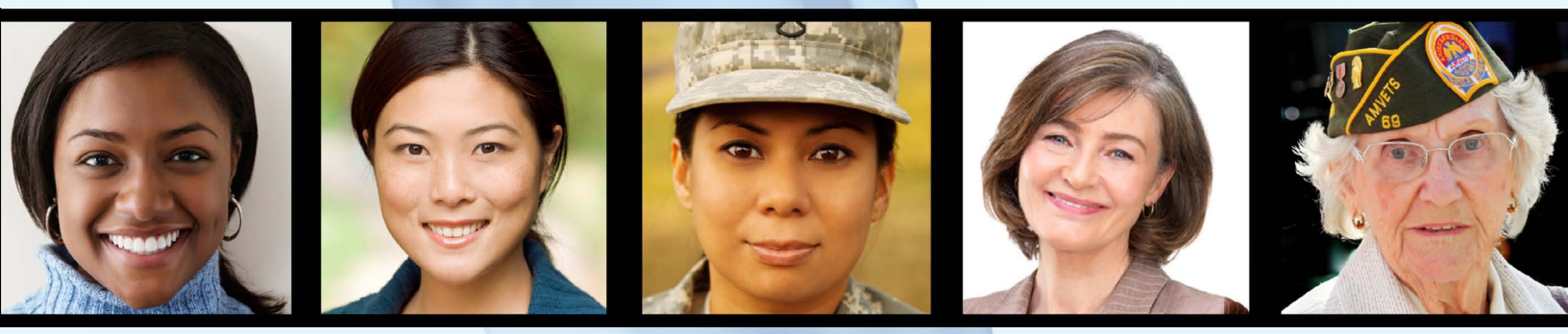
WOMEN VETERANS HEALTH CARE

THE STATE OF REPRODUCTIVE HEALTH IN WOMEN VETERANS



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VA State of Reproductive Health Report in Women Veterans

VA Reproductive Health Diagnoses and Organization of Care

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Table of Contents

Executive Summary 1
Introduction 1
Key Findings 1
Conclusion 3

1. Introduction 5
1.1 The State of Reproductive Health in Women Veterans Report 6

2. Reproductive Health in Women Veterans Across the Life Course: *Potential Effect of Military Service* 7

3. Women Veteran Demographics and Health Profile 9

4. Women Veterans' Reproductive Health Profile: *A Life Course Approach* 13
4.1 Select Reproductive Health Issues for Women Veterans18-44 Years Old 15
4.1.1 Menstrual Disorders and Endometriosis 15
4.1.2 Pregnancy-Related Care 16
4.1.3 Female Infertility 21
4.2 Menopause and Menopausal Disorders Among Women Veterans 45-64 Years Old 21
4.2.1 Urinary Conditions (including Incontinence) in Women Veterans Across the Lifecycle 22
4.2.2 Gynecologic Cancers and Breast Cancer 24
4.3 Other Key Reproductive Health Conditions 26

5. Organization of VA Reproductive Health Services 29
5.1 Comprehensive Primary Care and Reproductive Health Care 30
5.2 VA Gynecology Care 30
5.3 VA Maternity Care 31
5.4 VA Gynecology/Obstetrics Workforce 32
5.5 VA Gynecology Procedures 33
5.6 VA Emergency Department Care 33

6. Reproductive Health Priorities–Enhancing Care Across VA 35
6.1 Overview of Mission and Strategic Plan Priorities 35
6.2 Conclusion 36

7. Affiliations of Authors and Contributors 37

Appendix A. Technical Appendix 39
A.1 Data Source 39
A.2 Cohort Creation 40
A.2.1 Veteran Status 40
A.2.2 Sex 40
A.2.3 VA Users 41
A.2.4 Exclusions Due to Presence of Diagnostic Codes for Sex or Age Discordant Conditions 41
A.3 Algorithms for Socio-demographic Variables, Non-VA Medical Care Utilization, and Medical and Mental Health Conditions 42
A.3.1 Age 42
A.3.2 Service-Connected Disability Status 42
A.3.3 Urban/Rural Status 42
A.3.4 Non-VA Medical Care Utilization 43
A.3.5 Mental Health and Medical Conditions 43
A.3.6 Mental Health Conditions 43
A.3.7 Medical Conditions 44
A.3.8 Reproductive Health Conditions Definitions and Algorithms 45

List of Figures

Figure 1: Reproductive Health and Related Needs of Women Veterans Across the Life Course 7
Figure 2: Frequency of Diagnosis of Specific Reproductive Health Conditions Among Women Veterans Using VA Health Care Services in FY10 13
Figure 3: Frequency of Diagnoses of Pregnancy-Related Conditions Among Women Veterans Using VA in FY10 17
Figure 4: Frequency of Diagnoses of Urinary Conditions (including Incontinence) Among Women Veterans Using VA in FY10 by Age Group 23
Figure 5: Frequency of Diagnosis of Gynecologic and Breast Cancers Among Women Veterans Using VA in FY10 25
Figure 6: Frequency of Diagnoses of Other Female Reproductive Organ Conditions Among Women Veterans Using VA in FY10 27
Figure 7: VA Gynecology Physician Clinical FTEE per 100,000 Total Female Unique Patients (FY 2011) 32
Figure 8: Gynecology and Obstetrics Consultations Available in the Emergency Department 34

List of Tables

Table 1: Demographic Characteristics, Service-Related Characteristics, and Health Profile of Women Veterans Using VA in FY10 9
Table 2: Frequency of Diagnoses of Specific Reproductive Health Conditions Among Women Veterans Who Used VA in FY10 14
Table 3: Top 5 Reproductive Health Conditions Among Women Veterans Using VA Health Care Services in FY10 14
Table 5: Service-Related Characteristics and Health Profile of Women Veterans Who Used VA in FY10 by Presence and Absence of Menstrual Disorders and Endometriosis 16
Table 6: Frequency of Diagnoses of Pregnancy-Related Conditions Among Women Veterans Who Used VA in FY10 by Age Group 18
Table 7: Service-Related Characteristics and Health Profile of Women Veterans Who Used VA in FY10 by Presence and Absence of Pregnancy-Related Diagnoses 18
Table 8: Service-related Characteristics and Health Profile of Women Veterans Who Used VA in FY10 by Presence and Absence of Menopausal Disorders 22
Table 9: Frequency of Diagnoses of Urinary Conditions (including Incontinence) Among Women Veterans Who Used VA in FY10 by Age Group 23
Table 10: Service-Related Characteristics and Health Profile of Women Veterans Who Used VA in FY10 by Presence or Absence of Urinary Conditions (including Incontinence) 24
Table 11: Frequency of Diagnosis of Gynecologic and Breast Cancers Among Women Veterans Who Used VA in FY10 26
Table 12: Frequency of Diagnoses of Other Female Reproductive Health Conditions Among Women Veterans Who Used VA in FY10 by Age Group 27
Table 13: Gyn/Ob CPT Code Category Grand Totals (in Descending Order) 33
Table 14: Strategic Plan Initiatives for Enhancing Delivery of Reproductive Health Services in VA 36
Table A-1: Mental Health and Medical Conditions and Corresponding Diagnostic Codes (From a Modified Version of the Selim Comorbidity Index) 44
Table A-2: ICD-9-CM Codes for Reproductive Conditions 46

List of Text Boxes

Text Box 1: Maternity Care from Non-VA Medical Care 19
Text Box 2: Contraception in VA and Unintended Pregnancy 20
Text Box 3: Medical Record Evidence for Diagnosis and Treatment of Invasive Cervical Cancer in Women Veterans Using VA Facilities Between Calendar Years 2000-2010 26
Text Box 4: Models of Care for Women Veterans in VA 29
Text Box 5: Basic Reproductive Health Services 30

Executive Summary

Introduction

Reproductive health (RH) is a critical part of health. For women, RH encompasses gynecological health throughout life, preconception care, maternity care, cancer care, and the interaction of RH with other health conditions (e.g., reproductive psychiatry). Reproductive health care is a set of health care services that address the well-being and function of reproductive processes, reproductive functions, and the reproductive system at all ages and stages of life.

The World Health Organization (WHO) defines RH as a *state of complete physical, mental, and social well-being and not merely the absence of reproductive disease or infirmity.*[1] This definition highlights the importance of taking a health systems approach that integrates RH care issues and services with other aspects of care needed across the life course. The RH needs of women are shaped by their stages of life and life experiences. Though maternity care addresses an important aspect of RH, there are additional aspects that are equally important. For women Veterans, their military experiences can also influence their RH in important ways. Given the increasing numbers of women in the military and women Veterans, it is critical to understand key aspects of RH in this unique population of women. This first report of the State of Reproductive Health in Women Veterans provides an overview of the RH diagnoses of women Veterans utilizing the Department of Veterans Affairs (VA) health care services, VA delivery of RH care, and a vision for RH in VA.

This State of Reproductive Health in Women Veterans report will:

- Characterize the populations of women Veterans, provide an overview of RH diagnoses in women Veterans across the life course, and identify critical gaps in existing research needed to enhance knowledge and inform policy and research
- Identify current programmatic priorities to enhance quality of and access to RH care for women Veterans in VA
- Provide a vision for RH in VA with recommendations for implementation

Key Findings

- The demographics of women Veterans in VA are changing rapidly, and VA has expanded coverage to include comprehensive health care, of which RH is an important component. There is a need for more information to truly understand the unique RH conditions and needs of women Veterans. Additional research is required to inform policy and programmatic priorities to enhance care delivery.
- Approximately 43% (n=127,530) of women Veterans who used VA in fiscal year 2010 (FY10) had at least one diagnosis of an RH condition. As expected, the relative frequency of RH diagnoses varied by age group.

1 World Health Organization, Accessed Nov. 25, 2013 at http://www.who.int/topics/reproductive_health/en/.

- Top 5 diagnoses 18-44 years old:
  - Menstrual disorders and endometriosis
  - Other female reproductive organ conditions[2]
  - Sexually transmitted infections (STI) and vaginitis
  - Urinary conditions (including incontinence)
  - Pregnancy-related conditions
- Top 5 diagnoses 45-64 years old:
  - Menopausal disorders
  - Urinary conditions (including incontinence)
  - Other female reproductive organ conditions[2]
  - Benign breast conditions
  - STI and vaginitis
- Top 5 diagnoses ≥65 years old:
  - Osteoporosis
  - Urinary conditions (including incontinence)
  - Menopausal disorders
  - Breast cancer
  - Benign breast conditions *and* other female reproductive organ conditions[2]
- Between FY00-FY10, VA covered an estimated 12,000 inpatient deliveries through Non-VA Medical Care. The annual number of deliveries has steadily increased in the last decade from 351 in FY00 to more than 2,000 in FY10. Implementation of policies specific to maternity care coordination and delivery of high quality maternity care are critical given the increasing numbers of younger women enrolled in VA. While these numbers may seem small relative to the number of women Veterans, maternity and newborn care benefits may be underutilized, and there is a potential for increased demand given the increasing number of women Veterans of childbearing age.
- Menopausal disorders were the most frequent RH diagnosis among women Veterans aged 45-64 years old with 25,959 (9%) of women Veterans who used VA in FY10 carrying a diagnosis of a menopausal disorder. Care for women of childbearing age is important, but equal emphasis must be placed on care for women across the lifespan as they age.
- Among women Veterans using VA in FY10, urinary conditions (including incontinence) were among the top five RH conditions in all age groups and the second most common RH condition among women ≥65 years old. Initiatives focusing on pelvic floor disorders can address this common condition.
- VA's gynecology workforce is growing to meet the demands of women Veterans, and the number of established VA gynecology practices increased from 60 in FY06 to 94 in FY11. Initiatives enhancing the RH gynecology workforce are critical to match the growing demands of the population.
- The most common gynecological procedures performed in gynecology clinic settings were endometrial biopsy (biopsy of the uterine lining), cervical biopsy or curettage, and intrauterine device insertion and removal. Efforts to understand clinical procedures performed by VA gynecologists are underway and important for determining workforce needs over time.

2 Defined as: fibroids, other carcinoma in situ of female genital organs, ovarian cysts, polycystic ovarian syndrome, prolapse of the female genital organs, benign gynecologic neoplasm, other dysplasia, and other female genital disorders.

- VA emergency departments (EDs) vary widely in the resources and processes used to care for Veterans with conditions specific to, or more common in, women (i.e., gynecologic and obstetric emergencies). Health system initiatives that target RH at key points of entry into the VA health care system (i.e., the ED) will assist with enhancing the RH care VA provides.

Conclusion

A health systems approach to enhancing RH care across VA settings is crucial for providing high quality health care for women Veterans. Understanding epidemiological variations in RH diagnoses among women Veterans is critical to developing a life course approach to health care for women Veterans. This will allow VA to project needed RH services as it plans for the future. Development of unique models may be needed to account for variations in populations of women Veterans across VA settings. For example, innovations such as tele-gynecology and tele-maternity will assist with increasing access and expertise, particularly in areas of the country where workforce shortages affect access to gynecologists and obstetricians. This State of Reproductive Health in Women Veterans report describes key RH conditions, diagnoses, and services across VA. The report provides stakeholders with tools necessary to assess current care delivery using a health systems approach to RH care; determine opportunities to track RH services for women Veterans; and provide guidance to develop and launch a needed research agenda for evidence-based best practices in RH care for women Veterans.

1. Introduction

This first report of the State of Reproductive Health in Women Veterans will provide an overview of the RH diagnoses of women Veterans utilizing VA health care and provide the vision for RH in VA. Developing, seamlessly integrating, and enhancing VA RH care for women Veterans across all stages of life is a key strategic goal consistent with VA's overarching mission of serving Veterans and being a national leader in the provision of health care for women.

Optimal RH plays a critical role in enabling people to enjoy life, remain healthy, and actively contribute to their community. The WHO defines RH as a state of complete physical, mental, and social well-being and not merely the absence of reproductive disease or infirmity.[3] Reproductive health is a critical part of health for women and men, and RH care services address the well-being and function of reproductive processes and the reproductive system at all ages and stages of life. For women, this encompasses maternity care, gynecological health across the lifespan, preconception care, cancer care, and interaction of RH with other health conditions (i.e., reproductive psychiatry, urology). Though maternity care addresses an important aspect of RH, there are other RH components across the life course which are also important. A health systems approach that integrates RH with other aspects of health care is crucial to providing the best possible comprehensive health care for women Veterans.

The demographics of Veterans in VA are changing rapidly with increasing numbers of women utilizing VA health care services and benefits.[4,5] While women of childbearing age (18-44) are the fastest growing group of new VA users,[6] many women Veteran VA users are already out of their childbearing years and thus have different RH care needs than their younger counterparts. Recognizing that RH is an important aspect of comprehensive health care, VA has expanded coverage to include comprehensive health care for all Veterans.[7] To continue to meet the objective of providing comprehensive health care for women Veterans, VA must address the needs of the current population of women Veterans while simultaneously preparing to meet their future health care needs. Developing a health systems approach to RH care that incorporates a life course perspective is essential to this process. As part of a life course approach, it is necessary to consider women Veterans' health prior to their enrollment in the military, their experiences and exposures during active duty (including deployment experiences), and their transition from Servicewomen to Veteran status.

3 World Health Organization, http://www.who.int/topics/reproductive_health/en/.
4 Frayne SM, Phibbs CS, Friedman SA, et al. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 1. Sociodemographic Characteristics and Use of VHA Care. Women's Health Evaluation Initiative, Women Veterans Health Strategic Health Care Group, Veterans Health Administration, Department of Veterans Affairs, Washington DC. December 2010. (Accessed Nov. 25, 2013 at http://www.womenshealth.va.gov/WOMENSHEALTH/latestinformation/publications.asp#research.)
5 Frayne SM, Phibbs CS, Friedman SA, et al. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 2. Sociodemographics and Use of VHA and Non-VA Care (Fee). Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. October 2012. http://www.womenshealth.va.gov/WOMENSHEALTH/docs/SourcebookVol2_508c_FINAL.pdf.
6 Friedman SA, Phibbs CS, Schmitt SK, Hayes PM, Herrera L, Frayne SM. New women Veterans in the VHA: a longitudinal profile. Womens Health Issues. 2011;21(4 Suppl):S103-11.
7 VHA Handbook 1330.01: Health Care Services For Women. Veterans Health Administration, 2010.

