral,” was mapped to Radiology. Finally, clinical reviewers examined the classifications and resolved uncertain classifications using clinical judgment.

<sup>76</sup> American Medical Association. *Current Procedural Terminology (CPT®) 2010 Professional Edition*.

<sup>77</sup> Codes were counted if they appear in the FY09 or FY10 Non-VA Care (Fee) outpatient data file. Not all codes that appear in the CPT codebook are classified, although the codebook was referenced for the majority of code classifications.

## Categorization of a Subset of CPT Codes into Specific Types of Care Categories

WHEI further created service count variables to examine specific types of care of particular interest and reported these counts as 0 if the count was 0 and “any service” if the count was greater than or equal to 1. These types of care were selected to capture two types of gender-specific preventive health services (mammography-related services and Pap smears) and three outpatient services that appeared particularly frequently in Non-VA Care (Fee) records (dialysis, home health, and rehabilitative therapy).

1. **Mammography.** Mammography and related services include screening mammography, diagnostic mammography, breast ultrasound, and breast MRI procedures. Main results report women with either a screening or diagnostic mammography CPT code. Potential mammography codes were first selected using a text search for the terms “mammogram, mammo, mamm, mast, brst, and breast” in the CPT descriptions of all CPT codes that appeared in the FY09 or FY10 Non-VA Care (Fee) outpatient file. We then added to this master candidate codes list all codes classified as “mammography” in the FY11 Clinical Classifications Software (CCS: Agency for Healthcare Research and Quality, Rockville, MD). Next we reviewed the CPT codebook for any missed CPT codes numerically close to the selected master list of candidate codes. Clinical experts reviewed the master list of candidate codes and selected codes for each of these categories: Screening mammography, diagnostic mammography, breast ultrasound, and breast MRI. This process yielded 23 mammography and related breast radiology CPT codes.

### CPT codes:

Screening mammography: 76083, 76084, 76085, 76092, 77052, 77057, G0202, G0203, S8075

Diagnostic mammography: 76082, 76090, 76091, 77051, 77055, 77056, G0204, G0205, G0206, G0207, G0236

Breast Ultrasound: 76645

Breast MRI: 77058, 77059

2. **Pap Smear (i.e., cervical cancer screening).** Pap smear services are further divided into procedures for collecting a Pap smear specimen in the office (by a clinician) and procedures for processing the specimen in the laboratory (review and interpretation of the specimen by a technologist and/or pathologist). The main results in this report are for women with indication of a “collection of Pap smear specimen,” rather than indication of “processing of Pap smear specimen.” The process of identifying Pap smear codes was similar to the process of identifying mammography-related codes. The terms used in the text search were “Pap, cervical, cerv, vag, and smear.” The FY11 CCS file was not used for code identification, because it does not contain a category for cervical cancer screening. However, we reviewed the Cytopathology section of the 2011 CPT codebook,<sup>78</sup> and added codes from that source to our list of candidate codes. This initial round of classification identified two “collection of Pap smear specimen” and 24 “processing of Pap smear specimen” CPT codes. After reviewing exploratory data with clinical experts and a discussion regarding clinician coding procedures for Pap smears performed in the clinic setting, we modified our Pap smear algorithm to account for the fact that sometimes an ICD9 code (rather than a CPT code) is used to identify performance of a Pap smear. In the final algorithm, a woman was considered to have had a Pap smear if (a) she had at least one instance of a “collection of Pap smear specimen” CPT code, or (b) she had at least one instance of a Pap smear ICD9 code that was recorded in the same visit that one of the following Evaluation and Management CPT codes was recorded.

<sup>78</sup> American Medical Association. *Current Procedural Terminology (CPT®) 2011 Professional Edition*.

**CPT codes:**

Collection of Pap smear specimen CPTs: G0101, Q0091

Collection of Pap smear specimen (ICD9 plus E&M CPT code in same record):

ICD9s: V67.01, V72.3, V72.31, V72.32, V76.2, V76.47

E&M CPTs: 99201, 99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99281, 99282, 99283, 99284, 99285, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350, 99354, 99355, 99356, 99357, 99384, 99385, 99386, 99387, 99394, 99395, 99396, 99397, 99401, 99402, 99403, 99404, 99429, 99499

Processing of Pap smear specimen CPTs: 88141, 88142, 88143, 88147, 88148, 88150, 88152, 88153, 88154, 88155, 88164, 88165, 88166, 88167, 88174, 88175, G0123, G0124, G0141, G0143, G0144, G0145, G0147, G0148

3. **Dialysis** services refer to any dialysis-related supplies, services or procedures.
4. **Home health** services include health care provided in the patient's home.
5. **Rehabilitative therapy** includes therapeutic treatment services to help patients recover or regain functioning.

## 6. Data Quality Control

### 6.1 Consistency

*Within-year consistency.* We confirmed that ADUSH variables (FYyy, ELIG, MATCH, PRIO1\_8, SEX, SEX\_BEST, DOB, DOB\_BEST, and SCPER) had consistent values for an individual within any given year. This allowed us to create datasets with a single record each year for each person out of multi-record ADUSH files without needing to reconcile within-year discrepant values.

*Cross-year consistency of sex variable.* Each individual in the database has between 1 and 11 different year-specific sex variables, depending on the number of years in which he/she was in the annual ADUSH files (FY00–FY10). We investigated how many people had inconsistent values for sex. We calculated the proportion of all patients in the database (FY01–FY10) whose records were either all consistent (100%), mostly consistent (51–99% of records indicate one sex), or consistent half the time (50% of records indicate one sex).

The results are shown in Table 4. Very few cases of discrepant sex occurred; in only 0.1% of cases was there inconsistency in coding of female/male status across years. Most instances of a change in the patient's sex from one year to another year probably reflect data entry errors: The wrong sex is entered one year, and then the error is corrected in a subsequent year. True changes in the patient's sex (e.g., through gender reassignment) are likely less common. While these databases do not allow us to distinguish between data entry errors and true changes in sex, in both cases it seems reasonable to assign the last-recorded sex to the patient.

**Table 4. Percent of individuals in database, by cross-year consistency of sex variable, FY01–FY10<sup>79</sup>**

	Consistency across 10 years (FY01–FY10)		
	100%	51–99%	50%
SEX	99.88	0.10	0.02

**Note:** Inconsistency levels of the sex variable reflect the data before a single, cross-year sex variable was created, i.e., this data check occurred at Step 1 of the sex variable creation process (see Table 5). In Table 4, "100%" means that 100% of records were consistent, "51–99%" means that 51–99% of records were consistent, and "50%" means that an equal number of records listed the patient as female or male.

<sup>79</sup> The WHEI database spans FY00–FY10. For creation of some variables, the full FY00–FY10 period is used, e.g., for checks of cross-year data consistency in sex and date of birth. However, for parsimony, multi-year data tables in Part 5 focus on only the period FY01–FY10.

Although the proportion of people in the database with inconsistent sex values is small, accurately ascertaining whether patients are female or male is critical to the mission of this report. Section 3.3 describes the algorithm used to improve consistency and completeness in the sex variable.

## 6.2 Missing Data

Missing data were assessed for all analytical variables. Tables 5 and 6 show the number and proportion of people in the database who were missing data for the final sex and the final age variables in each fiscal year from FY01–FY10.<sup>80</sup> Table 7 shows the number and proportion of people in the database who were missing data for service-connected disability status in each fiscal year from FY01–FY10. Table 8 shows the number and proportion of Veteran VHA users who were missing population density data for FY10, by sex. None of the individuals in our cohort of Veteran users of VHA services were missing data for the Veteran variable or for the variable indicating whether the patient was a user of VHA care.

Table 5 shows the proportion of observations that are missing sex in each year before we completed steps to supplement from other years of ADUSH data and the SF file (see Section 3.3 for more explanation of these steps). These steps reduced the number of people who were missing a sex value in the final analytical variable. It is important to note that the count of women and men in our cohort does not include the small group of patients (n=759 in FY10) whose sex could not be determined.