1.1 The State of Reproductive Health in Women Veterans Report

This first report of the State of Reproductive Health in Women Veterans will:

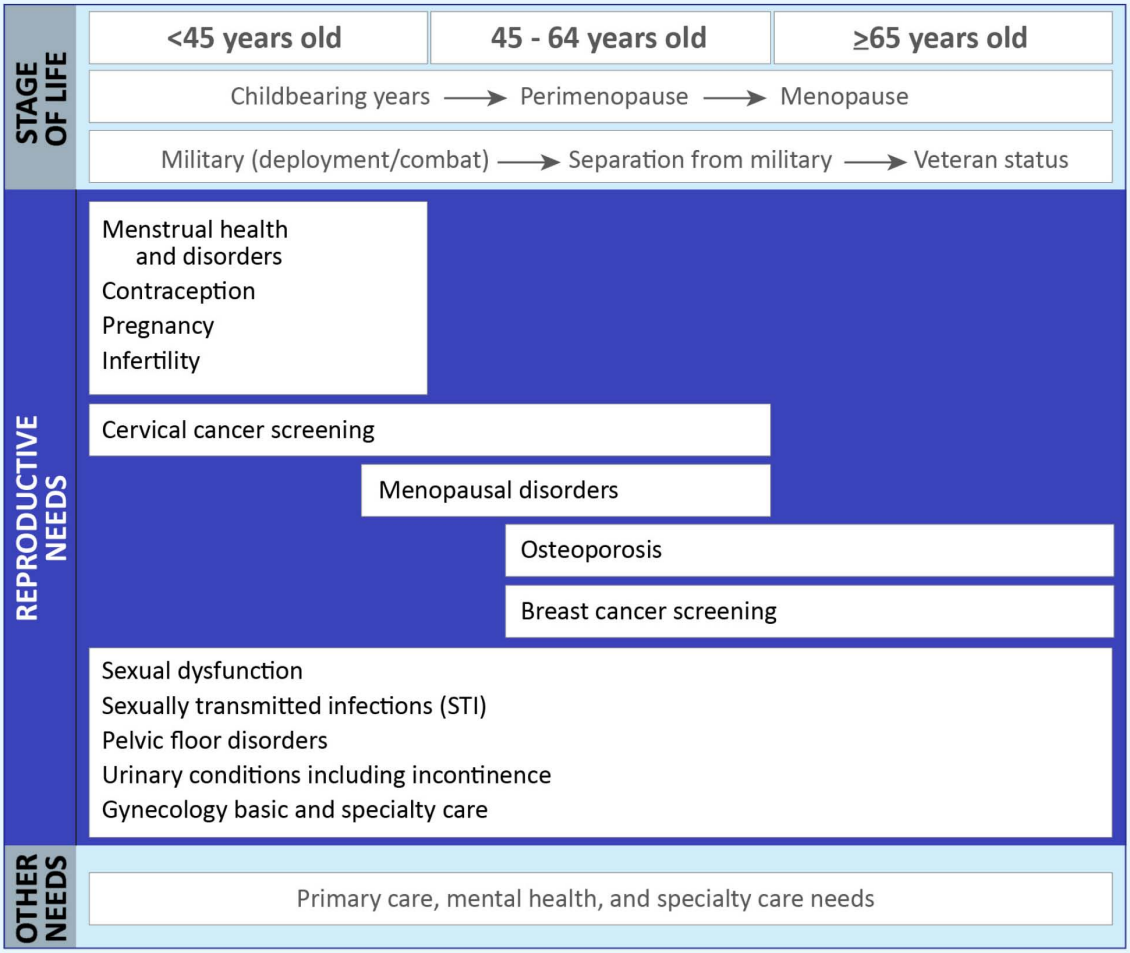
- Characterize the populations of women Veterans, provide an overview of RH diagnoses in women Veterans across the life course, and identify critical gaps in service delivery and existing research
- Identify current programmatic priorities and areas for program expansion and evaluation to enhance quality of and access to RH care for women Veterans in VA
- Provide a vision for RH in VA with recommendations for implementation

Although this report does not address the RH of male Veterans, future RH assessments and reports may incorporate this important topic.

2. Reproductive Health in Women Veterans Across the Life Course: *Potential Effect of Military Service*

The percentage of women in the military is increasing. As the number of women in the military continues to grow, their roles are expanding to include a broader involvement in combat and leadership. The RH needs of women are shaped by their stage of life and military experiences. Figure 1 illustrates the evolving RH needs of women across the life course.

Figure 1: Reproductive Health and Related Needs of Women Veterans Across the Life Course



Women Veterans' military service may result in unique occupational experiences which may be further impacted by deployment to war zones or other locations. Occupational experiences of particular concern include combat, and environmental and occupational exposures. With expanding roles in the military and the nature of the current conflicts, women Veterans increasingly experience combat, which can increase risk of posttraumatic stress disorder (PTSD) and risk of severe physical injury. There is also continued concern about

the potential impact of environmental and occupational toxicants on the health of military Servicemembers and Veterans. Environmental and occupational exposures may include fumes from burn pits, chemical toxicants, and vaccines and medications intended to combat locally occurring infectious diseases such as malaria.[8] The current data available are sparse and overall do not reveal any impact on RH outcomes. However, VA is continuing to assess the possible health impacts of these exposures.[9]

Approximately 22% of women Veterans receiving VA services report military sexual trauma (MST), which can impact or interact with RH in a variety of ways.[10] Compared with women Veterans who do not report MST, women Veterans who report MST have: increased prevalence of mental illness, including depression and PTSD;[11,12] increased physical, reproductive, and sexual health problems;[12,13,14] and greater difficulty with physical exams and clinical encounters including fear, embarrassment, and anxiety.[15, 16,17] Deployment and combat exposure may jointly increase risk of MST.[18] Combat, environmental and occupational exposures, and MST may affect Veterans' RH and ability to access preventive services such as cervical cancer screening or screening for sexually transmitted infections.[15,16,19] These experiences may also impact women's physical, mental, and emotional health and interactions with the health care system.

8 Teichma R. Health hazards of exposures during deployment to war. J Occup Environ Med 2012;54(6): 655-658.
9 Doyle P, Maconochie N, et al. Reproductive health of Gulf War Veterans. Philos Trans R Soc Lond B Biol Sci 2006;361(1468): 571-584.
10 Kimerling, R, Gima, K, Smith M, Street A, Frayne S. The Veterans' Health Administration and military sexual trauma. American Journal of Public Health 2007; 97: 2160–2166.
11 Kimerling R, Street A, Pavao J, et al. Military-related sexual trauma among VeteransHealth Administration patients returning from Afghanistan and Iraq. American Journal of Public Health 2010;100(8):1409-1412.
12 Frayne S, Skinner K, Sullivan L, et al. Medical profile of women Veterans' Administration outpatients who report a history of sexual assault occurring while in the military. Journal of Women's Health & Gender-Based Medicine 1999; 8: 835–845.
13 Turchik JA, Pavao J, Nazarian D, Iqbal, S, McLean C, Kimerling R. Sexually transmitted infections and sexual dysfunctions among newly returned Veterans with and without military sexual trauma. International Journal of Sexual Health 2012; 24:45-59.
14 Sadler A, Mengeling M, Syrop C, Torner J, Booth B. Lifetime sexual assault and cervical cytologic abnormalities among military women. Journal of Women's Health 2011; 20:1693-1701.
15 Weitlauf J, Finney J, Ruzek J, et al. Distress and pain during pelvic examinations: effect of sexual violence. Obstetrics & Gynecology 2008;112:1343-1350.
16 Weitlauf J, Frayne S, Finney J, Moos R, Jones S, Hu K, Spiegel D. Sexual violence, posttraumatic stress disorder, and the pelvic examination: How do beliefs about the safety, necessity, and utility of the examination influence patient experiences? Journal of Women's Health 2010;19:1271-1280.
17 Lee T, Westrup D, Ruzek J, Keller J, Weitlauf, J. Impact of clinician gender on examination anxiety among female Veterans with sexual trauma: A pilot study. Journal of Womens Health 2007;16:1291-1299.
18 Leardmann CA, Pietrucha A, et al. Combat deployment is associated with sexual harassment or sexual assault in a large, female military cohort. Womens Health Issues 2013; 23(4): e215-223.
19 Suris A, Lind L. Military sexual trauma: a review of prevalence and associated health consequences in Veterans. Trauma Violence Abuse 2008 Oct;9(4):250-69.

3. Women Veteran Demographics and Health Profile

To characterize the population of women Veterans, provide an overview of RH diagnoses in women Veterans across the life course, and identify critical gaps in existing research, this section of the State of Reproductive Health in Women Veterans report presents FY10 data from the Women's Health Evaluation Initiative (WHEI). Details of cohort construction, variable definition, interpretation, and limitations of the WHEI data are provided in the Technical Appendix at the end of this report and in the footnotes.[20] This data is largely descriptive, thus no measures of precision or inference are included.

Table 1: Demographic Characteristics, Service-Related Characteristics, and Health Profile of Women Veterans Using VA in FY10

		Age Group		
	Total	**18-44**	**45-64**	**≥65 yrs old**
N	297,392	124,092	134,337	38,963
Demographic characteristics n (%)				
Rural residence [a,b]	105,346 (35)	41174 (33)	49,216 (36)	14,956 (39)
Service-related characteristics n (%)				
OEF/OIF/OND[c]	46,096 (16)	39,921 (32)	6,150 (5)	25 (0.1)
Service-connected disability[b]				
None	128,312 (43)	38,687 (31)	58,554 (44)	31,071 (80)
0-49	85,981 (29)	49,110 (40)	33,042 (25)	3,829 (10)
50-99	66,838 (23)	31,047 (25)	32,893 (25)	2,898 (7)
100	15,499 (5)	4,815 (4)	9,552 (7)	1,132 (3)
Health profile n (%)				
≥1 Mental health condition[d]	120,431 (41)	52,632 (42)	59,651 (44)	8,148 (21)
≥1 Medical health condition[e]	202,556 (68)	63,921 (51)	164,299 (77)	34,336 (83)
Non-VA Medical Care encounter	56,204 (19)	23,319 (19)	27,692 (21)	5,193 (13)

a Based on Urban Rural Continuum Codes for women Veterans' residential address.
b Missing data: rural residence n=1,868; service-connected disability n=762
c Derived by WHEI from the VA Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn (OEF/OIF/OND) Roster.
d Specific mental health and medical conditions included in these variables were identified based on a modified version of a list developed to measure comorbidity in an outpatient setting. (Selim, AJ, Fincke G, et al. Comorbidity assessments based on patient report: results from the Veterans Health Study. J Ambul Care Manage 2004;27(3): 281-295.) Women were considered to have at least one diagnosed mental health condition if they had at least one ICD-9-CM code corresponding to one of the specified mental health conditions in the VA outpatient files during FY10. Women were considered to have at least one diagnosed medical condition if they had at least one ICD-9-CM code corresponding to one of the 32 specified medical conditions in the VA outpatient files during FY10. Details on the conditions chosen and ICD-9-CM codes are included in the Technical Appendix.
e Leardmann CA, Pietrucha A, et al. Combat deployment is associated with sexual harassment or sexual assault in a large, female military cohort. Womens Health Issues 2013; 23(4): e215-223.

20 The Technical Appendix only contains information regarding the results from WHEI.

Age Mix: In FY10, the majority of women Veteran VA users were under 65 years old. Approximately equal proportions were 18-44 years old (n=124,092, 42%) and 45-64 years old (n=134,337, 45%).

Implications: VA needs to continue building capacity to meet the current RH care needs of young women Veterans while simultaneously preparing to provide for their RH care needs later in life.

Rural residence: In FY10, over 30% of women Veteran VA users lived in rural areas.

Implications: VA should continue to investigate how women Veterans residing in rural areas access RH care. Continued investment in innovative modalities such as telehealth (e.g., tele-gynecology/tele-urogynecology/tele-maternity care) will increase access to RH care for these women. Additional support may be needed to ensure appropriate use of telehealth technologies in older Veterans, who may be less comfortable with receiving health care services in this way.

Military service and service-connected disability: In FY10, compared with women Veterans in the older age groups (45-64, ≥65 years old), those aged 18-44 who used VA had the highest percentage of service-connected disability ratings and greatest likelihood of having been deployed in service of Operation Iraqi Freedom/Operation Enduring Freedom/Operation New Dawn (OIF/OEF/OND).

Implications: Research is needed on how service-connected disability may influence the RH of women Veterans across the life course. This is particularly crucial for the youngest group of women Veterans who make up the majority (by age) in OEF/OIF/OND. Key RH indicators should be included in current and future cohort studies of Veterans.

Mental health and medical conditions:[5,21] Among women Veterans who used VA in FY10, those who were <65 years old were more likely than those ≥65 years old to have at least one documented mental health condition. In contrast, women Veterans ≥65 years old were more likely than younger women Veterans to have at least one documented medical condition.

Implications: Just under half of women Veterans who used VA in FY10 and were of childbearing age (18-44 years old) or potentially going through the menopausal transition (45-64 years old) had at least one diagnosed mental health condition. Research is needed on the impact of mental health conditions on RH care access and outcomes. Providing reproductive mental health services involves cross–disciplinary expertise and evidenced-based practice on the effects of psychiatric medications and untreated psychiatric conditions on maternal and fetal well-being, interactions between menopause and mental health, and effects of psychiatric medications on sexual dysfunction and other RH concerns. Management of psychiatric disorders in women who are pregnant, postpartum, or may become pregnant requires knowledge to inform balanced risk-benefit discussions. Given that 50% of pregnancies are unplanned in the United States,[22,23] more in certain subgroups, the wide dissemination of this knowledge throughout VA across key clinical disciplines is critical. VA's current reproductive mental health initiative established a steering committee that will develop tools to enhance knowledge of reproductive mental health issues and management across VA to support implementation of best practices.

21 Mental health and medical conditions were identified based on presence of ICD-9-CM codes in the FY10 VA outpatient data. Therefore, the data do not fully capture diagnoses occurring prior to FY10 or those most likely to be exclusively present in the inpatient data files or the fee base care files or diagnoses occurring outside the VA system. Additionally, mental health conditions may go undiagnosed. Thus, the data likely underestimates the true burden of mental health and medical conditions in this population. For details on the conditions chosen and ICD-9-CM codes used see the Technical Appendix.

22 Finer LB, Henshaw SK. Disparities in rates of unintended pregnancy in the United States, 1994 and 2001. Perspect Sex Reprod Health. 2006;38:90–96.

23 Finer LB, Kost K. Unintended pregnancy rates at the state level. Perspect Sex Reprod Health. 2011;43:78–87.

Non-VA Medical Care: Non-VA Medical Care is care that is delivered by non-VA providers and paid for by VA. The majority of this care occurs off-site. Among women Veterans who used VA in FY10, women aged 18-44 and 45-64 years old were more likely than those 65 years or older to have inpatient or outpatient Non-VA Medical Care in FY10.

Implications: The majority of Non-VA medical care used by younger women Veterans reflects the need for RH care services such as maternity care and mammography.[24,25] Care coordination and tracking of maternity care and mammography are important components for ensuring quality of care. Current efforts at using information technology tools to coordinate care should be continued, and if pilots are successful, national dissemination should follow.

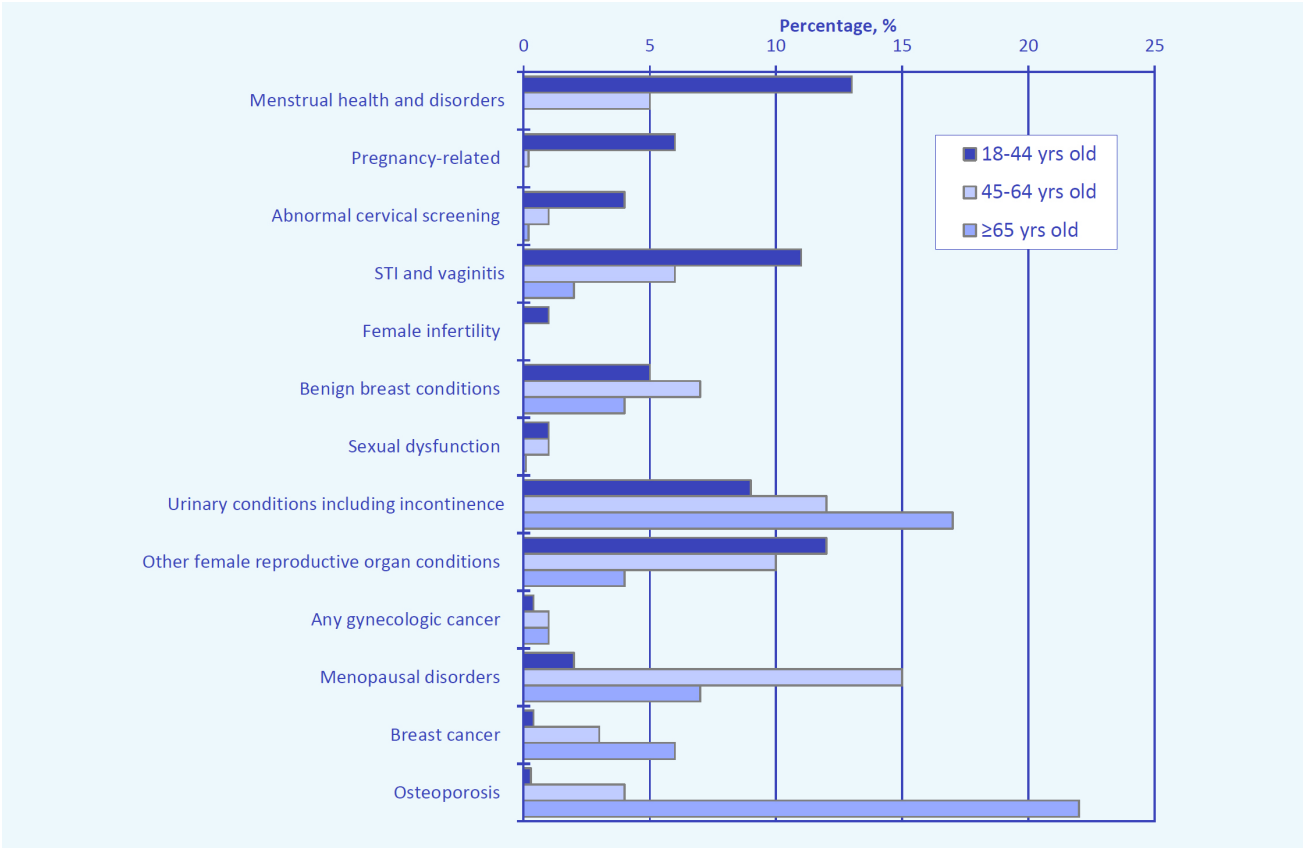
24 Yano EM, Washington DL, et al. The organization and delivery of women's health care in Department of Veterans Affairs Medical Center. Womens Health Issues 2003;13(2): 55-61.