**Table 5. Number of individuals (among Veteran VHA user cohort—women and men) missing a sex value in each fiscal year, by step of sex variable creation algorithm**

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Step 1: Year-specific sex value	# missing	60,964	93,835	66,547	90,840	79,310	243	384	1,521	1,421	2,259
	(%)	1.6%	2.2%	1.5%	1.9%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Step 2: Single sex value	# missing	18,882	10,890	7,015	9,970	6,875	168	245	322	349	2,250
	(%)	0.5%	0.3%	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Step 3: Supplement with SF	# missing	9,917	3,063	1,588	3,289	829	167	244	278	332	759
	(%)	0.3%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

**Key:** VHA—Veterans Health Administration; SF—NPCD Outpatient utilization file

**Note:** In Step 1, we created a sex variable for each year using ADUSH data. In Step 2, for people who were missing a sex value in a given year, we assigned the most recent non-missing sex value from the ADUSH file. In Step 3, we assigned the most recent non-missing sex value from the SF outpatient utilization file. For example, 60,964 people (1.6% of Veteran patients in FY01) were missing sex values in the FY01 ADUSH file. After assigning sex values found in other years of the ADUSH file, 18,882 people still had missing values (down to 0.5% of Veteran patients in FY01). Extending the search to the SF file reduced the number of people with missing values to 9,917 (0.3% of Veteran patients in FY01). To create the FY10 sex variable, we selected individuals who were still missing a sex value in FY09, or appeared for the first time in the VHA administrative data in FY10. See Section 3.3 for complete algorithm.

<sup>80</sup> The corresponding tables (5.2.a and 5.2.b) found in Sourcebook Vol. 1 inadvertently reported inaccurate numbers of individuals with missing sex and date of birth values. Tables 5 and 6 have been updated in Sourcebook Vol. 2 to reflect the correct numbers of individuals with missing values for these variables.

**Table 6. Number of individuals (among Veteran VHA user cohort—women and men) missing a date of birth (DOB) value in each fiscal year, by step of DOB creation algorithm**

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Step 1: Year-specific DOB value	# missing	60,765	93,924	66,630	90,926	79,517	292	422	1,581	1,521	2,392
	(%)	1.6%	2.2%	1.5%	1.9%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Step 2: Single DOB value	# missing	19,046	11,003	7,094	10,040	6,971	177	244	339	416	2,368
	(%)	0.5%	0.3%	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Step 3: Supplement with SF	# missing	10,026	3,125	1,622	3,306	853	173	242	294	394	871
	(%)	0.3%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

**Key:** VHA—Veterans Health Administration; DOB—date of birth; SF—NPCD Outpatient utilization file.

**Note:** In Step 1, we created a date of birth variable for each year using ADUSH data. In Step 2, for people who were missing a date of birth in a given year, we assigned the most recent non-missing, within-range date of birth from the ADUSH file. In Step 3, we assigned the most recent non-missing, within-range value of DOB from the SF outpatient utilization file. For example, 60,765 people (1.6% of Veteran patients in FY01) were missing date of birth in the FY01 ADUSH file. After assigning within-range dates of birth found in other years of the ADUSH file, 19,046 people still had missing values (down to 0.5% of Veteran patients in FY00). Extending the search to the SF file reduced the number of people with missing values to 10,026 (0.3% of Veteran patients in FY00). See Section 3.4 for complete algorithm.

**Table 7. Number of individuals (among Veteran VHA user cohort—women and men) missing a service-connected value in each fiscal year**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
#	21,719	68,162	58,333	62,705	59,064	66,332	75,583	88,151	9,450	8,341
%	1%	2%	1%	1%	1%	1%	2%	2%	0%	0%

**Key:** VHA—Veterans Health Administration

**Note:** After creating a service-connected variable using the SCPER and ELIG variables, there were 8,341 Veteran VHA users missing a service-connected value in FY10. See Section 3.5 for complete algorithm.

**Table 8. Number of individuals (among Veteran VHA user cohort—women and men, N=5,354,652 in FY10) missing an urban/rural value in FY10**

	Missing	Female	Male	Total
#	584	2,757	26,886	29,643
%	76.9	0.9	0.5	0.6

**Key:** VHA—Veterans Health Administration; PSSG—Planning Systems Support Group

**Note:** After creating an urban/rural variable using the URH variable in the PSSG geographic file, there were 29,643 Veteran VHA users missing an urban/rural value in FY10. See Section 3.5 for complete algorithm.

### 6.3 Agreement between variables providing similar information

In FY06–FY10, an additional sex variable (SEX\_BEST) and an additional DOB variable (DOB\_BEST) are available in the ADUSH file, derived from Vital Status files. Tables 9 and 10 compare the number of missing observations between the two variables. See Sourcebook Volume 1, Technical Appendix (Table 5.3.c),<sup>81</sup> which shows agreement between ADUSH variables SCPER and ELIG information used to develop the service-connected variable used in Sourcebook Volumes 1 and 2.

81 Frayne SM, et al. 2010. *Sourcebook: Women Veterans in the Veterans Health Administration. Volume 1.*

Cross tabulations are provided below:

**Table 9. Completeness of SEX vs. SEX\_BEST from ADUSH file, among Veterans and non-Veterans, VHA users, and non-users of VHA, FY10**

		Variable: SEX_BEST			
		Missing	Female	Male	Total
Variable: SEX	Missing	149,255	47,159	31,647	228,061
	Female	13,195	619,926	1,887	635,008
	Male	70,310	2,079	8,281,120	8,353,509
	Total	232,760	669,164	8,314,654	9,216,578

**Note:** Missing values include the values “not found” and “unknown.”

Interpretation of Table 9: In FY10, the variable SEX\_BEST is missing for slightly more people than the variable SEX. In FY10, there were 232,760 people missing SEX\_BEST compared to 228,061 people who were missing SEX. This result differs from the cross tabulation between SEX and SEX\_BEST presented in Sourcebook Volume 1, on which the sex variable algorithm was developed. In FY09, the variable SEX\_BEST was missing for fewer people than the variable SEX. This made sense because SEX\_BEST was derived using multiple sources of data, which thus created more opportunities to reduce the frequency of the missing variable.

Of the 232,760 people missing SEX\_BEST in FY10, 66,739 were missing a cross-year sex variable created for Sourcebook Volume 2, because they were missing values in every year of ADUSH and SF data. Note also that of the 78,806 people who were missing information on whether they were female or male using the SEX variable but had a SEX\_BEST value, 47,159 (60%) are identified as women using SEX\_BEST. This compares to only 13,195 (16%) identified as female using SEX where SEX\_BEST is missing.

**Table 10. Completeness of DOB vs. DOB\_BEST from ADUSH file, among women and men Veteran VHA users, FY10**

		Variable: DOB_BEST		
		Missing	Present	Total
Variable: DOB	Missing	569	17,288	17,857
	Present	1,664	5,335,131	5,336,795
	Total	2,233	5,352,419	5,354,652

Interpretation of Table 10: The variable DOB\_BEST is missing for far fewer people than the variable DOB.

#### 6.4 Analysis of duplicate stop codes in VHA data

The counts of stop code utilization excluded duplicate stop codes (see Section 4). Among all FY10 encounters that were duplicates, we examined which stop codes accounted for the highest volume of duplicates. Table 11 shows that 8.5% of all outpatient encounters in FY10 were duplicates. Nearly half these duplicates were laboratory (stop code 108). This is not surprising since patients may often have more than one lab service on a given day. The second most common duplicate stop code was primary care encounters (stop code 323).

**Table 11. Clinic stops with high rates of duplicate records**

Stop code	Clinic Stop	Frequency	Proportion of all duplicates
108	LABORATORY	3,763,906	45.3
323	PRIM CARE/MED	790,017	9.5
560	SUBST ABUSE-GRP	314,834	3.8
502	MENTAL HEALTH-IND	225,120	2.7
105	X-RAY	202,542	2.4
547	INTEN SUBS ABUSE TRT	175,854	2.1
130	EMERGENCY DEPT	147,986	1.8
180	DENTAL	134,321	1.6
103	TELEPHONE TRIAGE	132,931	1.6
513	SUBST ABUSE-IND	108,822	1.3
408	OPTOMETRY	98,188	1.2
407	OPHTHALMOLOGY	97,551	1.2
583	PRRC GRP	96,387	1.2
523	OPIOID SUBSTITUTION	91,280	1.1
553	DAY TRMT-GRP	76,783	0.9
147	PHONE/ANCILLARY	69,174	0.8
429	OUTPAT CARE IN O.R.	56,380	0.7
107	EKG	54,564	0.7
150	COMPUTER TOMOGRAPHY (CT)	51,789	0.6
554	DAY HOSPITAL-GRP	48,919	0.6

### 6.5 Years of service for records appearing in FY10 Non-VA Care (Fee) outpatient data files

As explained in this Technical Appendix, Section 5, page 56, not all records in the FY10 Non-VA Care (Fee) outpatient data file have a service date that falls within October 1, 2009, and September 31, 2010 (i.e., FY10). The top row of Table 12 shows the number and percentage of FY10 Non-VA Care (Fee) outpatient records for services that occurred in FY10. The rows below show the numbers and percentages of records for services that occurred in FY09 and in prior years (to FY03). No services with records in the FY10 Non-VA Care (Fee) outpatient file occurred prior to FY03. Most of the services recorded in the FY10 Non-VA Care (Fee) outpatient file (74%) occur in FY10. However, a quarter of the services in the FY10 file occur in FY09. A total of 203,680 records (<1% of all FY10 Non-VA Care [Fee] outpatient file records) reflect services provided in FY03–FY08.