25 Frayne SM, Phibbs CS, Friedman SA, et al. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 2. Sociodemographics and Use of VHA and Non-VA Care (Fee). Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. October 2012. http://www.womenshealth.va.gov/WOMENSHEALTH/latestinformation/publications.asp

4. Women Veterans' Reproductive Health Profile: *A Life Course Approach*

Approximately 43% (n=127,530) of women Veterans who used VA health care services in FY10 had at least one diagnosis[26] of an RH condition. As shown in Figure 2, the frequency of diagnoses of specific RH conditions varied by age. The data presented in this section focus on RH conditions rather than RH care services such as contraception. While contraception is a key component of comprehensive women's health care, it is a preventive service rather than a condition (see *Text Box 2: Contraception in the VA and Unintended Pregnancy* for further details of contraception in VA).

Figure 2: Frequency of Diagnosis of Specific Reproductive Health Conditions Among Women Veterans Using VA Health Care Services in FY10



26 The numerators for the reproductive health conditions diagnoses were identified based on the presence of at least one ICD-9-CM code within VA and Non-VA Medical Care outpatient and inpatient files. Presence of a diagnostic code does not necessarily indicate that an encounter was for the purpose of diagnosing or treating a given condition. Additionally, since women Veterans may be dual users (VA, or private insurance or Medicaid) and receive some medical care outside of the VA system, it is possible that the numerator is an underestimate of the true number of women Veterans with a given condition. Therefore, these numbers do not represent a true prevalence of these conditions among all women Veterans and are best understood as indications of relative need for care for specific reproductive health conditions among women Veteran VA users. These limitations also make it difficult to compare these findings with the non-Veteran population. For details on how the cohort was constructed and reproductive health conditions identified please see the Technical Appendix.

Table 2: Frequency of Diagnoses of Specific Reproductive Health Conditions Among Women Veterans Who Used VA in FY10

		Age group		
	Total	**18-44**	**45-64**	**≥65 yrs old**
N	297,392	124,092	134,337	38,963
Reproductive health conditions n (%)				
Menstrual disorders and endometriosis	22,868 (8)	16,658 (13)	6,200 (5)	10 (0.0)
Pregnancy-related	8,014 (3)	7,741 (6)	273 (0.2)	(N/A)[f]
Abnormal cervical screening	6,342 (2)	4,564 (4)	1,707 (1)	71 (0.2)
STI and vaginitis[g]	21,255 (7)	13,222 (11)	7,463 (6)	570 (2)
Female infertility	1,861 (1)	1,746 (1)	N/A	N/A
Benign breast conditions	17,712 (6)	6,606 (5)	9,753 (7)	1,353 (4)
Sexual dysfunction	1,810 (1)	1,074 (1)	706 (1)	30 (0.1)
Urinary conditions (including incontinence)	34,238 (12)	11,409 (9)	16,182 (12)	6,647 (17)
Other female reproductive organ conditions	29,846 (10)	14,204 (12)	14,024 (10)	1,618 (4)
Any gynecologic cancer	2,319 (1)	488 (0.4)	1,324 (1)	507 (1)
Menopausal disorders	25,959 (9)	2,633 (2)	20,707 (15)	2,619 (7)
Breast cancer	6,611 (2)	507 (0.4)	3,745 (3)	2,359 (6)
Osteoporosis	14,344 (5)	307 (0.3)	5,672 (4)	8,365 (22)

f N/A = not applicable
g Includes pelvic inflammatory conditions

Table 3: Top 5 Reproductive Health Conditions Among Women Veterans Using VA Health Care Services in FY10

Age group		
18-44 years old	**45-64 years old**	**≥65 years old**
Menstrual disorders and endometriosis	Menopausal disorders	Osteoporosis
Other female reproductive organ conditions	Urinary conditions	Urinary conditions
STI and vaginitis	Other female reproductive organ conditions	Menopausal disorders
Urinary conditions (including incontinence)	Benign breast conditions	Breast cancer
Pregnancy-related	STI and vaginitis	Benign breast conditions *and* Other female reproductive organ condition

Implications: Women's RH care needs change across the lifespan, but there are conditions that remain important throughout (e.g., urinary conditions (including incontinence), vaginitis/sexual health/cervicitis/other pelvic inflammatory conditions) (Figure 2, Figure 3, and Table 2). As VA continues to build capacity to care for women Veterans' RH care needs, it should consider both the present needs of women Veterans and how these needs will change over time. This change also indicates a need for lifetime access to gender-specific exams and to providers proficient in this care. In younger women, the top five RH conditions include menstrual disorders and endometriosis and pregnancy. Preconception care and contraception will also be important in this group. Moreover, a better understanding of the impact of military service on these conditions is necessary, as is additional research to understand other RH conditions, such as STI, in this cohort.[27]

27 Goyal V, Mattocks KM, et al. High-risk behavior and sexually transmitted infections among U.S. active duty servicewomen and Veterans. J Womens Health (Larchmt) 2012;21(11): 1155-1169.

Comprehensive primary care enhancements in VA and efforts that address RH care delivery to women Veterans of childbearing age have been critically important. Moreover, there is increasing emphasis on aging women and their health care delivery needs. As women age, menopausal concerns and benign breast conditions become increasingly prevalent. Building system capacity in RH must include developing models of care to address basic and specialty gynecology needs as women age. Continued training of providers to build and maintain knowledge of these RH needs can assist with meeting the increasing demand. Many of these RH needs are intrinsically connected to mental health and the care of other chronic health conditions, making it essential to build capacity for RH care using a health systems approach.

4.1 Select Reproductive Health Issues for Women Veterans 18-44 Years Old

4.1.1 Menstrual Disorders and Endometriosis

Menstrual disorders[28] include a heterogeneous group of conditions with a variety of underlying causes.[29] These conditions may affect women's health and quality of life[30] to differing degrees, but all require careful evaluation and treatment.

Table 4: Frequency of Diagnoses of Menstrual Disorders and Endometriosis Among Women Veterans Who Used VA in FY10 by Age Group

	Age group			
	Total	**18-44**	**45-64**	**≥65 yrs old**
N	297,392	124,092	134,337	38,963
Menstrual disorders *n (%)*	20,882 (7)	15,133 (12)	5,749 (4)	N/A
Endometriosis *n (%)*	2,967 (1)	2,322 (2)	635 (5)	10 (0.03)

28 We did not include women 65+ years old when assessing for menstrual health and disorders as women in that age group would not be expected to be menstruating. (Burger HG, Hale GE, Dennerstein L, Robertson DM. Cycle and hormone changes during perimenopause: the key role of ovarian function. Menopause 2008 Jul-Aug;15(4 Pt 1):603-12.)

29 Albers JR, Hull SK, et al. Abnormal uterine bleeding. Am Fam Physician 2004;69(8): 1915-1926.

30 Barnard K, Frayne SM, Skinner KM, Sullivan LM. Health status among women with menstrual symptoms. Journal of Womens Health 2003;12(9): 911-9.

Table 5: Service-Related Characteristics and Health Profile of Women Veterans Who Used VA in FY10 by Presence and Absence of Menstrual Disorders and Endometriosis

	Menstrual disorder or endometriosis	
	Absent	**Present**
Service-related characteristics n (%)		
OEF/OIF/OND	41,199 (15)	4,897 (21)
Service-connected disability (missing 762)		
None	121,121 (44)	7,191 (32)
0-49	77,848 (28)	8,133 (36)
50-99	60,593 (22)	6,245 (27)
100	14,266 (5)	1,233 (5)
Health profile n (%)		
≥1 Mental health condition[h]	108,913 (40)	11,518 (50)
≥1 Medical health condition[h]	186,799 (68)	15,757 (69)
Non-VA Medical Care[i]	49,785 (18)	6,419 (28)

h Mental health and medical diagnoses were identified using ICD-9-CM diagnostic codes from VA outpatient data from FY10. For details on the methodology and list of conditions, see Technical Appendix.
i Non-VA Medical Care including inpatient and outpatient encounters in FY10.

Findings: Compared with those without such a diagnosis, women Veterans diagnosed with menstrual disorders or endometriosis had a higher prevalence of diagnosed mental health conditions (Table 5). The increased prevalence of mental health conditions among women with menstrual disorders or endometriosis may also reflect greater reliance on and use of VA health care and thus increased opportunities for diagnosis with one or more conditions.

Implications: Programmatic areas in RH should consider expansion into endometriosis and menstrual disorders. The potential biologic connections between endometriosis or menstrual disorders and mental health remain controversial; however, the limited evidence suggests that these conditions frequently co-occur. Developing research in this area and ensuring that providers are aware of the most recent findings is critical for developing programming in this area.[31,32,33]

4.1.2 Pregnancy-Related Care

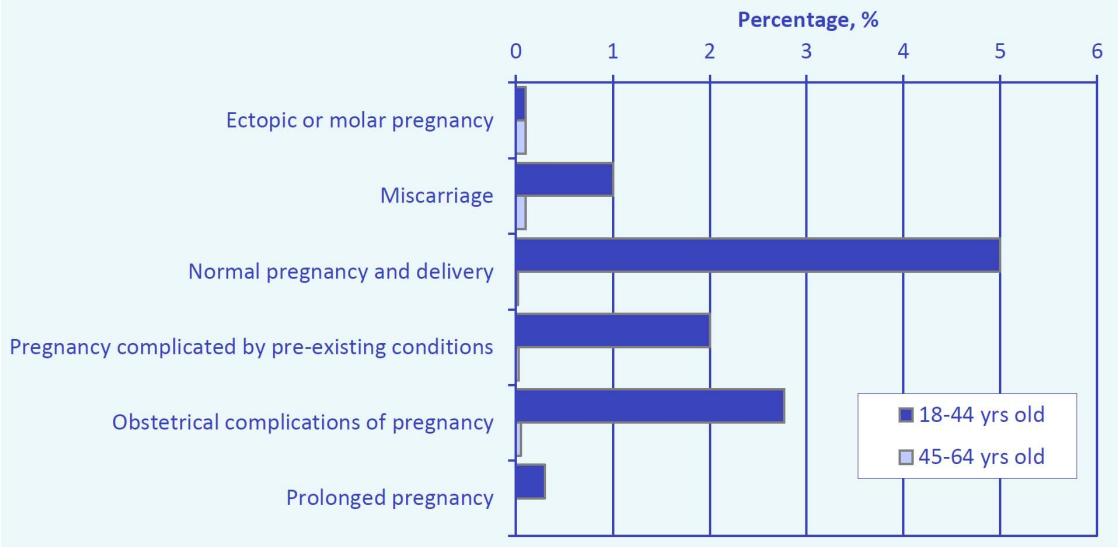
High quality maternity care[34] and newborn care are vital to the health of women, infants, and families. Healthy maternity and newborn outcomes can raise educational attainment, increase employment opportunities, and enhance financial stability.[35] Many women Veterans, similar to their male counterparts, have complex medical needs including chronic medical or mental health conditions. These conditions can increase health risks for the mother and newborn during and after pregnancy. Understanding the impact of these conditions on pregnancy outcomes is essential. Additional data are needed to elucidate outcomes and monitor health care quality indicators in pregnant women Veterans. Coordination of care from concep-

31 Reed SC, Levin FR, Evans SM. Changes in mood, cognitive performance and appetite in the late luteal and follicular phases of the menstrual cycle in women with and without PMDD (premenstrual dysphoric disorder). Horm Behav 2008 Jun;54(1):185-93.
32 Lorençatto C, Petta CA, Navarro MJ, Bahamondes L, Matos A. Depression in women with endometriosis with and without chronic pelvic pain. Acta Obstet Gynecol Scand. 2006;85(1):88-92.
33 Kumar V, Khan M, Vilos GA, Sharma V J. Revisiting the association between endometriosis and bipolar disorder. Obstet Gynaecol Can. 2011 Nov;33(11):1141-5.
34 We only included women in their childbearing years (18-64) in this analysis. The average age of menopause in the United States is 51.4 years old and therefore we included women in the 45-64 year old age group as a small minority of women in this age group would still be in their childbearing years. (Burger HG, Hale GE, Dennerstein L, Robertson DM. Cycle and hormone changes during perimenopause: the key role of ovarian function. Menopause 2008 Jul-Aug;15(4 Pt 1):603-12.)
35 National Prevention Council, Reproductive and Sexual Health (Accessed November 25, 2013 at http://www.surgeongeneral.gov/initiatives/prevention/strategy/reproductive-sexual-health.pdf.)

tion through the postpartum period is of crucial importance for women Veterans. Understanding the impact of transitions of care between VA and Non-VA Medical Care during pregnancy and following delivery will allow providers and policy makers to identify barriers and facilitators for returning to VA care after delivery. Currently there are gaps in understanding quality of care at these transitions and the potential impact on maternity outcomes. Thus, there is a need for data repositories which can track VA maternity outcomes.

The number of women Veterans using VA pregnancy-related care is growing rapidly.[36] Beyond maternity care, VA also provides care for other pregnancy-related conditions including ectopic or molar pregnancies and miscarriage. Currently, it is possible to determine numbers of women receiving VA maternity benefits (see *Text Box 1: Maternity Care from Non-VA Medical Care*). However, it is not possible to determine the total number of pregnancies among women Veterans who use VA through administrative and clinical records, because there are limited means to systematically document pregnancy status and reproductive history in the VA electronic medical record system. These fields specific to pregnancy status are important, because not all women Veterans who use VA use VA maternity benefits or continue to use VA for other health care throughout their pregnancies. Furthermore, early pregnancy losses may go unrecognized by Veterans and their VA providers.[37] Efforts are underway to enable the use of VA clinical and administrative data to track of the number of deliveries paid for by VA, characterize the care provided to pregnant women Veterans across systems, evaluate care coordination between VA and non-VA settings, and characterize short-term and long-term maternity outcomes for women Veterans in VA and their newborns. The data below summarize what is known concerning pregnancies and pregnancy-related care as documented in administrative data.

Figure 3: Frequency of Diagnoses of Pregnancy-Related Conditions Among Women Veterans Using VA in FY10



36 Yoon J, Scott JY, et al. Trends in Rates and Attributable Costs of Conditions among Female VA Patients, 2000 and 2008. Womens Health Issues 2012;22(3): e337-344.
37 Wilcox AJ, Weinberg CR, et al. Incidence of early loss of pregnancy. N Engl J Med 1988;319(4):189-194.

Table 6: Frequency of Diagnoses of Pregnancy-Related Conditions Among Women Veterans Who Used VA in FY10 by Age Group[j,k]

	Age group		
	Total	**18-44**	**45-64**
	297,392	124,092	134,337
Ectopic and molar pregnancy *n (%)*	150 (0.1)	136 (0.1)	14 (0.01)
Miscarriage *n (%)*	949 (0.3)	939 (1)	10 (0.01)
Normal pregnancy and delivery *n (%)*	5,903 (2)	5,877 (5)	26 (0.02)
Pre-existing conditions complicating pregnancy *n (%)*	2,331 (1)	2,291 (2)	40 (0.03)
Obstetrical complications of pregnancy *n (%)*	3,627 (1.22)	3,432 (2.77)	195 (0.15)
Prolonged pregnancy *n (%)*	312 (0.1)	312 (0.3)	0

j Since the denominator for all pregnancy-related conditions was women Veterans who used VA in FY10, it is difficult to draw comparisons with commonly reported prevalence of pregnancy complications in non-Veteran populations in which the denominator is the total number of pregnancies. Further research is required to provide these comparisons.
k Pregnancy complications were categorized as either "pre-existing conditions complicating pregnancy" or "obstetrical complications of pregnancy." ICD-9-CM codes that indicated a condition that preceded pregnancy were categorized as "pre-existing conditions complicating pregnancy." ICD-9-CM codes that indicated complications occurring during the course of labor and delivery that require an obstetrician were classified as "obstetrical complications of pregnancy." For a complete list of codes and conditions, see the Technical Appendix Table 2.

Table 7: Service-Related Characteristics and Health Profile of Women Veterans Who Used VA in FY10 by Presence and Absence of Pregnancy-Related Diagnoses

	Pregnancy-related diagnoses	
	Absent	**Present**
Service-related characteristics n (%)		
OEF/OIF/OND	43,084 (15)	3,012 (38)
Service-connected disability (missing 762)		
None	125,705 (43)	2,607 (33)
0-49	82,888 (29)	3,093 (39)
50-99	64,826 (22)	2,012 (25)
100	15,222 (5)	277 (4)
Health profile n (%)		
≥1 Mental health condition[l]	117,115 (41)	3,316 (41)
≥1 Medical health condition[l]	198,846 (69)	3,710 (46)
Any Non-VA Medical Care[m]	51,149 (18)	5,055 (63)

l Mental health and medical diagnoses were identified using ICD-9-CM diagnostic codes from VA outpatient data from FY10. For details on the methodology and list of conditions see Technical Appendix.
m Non-VA Medical Care including inpatient and outpatient encounters in FY10.

Findings: As expected, normal pregnancy and delivery was the most frequently diagnosed pregnancy-related condition among women Veterans 18-44 years old (Figure 3); however, obstetrical complications of pregnancy were the second most common pregnancy-related condition diagnosed (Figure 3). Nearly 40% of those with pregnancy-related diagnoses were deployed in service of OEF/OIF/OND (Table 7). Compared with those without pregnancy-related diagnoses, those with such diagnoses were more likely to have any percent service-connected disability.

Implications: Women Veterans have a growing need for pregnancy-related care. There is an urgent need for data to understand the frequency of pre-existing or obstetrical complications of pregnancy. Pregnancy-related care may also be affected by a history of service-connected disability. More research is needed on the impact of service-connected disability and on how exposures and injuries acquired during service may affect pregnancy. A more detailed evaluation of pregnancy and maternity care needs and outcomes for women Veterans, including an accurate assessment of the prevalence of pregnancy complications, is a necessary next step towards improving VA maternity care. There is a need for prospective data collection on pregnancies in women Veterans in order to benchmark these pregnancies and their outcomes against pregnancies among civilian women.

Text Box 1: Maternity Care from Non-VA Medical Care

The data below address deliveries that VA paid for through Non-VA Medical Care. The data are from the Non-VA Medical Care data files and an evidenced-based algorithm was used to define pregnancy. The numbers in this section do not match those provided in the preceding section due to differences in the methods. Specifically, these results describe unique deliveries paid for by VA rather than the occurrence of pregnancy-related ICD-9-CM codes. Methods used to generate these data are described in a note below.[n]

Maternity Care from Non-VA Medical Care FY00-FY10. Since 1996, the VA health care benefits package has included maternity benefits. These benefits begin with the confirmation of pregnancy and continue through the postpartum visit or when the Veteran is medically released from obstetric care. The majority of this care is provided through Non-VA Medical Care.

Based on Non-VA Medical Care files:[n]

- From FY00-FY10, VA covered an estimated 12,000 inpatient deliveries. The annual number of deliveries has steadily increased in the last decade:[o]
  - FY00: 351 deliveries
  - FY10: just over 2000 deliveries
- Mean age of women Veterans with deliveries paid for by VA was 29
- OEF/OIF veterans account for a growing subset of covered deliveries:
  - 27% of all deliveries from FY00-FY11 were in OEF/OIF Veterans
  - 40-43% of VA covered deliveries from FY09 to FY11 were in OEF/OIF Veterans

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n Obstetric deliveries were identified based on a previously published algorithm using claim records' International Classification of Diseases (ICD-9-CM), procedure codes, and Diagnosis Related Groups (DRG) indicating delivery, and excludes care for miscarriage/abortion or treatment of ectopic or molar pregnancies. (Kuklina EV, Whiteman MK, Hillis SD, et al. An enhanced method for identifying obstetric deliveries: implications for estimating maternal morbidity. Matern Child Health J. 2008;12(4):469–477.) Apparent duplicate claims for the same pregnancy ending in delivery were removed to identify unique deliveries and individuals were then linked to the ADUSH files and OEF/OIF/OND by scrambled Social Security Number (scrSSN) to obtain demographic and service details.

o Numbers reported are *inpatient* obstetric delivery encounters submitted for reimbursement to the VA, based on Non-VA Medical Care inpatient data files for FY00 through FY11. As exact delivery dates are not provided in the discharge reimbursement claims, delivery date was estimated as the admission date for the delivery encounter and attributed to the FY of the hospital admission. Notably, delivery count estimates for a given FY are based on the year in which service delivery occurred, not on the date of reimbursement of the claim, to best estimate the trend in the annual deliveries provided by Non-VA Medical Care.

Text Box 2: Contraception in VA and Unintended Pregnancy

Contraception

Contraceptive services have long been covered by VA, and a full range of contraception methods are available to women Veterans through the VA Pharmacy and Prosthetics Departments. In addition, VA health benefits include female and male sterilization procedures (tubal sterilization and vasectomy). Many contraceptive products are available, including emergency contraception (EC), as standard medications on the VA National Formulary. Current VA policies and services that may enhance contraceptive availability and use include: mail-out prescriptions, multiple mechanisms for refilling prescriptions (online, phone, mail-in refill slips); provision of a 3-month supply of contraceptives; limited copayments on outpatient prescriptions including contraception (many are eligible for no copayment as well); and complete cost coverage for intrauterine devices (IUDs) and contraceptive implants.

- In 2001, 97% of VA facilities reported on-site provision and management of hormonal contraception and 63% reported capability of on-site IUD placement[p,q]
- The availability of Comprehensive Women's Health VA Clinics improves access to contraception including long acting reversible contraception such as IUD and hormone implants[r,s,t,u,v]

Unintended Pregnancy

There is no published data on the rates of unintended pregnancy among women who use the VA health care system. The most recent study of military women indicates an unintended pregnancy rate of 78 per 1,000 women, which is 50% higher than that reported for the U.S. population (52 per 1,000 women).[w] Women recently entering the military are disproportionately of lower income, lower education, and of minority race or ethnicity.[x,y,z,aa] Low income, lower levels of education, and minority racial or ethnic status are also known risk factors for unintended pregnancy.[bb] Moreover, lack of access to contraception can lead to short inter-pregnancy intervals (<18 months apart), which like unintended pregnancy are associated with adverse birth outcomes,[cc,dd] and can strain couples' resources and contribute to the cycle of poverty and/or disadvantage among vulnerable populations.[ee] Furthermore, because female Veterans have a significantly higher burden of mental illness compared with civilian women,[ff,gg] the adverse psychological consequences of unintended pregnancy may be particularly onerous.[hh]

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p Rose DE, Canelo IA, Washington DL, Bean-Mayberry B, Em Y. Changes in on-site availability of basic and specialty healthcare for women Veterans, 2001-2007. In: VA HSR&D 2009 National Meeting. Washington, D.C.; 2009.

q Seelig MD, Yano EM, Bean-Mayberry B, Lanto AB, Washington DL. Availability of gynecologic services in the Department of Veterans Affairs. Women's Health Issues 2008;18:167-73.

r Seelig MD, Yano EM, Bean-Mayberry B, Lanto AB, Washington DL. Availability of gynecologic services in the Department of Veterans Affairs. Women's Health Issues 2008;18:167-73.

s Borrero S, Mor M, Zhao X, McNeil M, Ibrahim S, Hayes P. Contraceptive care in the VA health care system. Contraception 2011;(In press).

t Stubbs E, Schamp A. The evidence is in. Why are IUDs still out?: family physicians' perceptions of risk and indications. Can Fam Physician. 2008 Apr;54(4):560-6.

u Schreiber CA, Harwood BJ, Switzer GE, Creinin MD, Reeves MF, Ness RB. Training and attitudes about contraceptive management across primary care specialties: a survey of graduating residents. Contraception 2006;73:618-22.

v Cope JR, Yano EM, Lee ML, Washington DL. Determinants of contraceptive availability at medical facilities in the Department of Veterans Affairs. J Gen Intern Med 2006;21 Suppl 3:S33-9.

w Grindlay K, Grossman D. Unintended pregnancy among active-duty women in the United States military, 2008. Obstet Gynecol 2013; 121(2 Pt 1): 241-246.

x Frayne S, Parker V, Christiansen C, et al. Health status among 28,000 women veterans: The VA Women's Health Program Evaluation Project. Journal of General Internal Medicine 2006;21:S40-S6.

y Holder K. Post 9/11 women veterans annual meeting of the Population Association of America Housing and Household Economic Statistics Division. In: U.S. Census Bureau; 2010.

z Mengeling M, Sadler A, Torner J, Booth B. Evolving comprehensive VA women's health care: patient characteristics, needs, and preferences. Women's Health Issues 2011;21:S120-9.

aa Ahga Z, Lofgren R, VanRttswyk J, Layde P. Are patients at Veterans Affairs medical centers sicker? A comparative analysis of health status and medical resource use. Archives of Internal Medicine 2000; 160:3252-7.

bb Finer LB, Henshaw SK. Disparities in rates of unintended pregnancy in the United States, 1994 and 2001 Perspect Sex Reprod Health, 2006;38:90–96.

cc Conde-Agudelo A, Am R-B, Jafury-Goeta A. Birth spacing and risk of adverse perinatal outcomes - a meta-analysis. Journal of the American Medical Association 2006;295:1809-23.

dd Zhu B. Effect of interpregnancy interval on birth outcomes: Findings from three recent U.S. studies. International Journal of Gynecology & Obstetrics 2005;89:S25-S33.

ee Frost JJ, Darroch JE, Remez L. Improving contraceptive use in the United States. Issues Brief (Alan Guttmacher Inst) 2008:1-8.

ff Office of Public Health and Environmental Hazards: Women Veterans Health Strategic Health Care Group. Report of the under Secretary for Health workgroup: Provision of primary care to women veterans. In: Department of Veterans Affairs, ed.; 2008.

gg Skinner K, Furey J. The focus on women veterans who use Veterans Administration Health Care: The Veterans Administration Women's Health Project. Military Medicine 1998;163:761-6

hh Mattocks K, Skanderson M, Goulet J, et al. Pregnancy and mental health among women veterans returning from Iraq and Afghanistan. Journal of Women's Health 2010;19:2159-66.

4.1.3 Female Infertility

Female infertility has many causes and can occur at any point during a woman's childbearing years. Infertility is typically defined as failure to conceive after one year of trying with regular intercourse if a woman is <35 years old, or failure to conceive within six months if a woman is ≥35 years old. VA provides benefits for a wide range of infertility services.

Findings: Of the 124,092 women Veterans 18-44 years old who used VA in FY10, 1% (n=1,746) had a diagnosis of female infertility.

Implications: The frequency of diagnosis of infertility among women Veterans using VA health care in FY10 appears lower than the rate of 2% recently reported among active duty Servicewomen who were deployed.[38] Diagnosis of female infertility is reliant on pregnancy intention and care seeking behavior. Women with known infertility or who already have children prior to separation from the military and enrollment in VA may no longer be attempting conception, and therefore, may not report their history of infertility. To date, the literature on military service and fertility is largely inconclusive.[39] Further research is needed on the impact of military service and deployment on fertility including understanding the relationship between potential environmental and occupational exposures and fertility. Documented disparities in access to infertility care exist in the general US population.[40,41,42] Evaluation and analysis of Veterans' access to these services within VA is needed in order to inform program development and future needs.

4.2 Menopause and Menopausal Disorders Among Women Veterans 45-64 Years Old

Natural menopause is defined as the permanent cessation of menstrual periods for 12 months without other identifiable pathological or physiological cause. The average age of natural menopause in the United States is 51.4 years; however, symptoms often occur during the preceding years, and the average age of onset of the perimenopausal transition is 47 years.[43] The average age of menopause is lower for women with surgical menopause rather than natural menopause.[43] Menopausal symptoms may negatively impact a woman's quality of life.[44] Management of symptoms can require multiple visits and multiple modalities including lifestyle changes and hormonal and non-hormonal medications.

38 Health of women after wartime deployments: correlates of risk for selected medical conditions among females after initial and repeat deployments to Afghanistan and Iraq, active component, US Armed Forces. Medical Surveillance Monthly Report, July 2012, Vol 19, Number 7:2-10.
39 Doyle P, Maconochie N, et al. Reproductive health of Gulf War Veterans. Philos Trans R Soc Lond B Biol Sci 2006;361(1468): 571-584.
40 Chandra A, Stephen EH. Infertility service use among U.S. women: 1995 and 2002. Fertil Steril 2010;93(3): 725-736.
41 Eisenberg ML, Smith JF, et al. Predictors of not pursuing infertility treatment after an infertility diagnosis: examination of a prospective U.S. cohort. Fertil Steril 2010;94(6): 2369-2371.
42 Greil AL, McQuillan J, et al. Race-ethnicity and medical services for infertility: stratified reproduction in a population-based sample of U.S. women. J Health Soc Behav 2011;52(4): 493-509.
43 Tom SE, Cooper R, et al. Menopausal characteristics and physical functioning in older adulthood in the National Health and Nutrition Examination Survey III. Menopause 2012; 19(3): 283-289.
44 Ayers B, Hunter MS. Health-related quality of life of women with menopausal hot flushes and night sweats. Climacteric 2013 Apr;16(2):235-9.

Table 8: Service-related Characteristics and Health Profile of Women Veterans Who Used VA in FY10 by Presence and Absence of Menopausal Disorders

	Menopausal disorders	
	Absent	Present
Service-related characteristics n (%)		
OEF/OIF/OND	44,995 (17)	1,101 (4)
Service-connected disability		
None	116,763 (43)	11,549 (45)
0-49	79,914 (29)	6,067 (23)
50-99	60,167 (22)	6,671 (26)
100	13,874 (5)	1,625 (6)
Health profile n (%)		
≥1 Mental health condition[ii]	108,155 (40)	12,276 (47)
≥1 Medical health condition[ii]	180,787 (67)	21,769 (84)
Any Non-VA Medical Care[jj]	51,149 (18)	5,055 (63)

ii Mental health and medical diagnoses were identified using ICD-9-CM diagnostic codes from VA outpatient data from FY10.
For details on the methodology and list of conditions, see Technical Appendix.
jj Any Non-VA Medical Care including inpatient and outpatient encounters in FY10.

Findings: Not surprisingly menopausal disorders were the most frequent RH diagnosis among women Veterans aged 45-64 years old (Figure 2, Table 2, and Table 3). Overall, 9% of women Veterans who used VA in FY10 (n = 25,959) had a diagnosis of a menopausal disorder (Figure 2 and Table 3). Compared with those without menopausal disorders, those with these disorders had a greater frequency of mental health and medical conditions (Table 8).

Implications: Women Veterans 45-65 years old may require ongoing care for menopausal disorders. As the current cohort of women Veterans 18-44 years old ages, the demand for such services will increase. Care of menopausal disorders may be impacted by coexisting mental health and medical conditions. Interactions between menopause and mental health conditions are an important area of reproductive mental health care. Recommendations for clinical management of menopausal disorders continues to evolve; thus, efforts are ongoing to ensure that providers and patients have the most up to date knowledge regarding treatment and management of these conditions.

4.2.1 Urinary Conditions (including Incontinence) in Women Veterans Across the Lifecycle

Urinary conditions, including urinary tract infections (UTI) and urinary incontinence are extremely common in the general population. Known risk factors for urinary incontinence include age, obesity, race, medical comorbidities, current major depression, history of hysterectomy, parity, and prior cesarean delivery.[45] Severity of urinary symptoms is also associated with increased risk of major depression.[46]

Women Veterans may have unique risk factors for urinary conditions and related sequelae tied to their military service. In October 2012, an Army task force created by the Army's Surgeon General, examined women's health issues during deployment. The task force concluded that basic improvements were needed to help women avoid urinary tract and vaginal infections; stress-related menstrual changes; and chafing, bruising and bleeding caused by ill-fitting body armor designed for men. According to a study released in 2011,

45 Melville JL, Katon W, et al. Urinary incontinence in US women: a population-based study. Arch Intern Med 2005;165(5): 537-542.
46 Melville JL, Delaney K, et al. Incontinence severity and major depression in incontinent women. Obstet Gynecol 2005; 106(3): 585-592.

half of the women surveyed during deployment were treated for urinary or vaginal infections.[47,48] Factors thought to contribute to higher numbers of urinary and vaginal infections include a tendency for women to drink less water and delay urinating while in full battle gear.