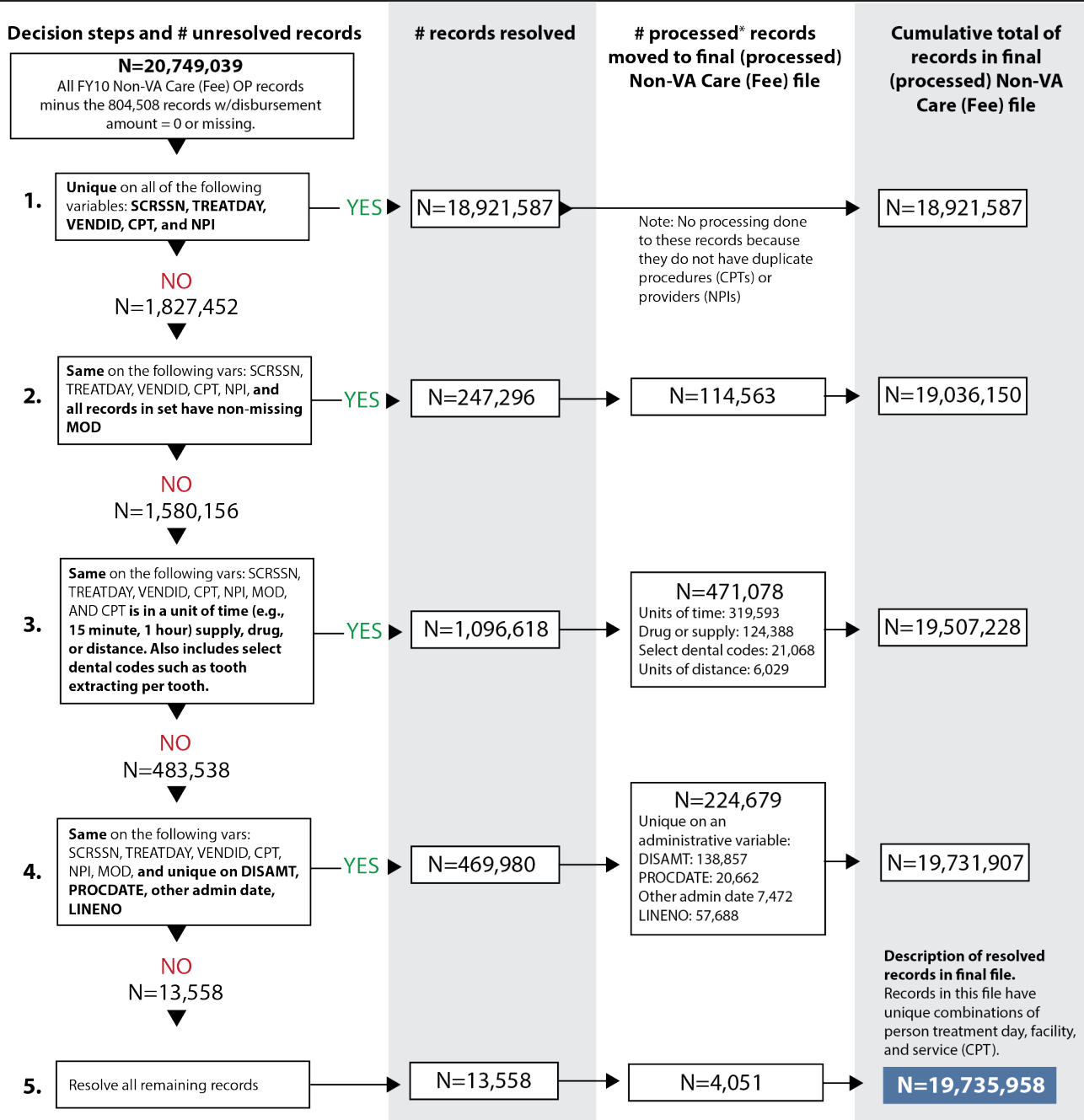
**Table 12. Number of records in FY10 Non-VA Care (Fee) outpatient data files by year of service out of 21,553,547 total records appearing in FY10 Non-VA Care (Fee) file**