Figure 4: Frequency of Diagnoses of Urinary Conditions (including Incontinence) Among Women Veterans Using VA in FY10 by Age Group

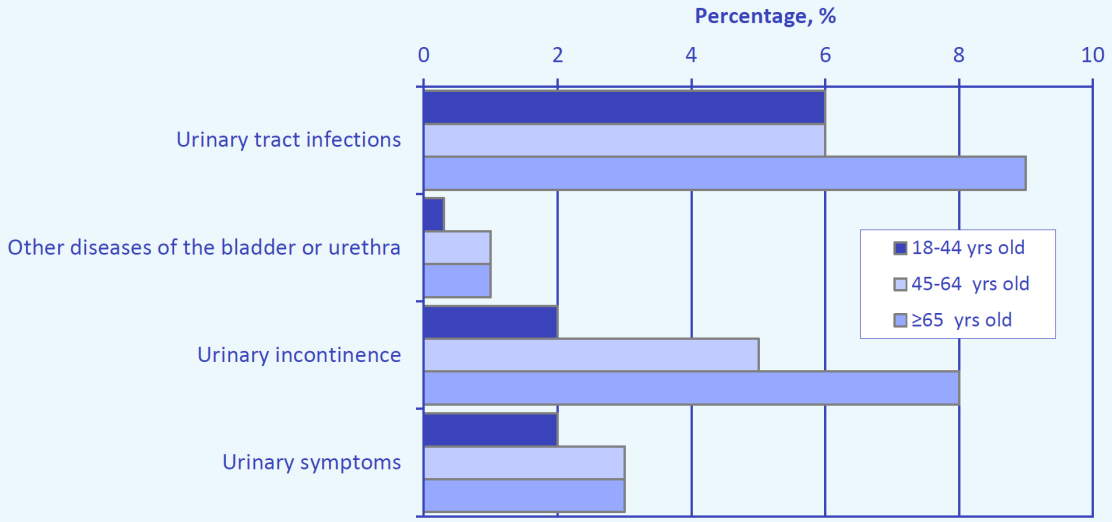


Table 9: Frequency of Diagnoses of Urinary Conditions (including Incontinence) Among Women Veterans Who Used VA in FY10 by Age Group

	Age Group			
	Total	**18-44**	**45-64**	**≥65 yrs old**
Urinary tract infections *n (%)*	19,864 (7)	7,732 (6)	8,572 (6)	3,560 (9)
Other diseases of the bladder or urethra *n (%)*	1,284 (0.4)	307 (0.3)	707 (1)	270 (1)
Urinary incontinence *n (%)*	12,090 (4)	2,259 (2)	6,625 (5)	3,206 (8)
Urinary symptoms *n (%)*	8,167 (3)	2,993 (2)	3,884 (3)	1,290 (3)

47 The concerns of Women Currently Serving in the Afghanistan Theater of Operations White Paper Developed by: Women's Health Assessment Team COL Anne Naclerio, MD, MPH, Col Jule Stola, RN, MSN, LTC Lori Trego, PhD, ARNP, Maj Erin Flajerty, DOHealth Service Support Assessment Team, IJC, Afghanistan, 100 October 2011.

48 Ryan-Wenger NA, Lowe NK. Military women's perspective on health care during deployment. Women's Health Issues. 2000; 10(6):333-343.

Table 10: Service-Related Characteristics and Health Profile of Women Veterans Who Used VA in FY10 by Presence or Absence of Urinary Conditions (including Incontinence)

	Urinary conditions	
	Absent	Present
Service-related characteristics n (%)		
OEF/OIF/OND	42,699 (16)	3,397 (10)
Service-connected disability		
None	113,396 (43)	14,916 (44)
0-49	78,373 (30)	7,608 (22)
50-99	58,240 (22)	8,598 (25)
100	12,470 (5)	3,029 (9)
Health profile n (%)		
≥1 Mental health condition[kk]	102,524 (39)	17,907 (52)
≥1 Medical health condition[kk]	174,549 (66)	28,007 (82)
Non-VA Medical Care[ll]	46,330 (18)	9,874 (29)

kk Mental health and medical diagnoses were identified using ICD-9-CM diagnostic codes from VA outpatient data from FY10.
For details on the methodology and list of conditions see, Technical Appendix.
ll Non-VA Medical Care including inpatient and outpatient encounters in FY10.

Findings: Among women Veterans using VA in FY10, urinary conditions including incontinence were among the top five reproductive conditions in all age groups and the second most common condition among women ≥65 years old (Figure 2, Table 2, and Table 3). Compared with women Veterans without diagnosed urinary conditions, those with diagnosed conditions were more likely to have at least one diagnosed medical or mental health condition, which may reflect increased risk of comorbid illness or higher VA reliance and utilization by women Veterans with diagnosed urinary conditions (Table 10).

Implications: As the current cohort of women Veterans 18-44 years old ages, the demand for treatments for urinary conditions will likely increase. Treatment of these conditions among women Veterans may often be impacted by other medical and mental health diagnoses. Urinary conditions, in particular incontinence, are associated with increased risk of depression,[49] underscoring the need for an integrative approach to management of these conditions.

4.2.2 Gynecologic Cancers and Breast Cancer

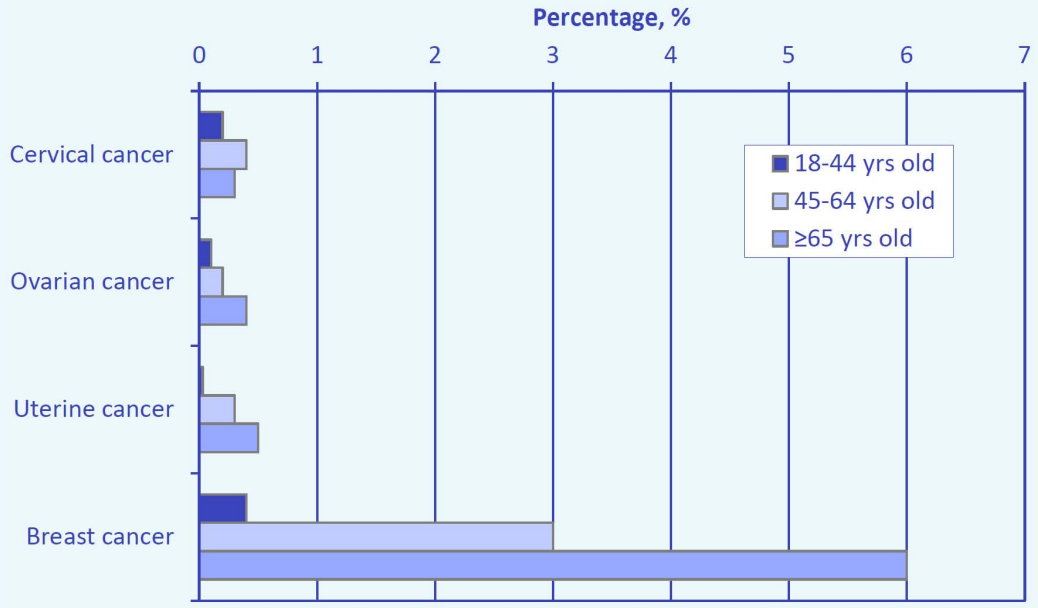
Although not as common as other RH conditions, gynecologic and breast cancers remain a source of concern for women. Gynecologic cancers include cervical cancer, ovarian cancer, and uterine cancer. In the US, cervical cancer rates are lower than those of ovarian and uterine cancer.[50] Although ovarian cancer is the leading cause of death from gynecologic cancers,[51] there is no effective screening test available. Uterine cancer is the most common gynecologic cancer in developed countries.[51] If identified at an early stage, prognosis for uterine cancer is generally good. Breast cancer is the most common female cancer in the US and the second leading cause of cancer deaths among women.[50] Established risk factors for breast cancer include age, gender, reproductive history, hormonal factors, and family history. Mammography is the primary method for breast cancer screening. Compared with private insurance and Medicare/Medicaid patient cohorts, VA has higher screening rates for breast and cervical cancer. In FY11, 87% of eligible women Veterans enrolled in VA health care received a mammogram, compared with 71% of eligible women in the private

49 Melville JL, Delaney K, et al. Incontinence severity and major depression in incontinent women. Obstet Gynecol 2005;106(3): 585-592.
50 Siegel R, Ward E, et al. Cancer statistics, 2011: the impact of eliminating socioeconomic and racial disparities on premature cancer deaths. CA Cancer J Clin 2011;61(4): 212-236.
51 Jemal A, Bray F, Center MM, Ferlay J, Ward E, Forman D. Global cancer statistics. CA Cancer J Clin. 2011 Mar-Apr;61(2):69-90.

sector, 69% in Medicare, and 51% in Medicaid.[52] In 2008 and 2009, 92% of women Veterans 21-64 years old who were enrolled in VA, received at least one Pap-smear to screen for cervical cancer within the past 3 years, which exceeded screening rates in all other sectors.[52] IIn 2009, the US Preventive Services Task Force (USPSTF) issued new breast cancer screening recommendations that revised the starting age for screening to 50 years and the screening interval to every two years.[53] The USPSTF also issued new recommendations for cervical cancer screening in 2012.[54]

Reliance on VA administrative records for cancer surveillance, particularly for gynecologic cancers and breast cancer, has some important limitations; these findings need to be interpreted cautiously (see *Text Box 3: Medical Record Evidence for Diagnosis and Treatment of Invasive Cervical Cancer in Women Veterans using VA Facilities Between Calendar Years 2000-2010*).

Figure 5: Frequency of Diagnosis of Gynecologic and Breast Cancers Among Women Veterans Using VA in FY10



52 http://www.va.gov/health/NewsFeatures/20121001a.asp.
53 Screening for breast cancer: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med. 2009 Nov 17;151(10): 716-26, W-236.
54 Screening for Cervical Cancer, Topic Page. April 2012. U.S. Preventive Services Task Force. Accessed Nov. 25, 2013 at http://www.uspreventiveservicestaskforce.org/uspstf/uspscerv.htm.

Table 11: Frequency of Diagnosis of Gynecologic and Breast Cancers Among Women Veterans Who Used VA in FY10

		Age group		
	Total	**18-44**	**45-64**	**≥65 yrs old**
Cervical cancer *n (%)*	947 (0.3)	299 (0.2)	531 (0.4)	117 (0.3)
Ovarian cancer *n (%)*	571 (0.2)	111 (0.1)	319 (0.2)	141 (0.4)
Uterine cancer *n (%)*	562 (0.2)	42 (0.03)	340 (0.3)	180 (0.5)
Breast cancer *n (%)*	6,611 (2)	507 (0.4)	3,745 (3)	2,359 (6)

Implications: Future research efforts that include systematic medical record review are needed to facilitate the determination of gynecologic cancer diagnoses and treatment in the administrative and medical records (see *Text Box 3: Medical Record Evidence for Diagnosis and Treatment of Invasive Cervical Cancer in Women Veterans using VA Facilities Between Calendar Years 2000-2010*). Moreover, systematic efforts are needed to track outcomes and understand rates of predisposing risk factors (such as rates of human papillomavirus (HPV) infection and vaccination in the population). Additional efforts should also focus on incorporating results of pathology to confirm diagnoses of cancer.

Text Box 3: Medical Record Evidence for Diagnosis and Treatment of Invasive Cervical Cancer in Women Veterans Using VA Facilities Between Calendar Years 2000-2010

To further explore rates of medical record evidence of cervical cancer (e.g., based on validated diagnostic codes) among women Veteran VA users, Weitlauf et al,[mm] examined the VA medical records of 491,364 women Veterans using VA health care facilities for outpatient care between 2000-2010. Of the 491,364 women in the sample, 2,435 (0.50%) had a diagnosis of invasive cervical cancer and 4,184 (0.85%) had medical record evidence of treatments provided through VA and Non-VA Medical Care (e.g., radical hysterectomy, targeted radiation) that would be consistent with invasive cervical cancer over an 11-year period of observation. The majority of women with a diagnosis were aged 36-65 years, and medical record evidence of treatment was most prevalent in women aged 45 years and older.

Concordance of medical record evidence for diagnosis and treatment of cervical cancer was low overall, with 225 (9.2%) diagnosed women having any medical record evidence of treatment consistent with cervical cancer. Concordance of diagnosis and treatment also varied for women with medical record evidence of surgeries (e.g., radical hysterectomy), radiation, or both. Specifically, of the 60 women with medical record evidence of radiation and surgical procedures consistent with the treatment of cervical cancer, 39 (45%) had a diagnosis of invasive cervical cancer. However, of the 3,816 women who had radiation (but not surgery) treatments commonly used in cervical cancer, 161 (4.2%) had a diagnosis of invasive cervical cancer. Of the 312 who had surgical procedures highly specific to the treatment of cervical cancer, 55 (17.6%) had a diagnosis of invasive cervical cancer.

Although the proportion of women Veteran VA patients with cervical cancer diagnoses observed was higher than that reported by the Surveillance, Epidemiology and End Results registry (SEER) (0.16%), direct comparisons with SEER prevalence data are problematic due to multiple methodological differences.

It is not possible to determine if these crude prevalence rates represent a true elevated risk for cervical cancer amongst women Veterans.

mm Weitlauf JC, McGuire V, Balasubramanian V, et al. Medical Record Evidence for Diagnosis and Treatment of Invasive Cervical Cancer in Women Veterans using VHA: A Technical Report Prepared for Women Veterans Health Services & Office of Patient Care Services, VA Central Office. 2012.

4.3 Other Key Reproductive Health Conditions

Other female RH conditions include a heterogeneous group of conditions with a variety of etiologies. These conditions are associated with varying degrees of morbidity.

Figure 6: Frequency of Diagnoses of Other Female Reproductive Organ Conditions Among Women Veterans Using VA in FY10

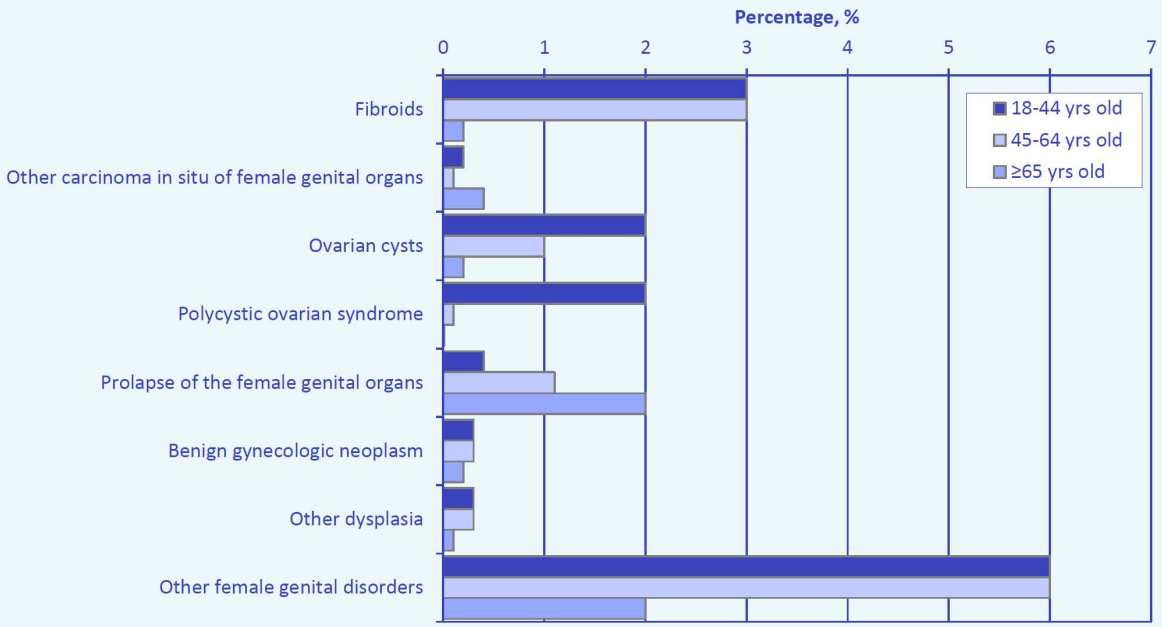


Table 12: Frequency of Diagnoses of Other Female Reproductive Health Conditions Among Women Veterans Who Used VA in FY10 by Age Group

	Age group			
	Total	**18-44**	**45-64**	**≥65 yrs old**
	297,392	124,092	134,337	38,963
Fibroids *n (%)*	7,004 (2)	3,237 (3)	3,699 (3)	68 (0.2)
Other carcinoma in situ of female genital organs *n (%)*	130 (0.0)	23 (0.02)	91 (0.1)	16 (0.04)
Ovarian cysts *n (%)*	3,974 (1)	2.613 (2)	1,274 (1)	87 (0.2)
Polycystic ovarian syndrome *n (%)*	2,090 (1)	1,918 (2)	168 (0.1)	4 (0.01)
Prolapse of the genital organs *n (%)*	2,562 (1)	452 (0.4)	1,532 (1.1)	578 (2)
Benign gynecologic neoplasm *n (%)*	807 (0.3)	307 (0.3)	443 (0.3)	57 (0.2)
Other dysplasia *n (%)*	808 (0.3)	370 (0.3)	397 (0.3)	41 (0.1)
Other female genital disorders *n (%)*	17,094 (6)	7,709 (6)	8,489 (6)	896 (2)

Findings: This group contained a heterogeneous mix of RH conditions. The frequency of diagnosis of specific conditions varied among age groups (Table 12 and Figure 6). Among women Veterans using VA in FY10, women Veterans 18-44 years old had the highest frequency of diagnoses of ovarian cysts and polycystic ovarian syndrome. Among women Veterans using VA in FY10, women Veterans 18-64 years old had the highest frequency of diagnosis of fibroids.