Fiscal year of service	Among records in the FY10 Non-VA Care (Fee) outpatient data file	
	Number of records	% of all records
2010	16,020,149	74%
2009	5,329,718	25%
2008	176,487	1%
2007	20,759	0%
2006	5,036	0%
2005	1,163	0%
2004	222	0%
2003	13	0%



### 6.6 Analysis of duplicate Non-VA Care (Fee) outpatient data file records, FY10

#### STEPS TAKEN BY WHEI TO DEFINE AND RESOLVE MULTIPLE RECORDS IN THE FY10 NON-VA CARE (FEE) OUTPATIENT FILE



\*"Processed" refers to the data consolidation step where multiple records were combined into one record for inclusion in final data file of resolved Non-VA Care (Fee) records. Through this process, costs were summed across individual records, and the sum retained in the final single record. In cases where each record had a different diagnosis, each different diagnosis was retained in a separate field within the modified, consolidated record.

**Key:** FY=Fiscal Year; OP=Outpatient; SCRSSN=scrambled SSN; TREATDAY=Day on which service was provided; VENDID=ID of provider; CPT=Current Procedural Terminology; NPI=National Provider ID; MOD=CPT modifier; vars= Variables; DISAMT=Disbursement (payment) amount; PROCDATE=Date on which claim was processed; LINENO=Line item number on claim

Flow chart 6.6 shows the rules used to identify sets of multiple records (i.e., possible duplicate records) in the FY10 Non-VA Care (Fee) outpatient data, as well as the number of records identified at each step, the number of records that remained after processing, and a cumulative count of records that are ultimately considered resolved and put in the final, processed data file. Record sets were processed by summing DISAMT values across the records in the set, retaining diagnosis data from distinct records in additional data fields, and then consolidating the multiple records into one single record.

The flow chart begins by pulling all records in the FY10 Non-VA Care (Fee) outpatient data with a positive, non-missing DISAMT value. Records with a value of zero or a missing number in the DISAMT field were excluded from consideration because these reflected claims that VHA did not pay (e.g., duplicate claims, claims entered in error, claims denied by VHA, etc.). Among them, the next step was to select records that did not occur in multiple record sets. Most records (n=18,921,587) reflected unique combinations of person, service date, provider facility, service, and provider, and thus constituted distinct records rather than multiple records. These singleton records required no further processing and were moved directly into the final data set.

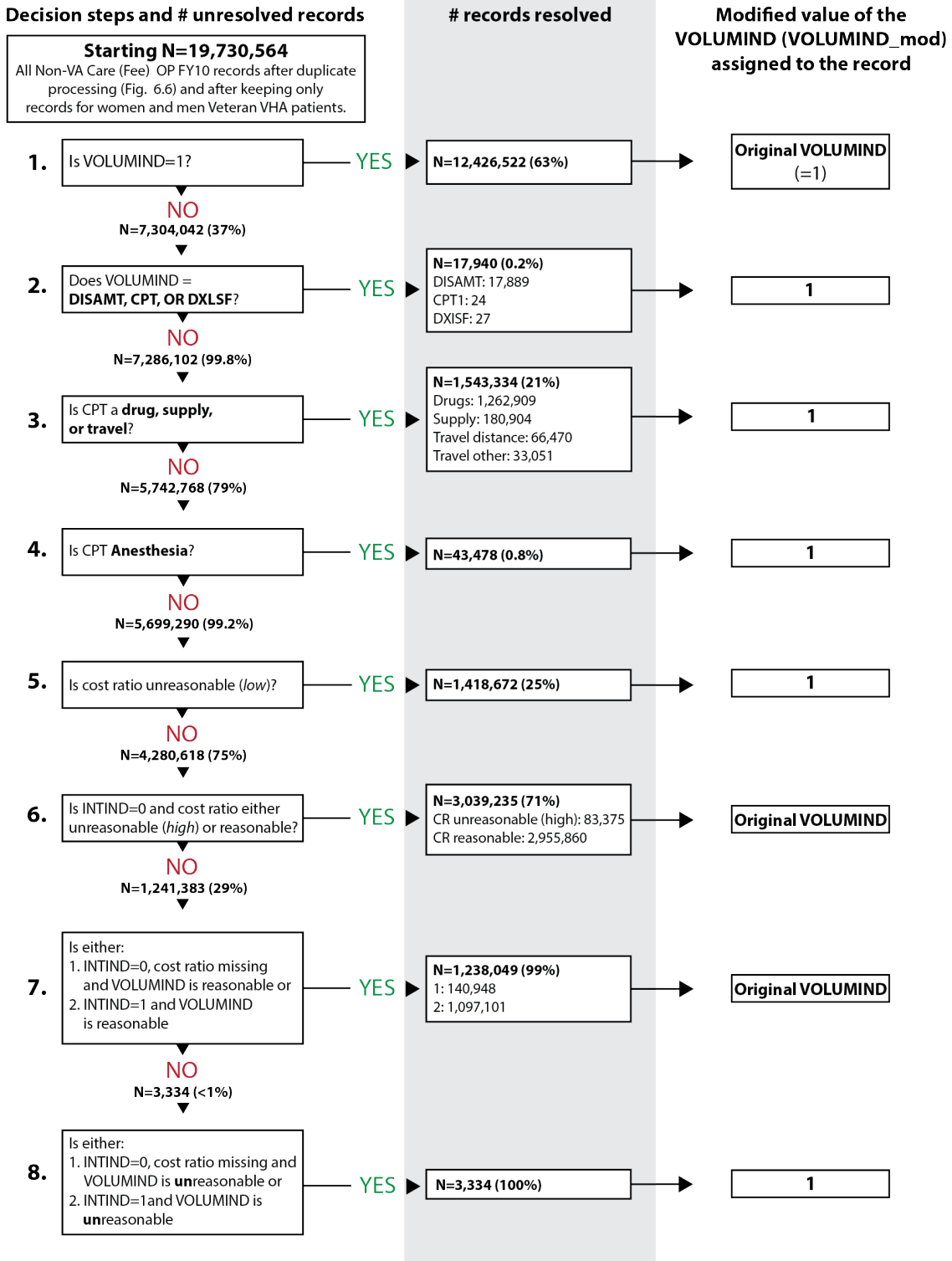
Among the remaining 1,827,452 records, we proceeded to Step 2, where we looked first for records where all the values in the modifier field (“MOD” variable) were present, indicating that the nature of the service required multiple records. As noted previously (pages 57–58), examples of this are record sets with one record for the professional component and another for the technical component of an x-ray, or record sets with one record for an arthroscopic surgery on the left knee and another for the same surgery on the right knee. We identified 247,296 records, which resulted in 114,563 records processed at Step 2.

Most of the remaining records were resolved in Step 3 (n=1,096,618 records were identified, and after processing, n=471,078 records remained). In Step 3, we identified records by searching for CPT codes describing units of time, including per minute, hour, or day (n=319,593 records), supplies and drugs per unit (n=124,388), and distance per mile (n=6,029), as well as select dental codes such as tooth extraction, per tooth (n=21,068). Although it made sense that these codes would have multiple records (e.g., one record for the first 50 mls of a drug, additional records for each additional 50 mls), counting each of these related records individually would give an over-count of distinct Non-VA Care (Fee) instances of care, and therefore, records in multiple record sets were processed by combining the group of related records into one single record. For example, if a patient had two records on a particular service date, each with a CPT code indicating 15 minutes of physical therapy, we assumed that the patient received a single (30 minute) instance of physical therapy care on that day, and we collapsed the 2 records into 1.

Step 4 identified multiple record sets that had unique values on administrative variables such as payment amount (DISAMT), process date (PROCDATE), and line number (LINENO). Records that were otherwise identical but had unique values on these variables were believed duplicated for administrative purposes rather than to identify a distinct medical service, and thus were treated as duplicates. The fifth step resolved the remaining 13,558 multiple records by processing them in the same way as the records identified in previous steps.

6.7 Analysis of Non-VA Care (Fee) outpatient data file Volume Indicator variable, FY10

PROCESSING OF VOLUME INDICATOR VARIABLE OF NON-VA CARE (FEE) DATA



**Key:** FY=Fiscal Year; OP=Outpatient; CPT=Current Procedural Terminology; CR=Cost Ratio; DISAMT=Disbursement (payment) amount; DXLSF=Diagnosis variable; INTIND=Interest Indicator (flags contract services)

Flow chart 6.7 shows the process through which WHEI modified the VOLUMIND variable in the raw Non-VA Care (Fee) data to create VOLUMIND\_mod. The left hand side of the chart shows a series of criteria for record selection at that step, and the right hand side of the chart shows the value used for the final VOLUMIND\_mod variable, either equal to the original VOLUMIND variable, or equal to 1.