Implications: Women Veterans have diverse RH needs that vary by age. More careful evaluation of some of these conditions may be warranted.

5. Organization of VA Reproductive Health Services

Women Veterans may receive medical care in the VA in a number of different, non-mutually exclusive models of care (see *Text Box 4: Models of Care for Women Veterans in VA*). Reproductive health care may be delivered in any of these settings. Among the 553,000 women Veterans enrolled in VA in FY11, 337,000 received care from a VA facility.[55]

- 67% of these women Veterans received care at least once in a mixed gender primary care/internal medicine setting
- 34% received care at least once in a comprehensive Women's Health Center (WHC)
- 13% received care at least once in a gynecology clinic

Text Box 4: Models of Care for Women Veterans in VA[nn]

- **Model 1: General Primary Care Clinics**
  Women Veterans are seen within a general gender-neutral primary care clinic. Mental health services for women are co-located. Efficient referral to specialty gynecology service is available either on-site or through Non-VA Medical Care, contractual or sharing agreements, or referral to other VA facilities.
- **Model 2: Separate but Shared-Space**
  Primary care services are offered in a separate but shared-space. Gynecological care and mental health services are co-located in this space and readily available.
- **Model 3: Women's Health Center**
  Comprehensive primary care services in an exclusive separate space. Specialty gynecological care, mental health, and social work services are co-located in this space.

nn VHA Handbook 1330.01, May 21, 2010. Accessed Nov. 25, 2013 at http://www1.va.gov/vhapublications/ViewPublication.asp?pub_ID=2246.

55 Women's Assessment Tool for Comprehensive Health (WATCH) Report FY2011.

5.1 Comprehensive Primary Care and Reproductive Health Care

Text Box 5: Basic Reproductive Health Services[oo]

- Routine pelvic exams
- Routine breast exams
- Cervical cancer screening
- Contraceptive counseling and management (intrauterine devices and implants may need additional expertise)
- Sexually transmitted infection screening and treatment
- Initial evaluation and treatment of vaginal infections, pelvic pain, and abnormal uterine bleeding
- Initial evaluation and treatment of menstrual and menopausal symptoms

oo Washington, DL, Caffrey C, et al. Availability of comprehensive women's health care through Department of Veterans Affairs Medical Center. Womens Health Issues 2003;13(2): 50-54.

Comprehensive primary care for women is "complete primary care and care coordination by one primary care provider at one site."[56] Within the context of an ongoing relationship, the primary care provider meets all primary care needs of a woman Veteran, including basic RH care, preventive health services, evaluation and treatment of acute and chronic illness, and mental health needs. Basic RH care can be delivered by designated Women's Health Primary Care Providers (PCPs). Women's Health PCPs include family practice and internal medicine physicians, nurse practitioners, and physician assistants trained in providing gender-specific women's health care (see *Text Box 5: Basic Reproductive Health Services*). In FY12, 100% of health care systems had at least one designated women's health primary care provider. Each VA Medical Center and/or Community-Based Outpatient Clinic may offer one or more models of care on-site for women Veterans' primary care.[57] (See *Text Box 4: Models of Care for Women Veterans in VA*).

5.2 VA Gynecology Care

Gynecologist/obstetricians are physicians with specific education and certification who have attained special knowledge, skills, and professional capability in the medical and surgical care of the female reproductive system and associated disorders. In this capacity, they can serve as consultants to non-gynecologist/obstetrician physicians.[58] Gynecologists and gynecology subspecialists utilize medical and/or surgical treatments to address a wide range of RH issues. VA provides "specialty" gynecology services for women with RH concerns that cannot be addressed in the comprehensive primary care setting. Clinicians trained in general gynecological care (e.g., gynecologist/obstetrician, or advanced women's health trained nurse practitioner, family physician, or physician assistant) can provide specialty gynecology services for women Veterans on-site or off-site through Non-VA Medical Care or contracts.

When gynecology care is not available at a VA facility, federal law allows VA to pay for care at outside facilities via Non-VA Medical Care or contract care arrangements. Non-VA Medical Care arrangements are those in which community providers are reimbursed by VA for each individual service rendered to patients. The use of Non-VA Medical Care for gender-specific conditions has increased over time. Approximately 2% of all OEF/OIF/OND women Veterans enrolled in VA care received some Non-VA Medical Care for a gender-specific condition in 2002, while in 2008, more than 7% of OEF/OIF/OND Veterans enrolled in care received Non-VA Medical Care for a gender-specific condition. Among women Veterans who received care through VA for a gender-specific condition, 24% had their condition treated through Non-VA Medical Care.[59]

56 VHA Handbook 1330.01, May 21, 2010. Accessed Nov. 25, 2013 at http://www1.va.gov/vhapublications/ViewPublication.asp?pub_ID=2246.
57 Haskell S. Presentation, Spotlight on Women's Assessment Tool for Comprehensive Health (WATCH) Report FY2012, May 15, 2013. Accessed Nov. 25, 2013 at http://www.hsrd.research.va.gov/for_researchers/cyber_seminars/archives/680-notes.pdf
58 American Board of Obstetrics and Gynecology. Accessed Nov. 5, 2013 at http/:www.abog.org
59 Mattocks K, Zephyrin L, Herrera L, Haskell S, Frayne S, Yano E, Hayes, P, Brandt C. Dual sources of care for gender-specific conditions among OEF/OIF women veterans. Manuscript in Progress.

5.3 VA Maternity Care

The delivery of high quality maternity care involves a health systems approach and collaboration among pediatrics, anesthesia, gynecology/obstetrics, radiology, and other subspecialists as needed. Given the relatively small (but increasing) numbers of women Veterans receiving maternity benefits through VA, maternity care is typically provided off-site through sharing agreements, contract care, or Non-VA Medical Care. There are a limited number of VA sites that have the capacity to provide on-site prenatal care, however, the majority of sites outsource prenatal care. All sites outsource labor and delivery services. Women Veterans may continue to receive care through the VA health care system during their pregnancies, either for management of coexisting medical or mental health conditions or to acquire laboratory tests or medications. Coordination of care and information sharing among all providers, including non-VA and VA providers, is important to ensure high quality maternity care. The VHA Handbook on Maternity Care and Care Coordination[60] now provides policy guidance on this care coordination and ensuring the provision of high quality maternity care to women Veterans. There is also an ongoing need to understand patterns of use of VA maternity benefits by women Veterans, and to monitor the quality of care they receive and their pregnancy outcomes. Ongoing efforts to address these are including modifications to VistA/CPRS (Veterans Health Information Systems and Technology Architecture/Computerized Patient Record System) that will create fields to systematically document pregnancy status and other key RH indicators, the development of a pregnancy registry, and the introduction of maternity care coordination pilot programs.

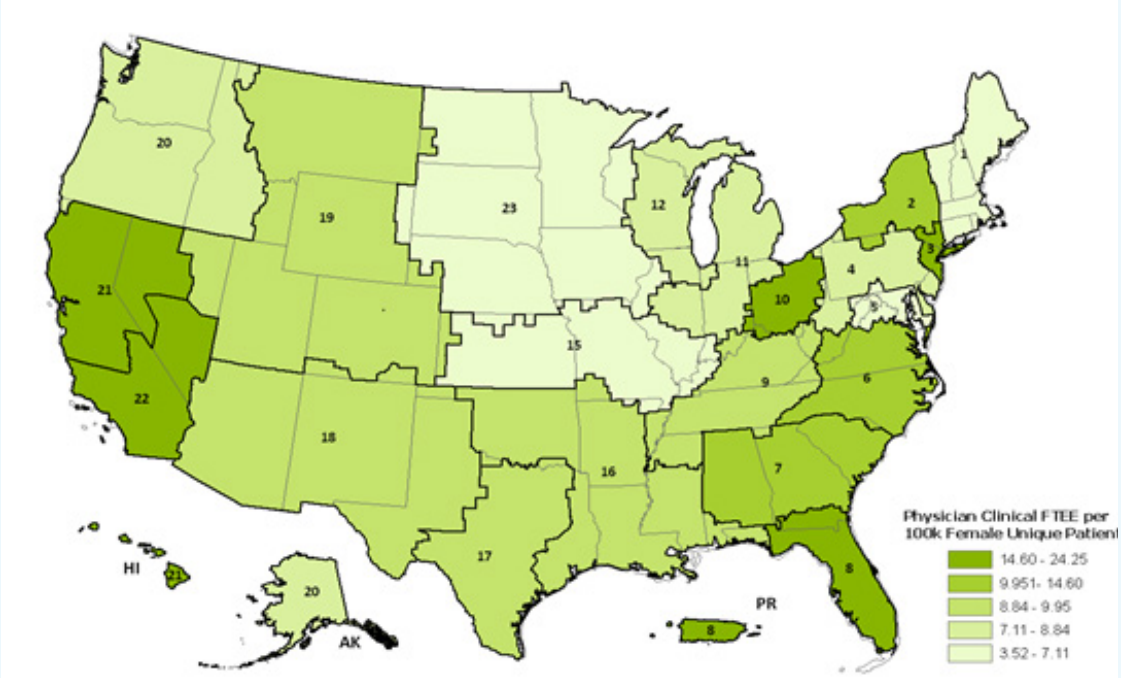
60 VHA Handbook 1330.03, Maternity Health Care and Coordination, Oct. 5, 2012. Accessed Nov. 25, 2013 at http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2803

5.4 VA Gynecology/Obstetrics Workforce

The increasing number of women Veterans enrolling in VA creates a need for a well-trained VA gynecology/obstetrics (Gyn/Ob) workforce that can provide high quality RH services and serve as consultants to primary care providers and other specialty care providers. Between FY07 and FY11, the number of annual Gyn/Ob encounters in the VA health care system increased from 76,402 to 93,588.[61] There has also been growth in the number of established VA gynecology practices from 60 in FY06 to 94 in FY11.[61]

There is wide regional variation (by Veteran Integrated Service Network) in the number of Gyn/Ob full-time employee equivalents (FTEE) per 100,000 female patients, ranging from 3.52 to 24.25 across sites (Figure 7). In FY12, 36 VA sites of care did not have an on-site gynecologist.[62] Many of these sites are meeting current needs for gynecology care with Non-VA Medical Care or contract care. As the population of women Veterans increases, many of these sites may require development of services to meet the demands at their local facilities. The use of nurse practitioners and physician assistants with gynecological expertise can also increase the available gynecology workforce. Physician extenders and clinical support staff are key components to expanding and supporting the gynecologic workforce.

Figure 7: VA Gynecology Physician Clinical FTEE per 100,000 Total Female Unique Patients (FY 2011)



61 VHA Office of Productivity and Efficiency Staffing (OPES) Data represents all physician workload by providers with a person class (specialty) of OB/GYN. VHA Directive 2012-003 Person Class File Taxonomy specifies that providers have an accurate person class assignment and that it should be reviewed at least annually.

62 Data obtained from Office of Productivity and Efficiency Staffing (OPES) and updated by talking with Women Veterans Program Managers about on-site Gyn capability.

5.5 VA Gynecology Procedures

The most common gynecologic procedures performed in VA gynecology clinic settings in FY11 were endometrial biopsy (taking a sample of the uterine lining), cervical biopsy or curettage, and intrauterine device insertion and removal (Table 13).

Table 13: Gyn/Ob CPT Code Category Grand Totals (in Descending Order)

Category	Total CPT	Percentage
Cervical procedures for management of abnormal paps	4060	24.9%
Intrauterine device & diaphragm	2984	18.3%
Uterine biopsy/D&C	2840	17.4%
Uro-gyn procedures (excludes vaginal hysterectomy)	1237	7.6%
Colposcopy only	1233	7.6%
Hysteroscopy	964	5.9%
Other	644	3.9%
Vulvar procedures (lesions/biopsies)	553	3.4%
Abdominal Hysterectomy	467	2.9%
Laparoscopic procedures (lysis, tubes)	466	2.9%
Vaginal procedures (lesions/biopsies)	295	1.8%
Laparoscopic hysterectomy	184	1.1%
Vaginal gysterectomy	184	1.1%
Endometrial ablation	131	0.8%
Myomectomy	43	0.3%
Ovarian procedures	40	0.2%
Laparoscopic myomectomy	9	0.1%
Total	16308	100.0%

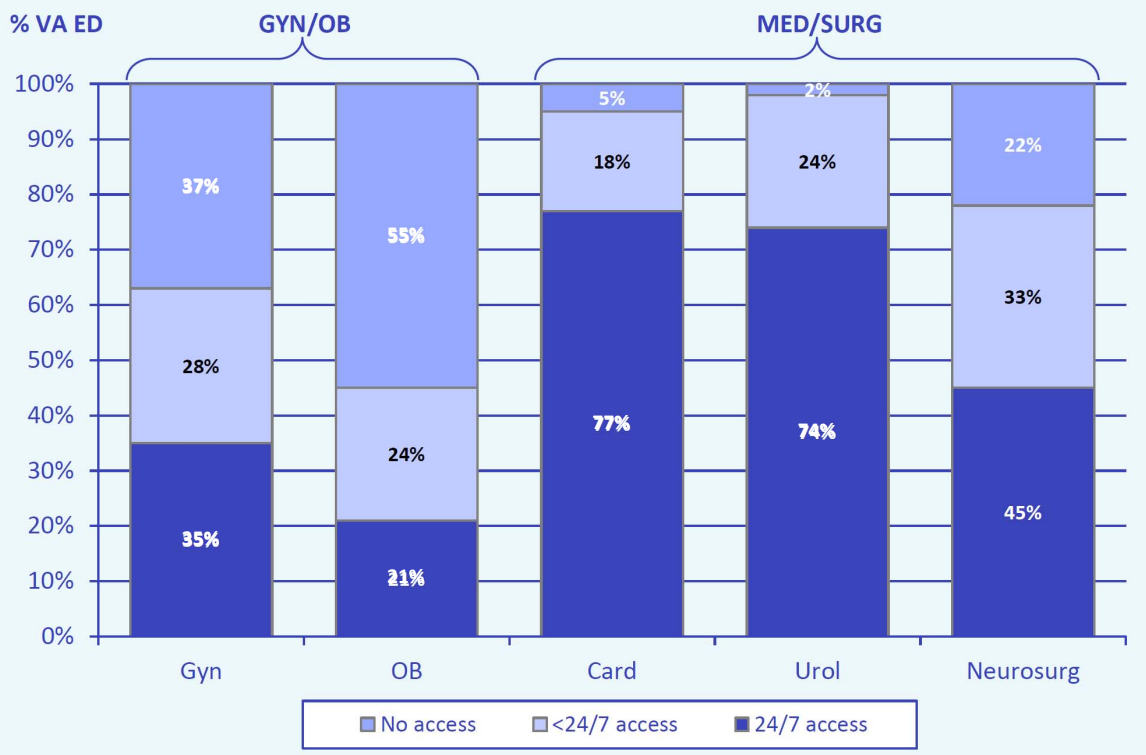
Implications: To meet women Veterans' current and future needs for specialized gynecology services, VA will continue to enhance and expand the gynecology workforce across VA. Variations across geographic areas and Veteran populations can impact delivery of RH services (e.g., local shortages of qualified gynecologists, lengthy travel times to nearest VA or non-VA facility). Reducing barriers to gynecology care by developing innovative technologies such as tele-gynecology visits are critical aspects in the delivery of specialty gynecology services across the VA health care system.

5.6 VA Emergency Department Care

VA EDs are increasingly providing care to women Veterans presenting with RH conditions including gynecologic and obstetric emergencies. Availability of consultative gynecology services in VA EDs is essential for meeting the urgent and emergent RH needs of women Veterans.

The 2011 VA Emergency Services for Women (VA-ESW) Survey assessed all 120 VA EDs and revealed that VA EDs vary widely in the resources and processes used to provide gender-specific care to women Veterans. In comparison with services for conditions where prevalence is either gender-neutral or concentrated in men (e.g., urologic conditions), services for conditions specific to or more common in women were less commonly available in VA EDs (Figure 8).

Figure 8: Gynecology and Obstetrics Consultations Available in the Emergency Department



Cordasco, Zephyrin, Kessler, Mallard, Canelo, Rubenstein, Yano. 2011 VHA Emergency Services For Women Survey

While many VA EDs have capabilities for gender-specific care, gaps remain, especially among EDs with fewer women Veteran encounters. A critical component of access to RH services in VA EDs includes access to key resources including certain laboratory tests, examination supplies and equipment, and gynecology consultants. The VA-ESW Survey revealed that these resources and processes for gender-specific conditions (e.g., gynecologic examination equipment and supplies, pregnancy-related laboratory testing and medications, emergent gynecologic consultations) are more available in EDs that have more encounters with women Veterans, are in metropolitan areas, and are part of complex health care systems.[63]

Implications: Development of additional resources and guidance must continue to ensure availability of high quality care to women Veterans accessing VA EDs for reproductive care. Since VA EDs can be an entry point into VA health care, it is critical that VA provides high quality gender-specific care at this important interface so that women Veterans feel welcome, competently cared for, and confident that VA is committed to their health care and well-being.

63 Cordasco KM, Zephyrin LC, et al. An inventory of VHA emergency departments' resources and processes for caring for women. J Gen Intern Med 2013;28 Suppl 2: S583-590.

6. Reproductive Health Priorities – Enhancing Care Across VA

6.1 Overview of Mission and Strategic Plan Priorities

The mission of VA's Women's Health Services (WHS) is to serve as a trusted resource for the field and ensure that women Veterans experience timely, high quality comprehensive care in a sensitive and safe environment at all points of care. In line with VA's overarching mission, WHS seeks to continually improve personalized, proactive, patient-driven health care for women Veterans and to lead the nation in women's health care quality. Reproductive health care is a key component of this mission, and the ultimate goal is to integrate and enhance RH care across VA settings. Optimal RH plays a critical role in enabling people to enjoy life, remain healthy, and actively contribute to their communities. The mission of the Reproductive Health Program in WHS (www.womenshealth.va.gov) is to ensure that women Veterans consistently receive the highest quality RH services from all VA health care facilities and providers. This goal can be met through implementation of evidence-based best practice guidelines; development and implementation of policy guidance; development of clinical processes to support care delivery; workforce development and ongoing provider training; and use of innovative technologies, including telehealth and electronic medical record enhancements.

These strategies are being used to enhance quality and access to RH care for women Veterans across the following key priority areas:

1. High Quality Maternity and Newborn Care
2. Enhanced Emergency Services for Women Veterans
3. Safe Prescribing
4. Preconception and Contraception Care
5. Healthy Aging and RH
6. Reproductive Mental Health
7. RH Workforce
8. Enhancing Operational RH Research and Clinical Research

Table 14 provides an overview of the Strategic Plan and vision for VA RH, including goals for each key priority area.

Table 14: Strategic Plan Initiatives for Enhancing Delivery of Reproductive Health Services in VA

Priority area	Goals
High quality maternity and newborn care:	• Decrease fragmentation of maternity care through policy and innovative use of technology • Enhance VA and non-VA maternity care coordination to ensure provision of high-quality maternity care and seamless transitions of care during pregnancy and the postpartum period • Promoting evidenced-based standards for maternity care • Effective tracking of key maternity health outcomes
Enhanced emergency services for women Veterans:	• Develop and implement policy guidance in emergency services for women • Develop specific VA–wide standards for Emergency Services for pregnant women Veterans • Enhance sharing and development of best practices through innovation and systems redesign
Safe prescribing:	• Enhance VA's electronic medical record by developing features such as alerts and notifications to further augment care of and medication safety for women Veterans • Develop decision supports for providers to assist with contraception counseling and medical decision making with risk–benefit counseling
Preconception and contraception care:	• Development of clinical tools to support patients and providers in preconception care (well women care for women of childbearing age) • Promote and support family planning counseling including reproductive life planning and contraceptive counseling • Understanding post-deployment health impacts on reproductive health (RH)
Healthy aging and RH:	• Understand and develop recommendations to enhance clinical services for aging women Veterans (e.g., pelvic floor disorders, menopausal concerns)
Reproductive mental health:	• Assess availability and need for reproductive mental health education, resources, and tools • Develop a system by which reproductive mental health resources and tools can be readily available to VA providers and women Veterans throughout the VA health care system
RH workforce initiative:	• Ensure VA system and provider capacity for high quality general and specialty gynecologic care across the woman Veteran's life course • Provide capacity and infrastructure to ensure seamless integration of RH services throughout VA • Assess current VA system and provider capacity for gynecologic care
Enhancing operational RH research and clinical research:	• Continue to develop clinically effective interventions for RH care to women Veterans • Enhance and increase partnerships with RH researchers within and outside VA

6.2 Conclusion

Reproductive health care is a key component of VA's goal to provide comprehensive health care for women Veterans, and the ultimate goal is to enhance RH care delivery across all VA settings. To understand needed services, it is important to understand key conditions facing women Veterans. This State of Reproductive Health in Women Veterans report describes key RH conditions, services, and diagnoses across VA. It allows stakeholders to assess current care delivery and develop an operations-based research agenda for developing evidence-based best practices in RH for women Veterans. As VA continues to move forward in enhancing care for women Veterans, reproductive care continues to be an important component.

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Appendix A. Technical Appendix

This technical appendix contains a description of the methods used to generate the results displayed in Tables 1-12. All analyses for Tables 1-12 were obtained from the Women's Health Evaluation Initiative (WHEI). The cohort creation and variable definitions were developed in collaboration with WHEI investigators. Much of the following description of the construction of the dataset and analysis was provided by WHEI and is included in Sourcebook Volume 2.[64]

A.1 Data Source

Data for results in Tables 1-12 of this report were extracted from the WHEI database, which relies on centralized VA administrative data files. The full WHEI database was constructed using the source files listed below:

- **ADUSH:** Monthly VA Enrollment data files maintained by the office of the Assistant Deputy Under Secretary for Health (ADUSH), containing records of patient characteristics (sex, Veteran status, VA 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).[65]
- **VA outpatient encounter files:** SAS Medical Dataset from VA's National Patient Care Database, FY00–FY10. The VA Outpatient Event (SE) file contains a record for every encounter the patient has with VA (e.g., clinic visits, telephone encounters, lab test encounters, radiology encounters); there can be more than one encounter on a given day. The VA Outpatient Visit (SF) file rolls records of SE file encounters into one record per day of care, and provides additional information about patients (e.g., sex, date of birth).
- **Non-VA Medical Care outpatient encounter file (FY10):** Called "MDPPRD.MDP.SAS.FEN.FY10.MED," the Non-VA Medical Care outpatient encounter file reflects services provided through the Non-VA Medical Care system. It includes services provided by non-VA providers in FY10, or services provided in prior years that VA 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.

Starting with the record-level files cited above, person-level analytical files were created with one observation for each person—identified by scrambled Social Security Number—found in the data sources. The complete WHEI Master Database includes the following groups:

- Users and non-users of VA care
- Veterans and non-Veterans
- Women and men

64 Frayne SM, Phibbs CS, Friedman SA, Saechao F, Berg E, Balasubramanian V, Bi X, Iqbal S, Mattocks K, Haskell S, Zephyrin L, Torgal A, Whitehead A, Hayes PM. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 2. Sociodemographics and Use of VHA and Non-VA Care (Fee). Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs, Washington DC. October 2012. Available at: http://www.womenshealth.va.gov/WOMENSHEALTH/docs/SourcebookVol2_508c_FINAL.pdf.
65 FY10 is October 1, 2009 through September 30, 2010.

Year-specific variables indicate whether an individual was a VA 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. All programming was performed using SAS 9.2©, and all programs were independently validated by at least one other data analyst.

A.2 Cohort Creation

The data presented in this report represent a subset of data from the WHEI database that includes all women Veterans who were VA users in FY10. We included data on socio-demographic characteristics and the occurrence of International Classification of Disease 9 (ICD-9-CM) codes consistent with specific reproductive health (RH) conditions within this cohort. The variables used to form the cohort (*Veteran status, sex,* and *VA user*), their definitions, and the algorithms used are described below.

A.2.1 Veteran Status

Veterans (1/0 variable) were identified for FY10 using variables labeled "PRIO1_8" and "ELIG" from ADUSH. A patient was considered a Veteran if either of the following was 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."

A.2.2 Sex

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

Step 1. In Step 1, a sex variable was created 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 the variable labeled "SEX_BEST."[66]
- FY00–FY05: In the years prior to "SEX_BEST" becoming available, we used the variable labeled "SEX."

Step 2. In Step 2, a single, constant sex value was assigned and 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 that more recent values reflect "corrected" values.[67]

66 Since FY06, the VA Information Resource Center (VIReC) 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.

67 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 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 surgery) are likely less common. While these databases currently do not allow us to distinguish between data entry errors and true changes in gender, in both cases it seems reasonable to assign the last-recorded sex to the patient. New VA 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.).

Step 3. Step 3 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, the most recent non-missing value of sex from the SF outpatient utilization file was assigned.

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 VA administrative data in FY10, and repeated Steps 1-3 as described above.

A.2.3 VA Users

VA users in FY10 were identified through a two-step process.

Step 1. In Step 1, based on the ADUSH Enrollment File, we identified women Veterans enrolled in VA in FY10. VA enrollment was defined using a year-specific user variable labeled "FYyy," and the following cost variables:

> DSSCNHCOST; DSSFEECOST; DSSLTCCOST; DSSMEDCOST; DSSNVACOST; DSSOPCCOST; DSSPSYCOST; DSSSURCOST; ARCCNHCOST; ARCFEECOST; ARCLTCCOST; ARCMEDCOST; ARCNVACOST; ARCOPCCOST; ARCPSYCOST; ARCSURCOST

A woman was considered to be enrolled in VA in FY10 if both the following were true:

1. "FYyy=1" for FY10 AND
2. Sum of all cost variables was >0 for the FY10.

Step 2. To ensure that all women defined as VA users met a minimum standard of utilization,[68] VA users were further defined among women Veterans enrolled in VA in FY10 as those who:

1. Had at least one inpatient VA or Non-VA Medical Care encounter in FY10 OR
2. Had at least one outpatient VA or Non-VA Medical Care encounter in FY10 AND at least one additional VA or Non-VA Medical Care outpatient encounter between FY09 and FY10.

A.2.4 Exclusions Due to Presence of Diagnostic Codes for Sex or Age Discordant Conditions

We excluded 120 individuals who had diagnostic codes for either age or sex discordant conditions as we were unable in these instances to determine whether the sex, age, or diagnostic code were mis-specified. In total 52 women were excluded due to the presence of sex discordant conditions. These included 7 women with ICD-9-CM codes for male breast cancer and 45 women with codes for impotence. A total of 68 women were excluded due to the presence of age discordant conditions, including 3 women with ICD-9-CM codes for pubertal menorrhagia, 4 women who were 65+ years old with ICD-9-CM codes for female infertility, 14 women who were 65+ years old with ICD-9-CM codes for pregnancy-related conditions, and 47 women 65+ years old with ICD-9-CM codes for menstrual conditions.

A.3 Algorithms for Socio-demographic Variables, Non-VA Medical Care Utilization, and Medical and Mental Health Conditions

The WHEI Master Database created for Sourcebook includes person-level sociodemographic and VA utilization 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 date of birth, service-connected

68 The ADUSH File counts use of non-VA contract care and pharmacy services as instances of VA utilization, and a small number of patients whose only use of VA services is through non-VA contract care or outpatient pharmacy services are included if relying on ADUSH alone to identify VA users. Therefore, in Step 2 we defined VA users as those with either one inpatient VA or fee base encounter in FY10 or one outpatient VA or fee base encounter in FY10 and one additional VA or fee base outpatient encounter in FY09 in order to ensure that women in this cohort met a minimum standard for VA utilization since only those who used outpatient or inpatient care would potentially have occurrences of ICD-9-CM codes in FY10 consistent with specific reproductive health conditions.

disability status, urban/rural status, and use of inpatient or outpatient Non-VA Medical Care. We used these variables to describe our cohort and to highlight potential considerations that may be important when providing RH care to women Veterans.

A.3.1 Age

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

Step 1. Step 1 involved creating 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."

Step 2. In Step 2, a single, constant DOB value was applied for each of the 11 years for which DOB data was available for our cohort (FY00–FY10). This was done in order 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 (although an age of 17 years or 111+ years is theoretically possible, it was assumed that the very small number of instances of ages <18 years or >110 years reflected data errors and were thus invalid). Specifically, the most recent (closest to FY10) non-missing, within-range value for DOB was selected. 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 most recent value was assumed to reflect "corrected" values.

Step 3. In Step 3, for any individuals whose DOB value was still missing at the end of Step 2, the most recent non-missing, within-range value of DOB from the SF outpatient utilization file was assigned.

Step 4. In Step 4, the DOB was used to calculate age in a given fiscal year by subtracting the DOB from the first day of the fiscal year.

A.3.2 Service-Connected Disability Status

The service-connected (SC) disability status variable is based on the variable "SCPER" in the ADUSH File for FY10. 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.

A.3.3 Urban/Rural Status

The Urban/Rural variable uses 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.[69] In this report, "rural" and "highly rural" were collapsed into a single category we term "rural."

69 Spoont 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.

A.3.4 Non-VA Medical Care Utilization

For the purposes of this report Non-VA care paid for by VA is referred to as "Non-VA Medical Care." Non-VA Medical Care utilization variables were derived using the FY10 Non-VA Medical Care outpatient data file. The FY10 Non-VA Medical Care outpatient data file includes only services that were *reimbursed* by VA in FY10. WHEI identified three possible combinations of the year in which a service was provided and the year in which the service was reimbursed (and appeared in fee base outpatient data).

- *Scenario 1*. A service both provided and reimbursed in FY10.
- *Scenario 2*. A service provided in FY09 but which appeared in the FY10 Non-VA Medical Care file rather than FY09 Non-VA Medical Care file due to a lag between service provision and service reimbursement,[70] and therefore considered an "extra" service in the FY10 Non-VA Medical Care file.
- *Scenario 3*. A service provided in FY10 but reimbursed in FY11; this service appears in the FY11 file but not in the FY10 file, and thus was considered "excluded" from the FY10 fee base file.

An indicator variable was developed to identify women with at least one Non-VA Medical Care encounter in FY10. The rationale for creation of this variable was to attempt to assess differences in utilization of Non-VA Medical Care by women based on diagnoses of specific RH conditions. This sort of data can provide an indirect estimate of the degree to which women Veterans rely on Non-VA Medical Care for RH services.

A.3.5 Mental Health and Medical Conditions

We sought to create variables that provided an indication of the level of clinical complexity that may impact diagnosis and treatment of RH conditions for women Veterans. Specific mental health and medical conditions included in these variables were identified based on a modified version of a list developed by Selim et al. to measure comorbidity in an outpatient setting.[71] As the focus of this report was women Veterans and RH, we modified the original list of conditions to exclude reproductive conditions (i.e., breast and gynecologic cancers, and urinary tract infections) and male specific conditions (i.e., enlarged prostate and prostate cancer). Table A-1 lists the mental health and medical conditions and corresponding ICD-9-CM codes.

A.3.6 Mental Health Conditions

We created a variable indicating the presence of at least one mental health condition including anxiety disorder, depression, bipolar disorder, schizophrenia, posttraumatic stress disorder (PTSD), and alcohol abuse. Women were considered to have at least one diagnosed mental health condition if they had at least one ICD-9-CM code corresponding to one of the specified mental health conditions in the VA outpatient files during FY10. The mental health conditions and corresponding ICD-9-CM codes are included in Table A-1.

70 In the raw FY10 non-VA (fee) outpatient file, 74% of records reflect FY10 care, 25% reflect FY09 care, and 1% reflect care prior to FY09.

71 Selim, A. J., G. Fincke, et al. Comorbidity assessments based on patient report: results from the Veterans Health Study. J Ambul Care Manage 2004; 27(3): 281-295.

A.3.7 Medical Conditions

We created a variable indicating the presence of at least one medical condition including any of the 32 conditions listed in Table A-1. Women were considered to have at least one diagnosed medical condition if they had at least one ICD-9-CM code corresponding to one of the 32 specified medical conditions in the VA outpatient files during FY10.

Important Notes for Interpretation: Mental health and medical conditions were identified based on presence of ICD-9-CM codes in the FY10 VA outpatient data. Therefore, the data does not fully capture diagnoses occurring prior to FY10 or those most likely to be exclusively present in the inpatient data files or the fee base care files or diagnoses occurring outside the VA system. Additionally, only conditions that are diagnosed and then coded are captured in these databases. Thus, the data likely underestimate the true burden of mental health and medical conditions in this population.