The first step identified records where VOLUMIND equaled 1. We retained this original value in the new VOLUMIND\_mod variable.

Next, we identified records where VOLUMIND equaled one of the other quasi-numeric values in the record. We reasoned that a VOLUMIND equal to a CPT or Diagnosis ICD9 value was likely a data entry error. Also, except for services with a unit cost of exactly \$1, the VOLUMIND should not equal the disbursement amount (DISAMT variable). All 17,940 records identified at this step were given a VOLUMIND\_mod value=1. The same modification was made for the 1,543,334 records where the CPT value indicated a drug, supply, or an ambulance transportation CPT, since we did not want our count estimates to be biased up by counts of individual units of these services (e.g., each 5 mls of a drug or hydrating fluid, or each mile traveled by ambulance, etc.). We also found that during FY10, VOLUMIND values on records for anesthesia services reflected the duration of the service in minutes, rather than the number of services. For this reason, we set VOLUMIND\_mod=1 for anesthesia services.

In Step 5, to further help identify additional records with VOLUMIND values that were unreasonably high, we calculated an observed unit cost for each record by dividing the DISAMT by the VOLUMIND. We compared the result to an established unit cost for each CPT, developed by the Health Economics Resource Center (HERC). This comparison gave us a useful standard by which we gauged whether our unit cost was much smaller (less than 30%) than the expected unit cost as provided by HERC. Since we assumed that the DISAMT value was correct (the amount VHA reimbursed the outside provider for Non-VA Care [Fee]), an observed unit cost that was smaller than expected suggested the VOLUMIND was too big. The 1,418,672 records identified in Step 5 were given a VOLUMIND\_mod equal to 1.

Step 6 used an additional variable from the raw Non-VA Care (Fee) data files, called INTIND, which is an indicator of whether or not the record reflects a **contract** service. The rule in this step identified all records that were not contract records and also had either an observed unit cost that was much larger than expected, or an observed unit cost that was close to what we expected. It set all these records' VOLUMIND\_mod values equal to the original VOLUMIND. When the observed unit cost was larger than expected, we interpreted it to mean that the VOLUMIND was too small, and we could not correct it by setting VOLUMIND\_mod equal to 1. Similarly, when the observed unit cost was close to the expected unit cost, we interpreted the VOLUMIND to be accurate. In both cases, VOLUMIND\_mod equaled the original VOLUMIND. The reason for restricting the remaining records evaluated based on cost ratio to non-contract records was based on the concern that there may be cases where an individual record represented care for multiple people. In these cases, the observed unit cost might be close to the expected unit cost, but the total volume of services would actually be more than one person is expected to use in a single month.

To address the possible case of multi-person contract records, Steps 7 and 8 identified the remaining records, where the contract record indicator, INTIND, equals 1, and they evaluate the face validity of the original VOLUMIND value directly. Fewer than 2 million records remained at this point in the flow chart, and a substantially smaller number of unique CPTs existed. Upon inspecting the CPTs that occurred within this pool of records, we developed 5 thresholds for the maximum number of services that one person could use over one month, depending on the CPT value. The threshold VOLUMIND values<sup>82</sup> were: 31 for services that were in units of one day or involving

82 Threshold indicates the maximum VOLUMIND value.

home visits; 124 for services in units of 1 hour (equivalent of 4 hours/day/month); 496 for services in units of 15 minutes (equivalent of 4 hours/day/month); 5 for other remaining services (as an intermediate global threshold); and finally, 31 for all other remaining records (final global threshold). For example, if a mammography imaging record had a VOLUMIND of 38, we determined that the VOLUMIND value exceeded the allowable threshold of 31, and we set VOLUMIND\_mod equal to 1.

All the 1,238,049 records with a VOLUMIND value below the appropriate thresholds were considered reasonable, regardless of whether the record was a contract service or not. As a result, VOLUMIND\_mod for these records were set equal to the original VOLUMIND values at Step 7. Step 8 resolved the remaining 3,334 records that had unreasonable VOLUMIND values, by setting VOLUMIND\_mod for these records equal to 1.

**Women's Health Services**

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