Table A-1: Mental Health and Medical Conditions and Corresponding Diagnostic Codes (From a Modified Version of the Selim Comorbidity Index)[pp]

Mental health conditions	ICD-9-CM diagnostic codes
Anxiety	3000X
Depression	2962X, 2963X, 311XX
Bipolar	2964X, 2965X, 2966X, 2967X
Schizophrenia	295XX
PTSD	30981
Alcohol abuse	303XX
Medical conditions	**ICD-9-CM diagnostic codes**
Anemia	280XX, 281XX, 282XX, 283XX, 284XX, 285XX, 286XX
Cancer (non-gender-specific)	14XXX, 15XXX, 160XX, 161XX, 162XX, 163XX, 164XX, 165XX, 166XX, 170XX, 176XX, 171XX, 172XX, 188XX, 19XX, 200XX, 201XX, 202XX, 203XX, 204XX, 205XX, 206XX, 207XX, 208XX
Cataract	366XX
Chronic hepatitis or cirrhosis	070XX, 571XX
Congestive heart failure	428XX
Diabetes mellitus	250XX
Diverticulitis	562XX
Gallbladder disease or gallstones	574XX, 575XX
Gout	274XX
Heart attack	410XX, 412XX, 4110X, 4118X
Hip problem	71945, 7265X, 71505, 73314, 73315
Hypertension	401XX, 402XX, 403XX, 404XX, 405XX
Angina pectoris	4111X, 413XX
Inflammatory bowel disease	555XX, 556XX
Irregular heart beat	427XX
Low back pain	720XX, 72252, 72402, 7213X, 7214X, 72283, 7242X, 72210, 72293, 7243X, 7244X, 7245X
Osteoarthritis	715XX
Other arthritis	716XX
Peptic ulcer	531XX, 532XX, 533XX, 534XX, 535XX
Peripheral vascular disease	440XX, 443XX, 444XX
Rheumatoid arthritis	714XX
Seizures	345XX
Skin cancer	173XX
Stroke	433XX, 434XX, 437XX, 438XX, 436XX, 430XX, 431XX, 432XX
Transient ischemic attack	435XX
Thyroid disease	240XX, 241XX, 242XX, 243XX, 244XX, 245XX, 246XX
Chronic obstructive lung disease	491XX, 492XX, 493XX, 496XX
Dementia	290XX
Renal disease	582XX, 585XX, 586XX, 588XX, 5830X, 5831X, 5832X, 5833X, 5834X, 5835XX, 5836X, 5837X
AIDS	042XX, 043XX, 044XX
Multiple sclerosis	340XX
Parkinson's disease	3320X

pp ICD-9-CM codes were provided Dr. Alfredo Selim, MD, MPH. Dr. Selim gave permission for ICD-9-CM codes to be presented here.

A.3.8 Reproductive Health Conditions Definitions and Algorithms

We developed the list of RH conditions and corresponding ICD-9-CM codes through a multistep process.

Step 1. In Step 1, we identified potential International Classification of Diseases, 9th Revision (ICD-9-CM) codes for RH conditions from a list of ICD-9-CM codes compiled by the Healthcare Cost and Utilization Project (HCUP), a Federal-State-Industry partnership sponsored by the Agency for Healthcare Research and Quality, for their Clinical Categorization Software (CCS) (http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp).

Step 2. CCS provides multi-level categorizations for all available ICD-9-CM codes. In Step 2, building on work in an earlier project,[72] we used the CCS single level categorization scheme as a starting point for identifying potential RH condition codes and classifying them. Through an iterative, collaborative process including discussion with RH experts, women's health experts, and clinical providers, all RH related ICD-9-CM codes were assigned to specific RH conditions, which were then grouped into larger categories of related RH conditions. The lists of ICD-9-CM codes for each condition and category are provided in Table A-2.

Step 3. In Step 3, after establishing the list of ICD-9-CM codes consistent with RH conditions we created counter variables to indicate how many times a given ICD-9-CM code appeared in the VA or Non-VA Medical Care inpatient or outpatient files for FY10. VA inpatient and outpatient files contain fields for up to 10 separate ICD-9-CM codes for a single encounter; a code was counted if it occurred in any of these fields. The Non-VA Medical Care inpatient files contain fields for up to 25 ICD-9-CM codes for a single encounter, and the fee base outpatient files contain a single field for an ICD-9-CM code, and a code was counted if it occurred in any of these fields. Women were considered to have a diagnosis of a given condition if they had a count ≥1 for any diagnostic code for a specific RH condition in FY10.

Notes for interpretation: Using this methodology, women could have multiple occurrences of a single code or separate occurrences of multiple codes within one of the larger groups of RH conditions. Thus, for acute potentially recurrent conditions, such as STI, we were unable to estimate the incidence of infection. Similarly, we were unable to identify and enumerate individual pregnancies; for example, a woman may have had a miscarriage followed by a full-term normal pregnancy within FY10, but she would only appear once in the numerator for pregnancy-related diagnoses. Therefore, where frequencies of diagnoses for subgroups of conditions are provided the percentages of the subgroups will not necessarily total 100% or the frequency of the broader category.

The presence of a diagnostic code does not necessarily indicate that an encounter was for the purpose of diagnosing or treating a given condition. Additionally, since women Veterans may be dual users (VA, or private insurance or Medicaid) and receive some medical care outside of the VA system, it is likely that the numerator is an underestimate of the true number of women Veterans with a given condition. This may be particularly true for specific types of conditions, such as pregnancy, for which women may be more likely to seek care outside of the VA system or have care paid for through alternate insurance or other governmental programs. Finally, while codes were selected based on literature review and expert clinical knowledge, diagnoses were not confirmed through examination of clinical, pathology, laboratory, or procedural data. This is particularly important when considering diagnoses of gynecologic and breast cancers, which for maximum validity would require review and adjudication of clinical, procedural, and pathology data from an expert committee to confirm diagnoses.

72 Frayne SM, Chiu VY, Iqbal S, Berg EA, Laungani KJ, Cronkite RC, Pavao J, Kimerling R. Medical care needs of returning Veterans with PTSD: Their other burden. Journal of General Internal Medicine,2011;. 26(1):33-39.

Table A-2: ICD-9-CM Codes for Reproductive Conditions

Reproductive health conditions n (%)	ICD-9-CM codes
Menstrual disorders and endometriosis	
Menstrual disorders	'6252', '6253', '6254', '6260', '6261', '6262', '6263', '6264', '6265', '6266', '6268', '6269'
Endometriosis	'6170', '6171', '6172', '6173', '6174', '6175', '6176', '6178', '6179'
Pregnancy-related	
Ectopic and molar pregnancy	'6330', '63300', '63301', '6331', '63310', '63311', '6332', '63320', '63321', '6338', '63380', '63381', '6339', '63390', '63391'
Miscarriage	'632 ', '63400', '63401', '63402', '63410', '63411', '63412', '63420', '63421', '63422', '63430',63431', '63432', '63440', '63441', '63442', '63450', '63451', '63452', '63460', '63461', '63462', '63470', '63471', '63472', '63480', '63481', '63482', '63490', '63491', '63492', '64000', '64001', '64003'
Normal pregnancy and delivery	'650 ', '65100', '65101', '65110', '65111', '65120', '65121', '65170', '65171','65173', '65180', '65181', '65190', '65191', 'V220', 'V221', 'V222', 'V232', 'V240', 'V241', 'V242', 'V270', 'V271', 'V272', 'V273', 'V274', 'V275', 'V276', 'V277', 'V279', 'V7242'
Pre-existing conditions complicating pregnancy	'64630', '64631', '64633', '64800', '64801', '64802', '64803', '64804', '64880', '64881', '64882', '64883', '64884', '64200', '64201', '64202', '64203', '64204', '64210', '64211', '64212', '64213', '64214', '64220', '64221', '64222', '64223', '64224', '64230', '64231', '64232', '64233', '64234', '64240', '64241', '64242', '64243', '64244', '64250', '64251', '64252', '64253', '64254', '64260', '64261', '64262', '64263', '64264', '64270', '64271', '64272', '64273', '64274', '64290', '64291', '64292', '64293', '64294', '64300', '64301', '64303', '64310', '64311', '64313', '64320', '64321', '64323', '64380', '64381', '64383', '64390', '64391', '64393', '64610', '64611', '64612', '64613', '64614', '64620', '64621', '64622', '64623', '64624', '64640', '64641', '64642', '64643', '64644', '64650', '64651', '64652', '64653', '64654', '64660', '64661', '64662', '64663', '64664', '64670', '64671', '64673', '64680', '64681', '64682', '64683', '64684', '64690', '64691', '64693', '64700', '64701', '64702', '64703', '64704', '64710', '64711', '64712', '64713', '64714', '64720', '64721', '64722', '64723', '64724', '64730', '64731', '64732', '64733', '64734', '64740', '64741', '64742', '64743', '64744', '64750', '64751', '64752', '64753', '64754', '64760', '64761', '64762', '64763', '64764', '64780', '64781', '64782', '64783', '64784', '64790', '64791', '64792', '64793', '64794', '64810', '64811', '64812', '64813', '64814', '64820', '64821', '64822', '64823', '64824', '64850', '64851', '64852', '64853', '64854', '64860', '64861', '64862', '64863', '64864', '64870', '64871', '64872', '64873', '64874', '64890', '64891', '64892', '64893', '64894', '64900', '64901', '64902', '64903', '64904', '64910', '64911', '64912', '64913', '64914', '64920', '64921', '64922', '64923', '64924', '64930', '64931', '64932', '64933', '64934', '64940', '64941', '64942', '64943', '64944'
Obstetrical complications of pregnancy	'6310', '6318', '64970', '64971', '64973', '64981', '64982', '67010', '67012', '67014', '67020', '67022', '67024', '67030', '67032', '67034', '67080', '67082', '67084', '67800', '67801', '67803', '67810', '67811', '67813', '67900', '67901', '67902', '67903', '67904', '67910', '67911', '67912', '67913', '67914', '630 ', '631 ', '64080', '64081', '64083', '64090', '64091', '64093', '64100', '64101', '64103', '64110', '64111', '64113', '64120', '64121', '64123', '64130', '64131', '64133', '64180', '64181', '64183', '64190', '64191', '64193', '64400', '64403', '64410', '64413', '64420', '64421', '64600', '64601', '64603', '64950', '64951', '64953', '64960', '64961', '64962', '64963', '64964', '65103', '65113', '65123', '65130', '65131', '65133', '65140', '65141', '65143', '65150', '65151', '65153', '65160', '65161', '65163', '65183', '65193', '65200', '65201', '65203', '65210', '65211', '65213', '65220', '65221', '65223', '65230', '65231', '65233', '65240', '65241', '65243', '65250', '65251', '65253', '65260', '65261', '65263', '65270', '65271', '65273', '65280', '65281', '65283', '65290', '65291', '65293', '65300', '65301', '65303', '65310', '65311', '65313', '65320', '65321', '65323', '65330', '65331', '65333', '65340', '65341', '65343', '65350', '65351', '65353', '65360', '65361', '65363', '65370', '65371', '65373', '65380', '65381', '65383', '65390', '65391', '65393', '65400', '65401', '65402', '65403', '65404', '65410', '65411', '65412', '65413', '65414', '65420', '65421', '65423', '65430', '65431', '65432', '65433', '65434', '65440', '65441', '65442', '65443', '65444', '65450', '65451', '65452', '65453', '65454', '65460', '65461', '65462', '65463', '65464', '65470', '65471', '65472', '65473', '65474', '65480', '65481', '65482', '65483', '65484', '65490', '65491', '65492', '65493', '65494', '65500', '65501', '65503', '65510', '65511', '65513', '65520', '65521', '65523', '65530', '65531', '65533', '65540', '65541', '65543', '65560', '65561', '65563', '65570', '65571', '65573', '65580', '65581', '65583', '65590', '65591', '65593', '65600', '65601', '65603', '65610', '65611', '65613', '65620', '65621', '65623', '65630', '65631', '65633', '65640', '65641', '65643', '65650', '65651', '65653', '65660', '65661', '65663', '65670', '65671', '65673', '65680', '65681', '65683', '65690', '65691', '65693', '65700', '65701', '65703', '65800', '65801', '65803', '65810', '65811', '65813', '65820', '65821', '65823', '65830', '65831', '65833', '65840', '65841', '65843', '65880', '65881', '65883', '65890', '65891', '65893', '65900', '65901', '65903', '65910', '65911', '65913', '65920', '65921', '65923', '65930', '65931', '65933', '65940', '65941', '65943', '65950', '65951', '65953', '65960', '65961', '65963', '65970', '65971', '65973', '65980', '65981', '65983', '65990', '65991', '65993', '66000', '66001', '66003', '66010', '66011', '66013', '66020', '66021', '66023', '66030', '66031', '66033', '66040', '66041', '66043', '66050', '66051', '66053', '66060', '66061', '66063', '66070', '66071', '66073', '66080', '66081', '66083', '66090', '66091', '66093', '66100', '66101', '66103', '66110', '66111', '66113', '66120', '66121', '66123', '66130', '66131', '66133', '66140', '66141', '66143', '66190',

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Reproductive health conditions n (%)	ICD-9-CM codes
Obstetrical complications of pregnancy *(continued)*	'66191', '66193', '66200', '66201', '66203', '66210', '66211', '66213', '66220', '66221', '66223', '66230', '66231', '66233', '66300', '66301', '66303', '66310', '66311', '66313', '66320', '66321', '66323', '66330', '66331', '66333', '66340', '66341', '66343', '66350', '66351', '66353', '66360', '66361', '66363', '66380', '66381', '66383', '66390', '66391', '66393', '66400', '66401', '66404', '66410', '66411', '66414', '66420', '66421', '66424', '66430', '66431', '66434', '66440', '66441', '66444', '66450', '66451', '66454', '66460', '66461', '66464', '66480', '66481', '66484', '66490', '66491', '66494', '66500', '66501', '66503', '66510', '66511', '66512', '66514', '66520', '66522', '66524', '66530', '66531', '66534', '66540', '66541', '66544', '66550', '66551', '66554', '66560', '66561', '66564', '66570', '66571', '66572', '66574', '66580', '66581', '66582', '66583', '66584', '66590', '66591', '66592', '66593', '66594', '66600', '66602', '66604', '66610', '66612', '66614', '66620', '66622', '66624', '66630', '66632', '66634', '66700', '66702', '66704', '66710', '66712', '66714', '66800', '66801', '66802', '66803', '66804', '66810', '66811', '66812', '66813', '66814', '66820', '66821', '66822', '66823', '66824', '66880', '66881', '66882', '66883', '66884', '66890', '66891', '66892', '66893', '66900', '66901', '66902', '66903', '66904', '66910', '66911', '66912', '66913', '66914', '66920', '66921', '66922', '66923', '66924', '66930', '66932', '66934', '66940', '66941', '66942', '66943', '66944', '66950', '66951', '66960', '66961', '66970', '66971', '66980', '66981', '66982', '66983', '66984', '66990', '66991', '66992', '66993', '66994', '67000', '67002', '67004', '67100', '67101', '67102', '67103', '67104', '67110', '67111', '67112', '67113', '67114', '67120', '67121', '67122', '67123', '67124', '67130', '67131', '67133', '67140', '67142', '67144', '67150', '67151', '67152', '67153', '67154', '67180', '67181', '67182', '67183', '67184', '67190', '67191', '67192', '67193', '67194', '67200', '67202', '67204', '67300', '67301', '67302', '67303', '67304', '67310', '67311', '67312', '67313', '67314', '67320', '67321', '67322', '67323', '67324', '67330', '67331', '67332', '67333', '67334', '67380', '67381', '67382', '67383', '67384', '67400', '67401', '67402', '67403', '67404', '67410', '67412', '67414', '67420', '67422', '67424', '67430', '67432', '67434', '67440', '67442', '67444', '67450', '67451', '67452', '67453', '67454', '67480', '67482', '67484', '67490', '67492', '67494', '67500', '67501', '67502', '67503', '67504', '67510', '67511', '67512', '67513', '67514', '67520', '67521', '67522', '67523', '67524', '67580', '67581', '67582', '67583', '67584', '67590', '67591', '67592', '67593', '67594', '67600', '67601', '67602', '67603', '67604', '67610', '67611', '67612', '67613', '67614', '67620', '67621', '67622', '67623', '67624', '67630', '67631', '67632', '67633', '67634', '67640', '67641', 67642', '67643', '67644', '67650', '67651', '67652', '67653', '67654', '67660', '67661', '67662', '67663', '67664', '67680', '67681', '67682', '67683', '67684', '67690', '67691', '67692', '67693', '67694', '677 ', '77984', '7923', 'V230', 'V231', 'V233', 'V234', 'V2341', 'V2342', 'V2349', 'V235', 'V237', 'V238', 'V2381', 'V2382', 'V2383', 'V2384', 'V2385', 'V2386', 'V2387', 'V2389', 'V239', 'V9100', 'V9101', 'V9102', 'V9103', 'V9109', 'V9110', 'V9111', 'V9112', 'V9119', 'V9120', 'V9121', 'V9122', 'V9129', 'V9190', 'V9191', 'V9192', 'V9199', '6225 '
Prolonged pregnancy	'64500', '64501', '64503', '64510', '64511', '64513', '64520', '64521', '64523'
Abnormal cervical screening	
ASCUS	'79501', '79502'
Cervical carcinoma in situ	'2331 '
Cervical dysplasia	'6221', '62210', '62211', '62212', 'V1322'
Sexually transmitted infection (STI) and vaginitis	
STI	'05410', '05411', '05412', '05413', '05419', '07811', '0794', '07950', '07951', '07952', '07959', '07988', '07998', '79515', '79519', '79675', '79679', '096 ', '0900', '0901', '0902', '0903', '0905', '0906', '0907', '0909', '0910', '0911', '0912', '0913', '0914', '0917', '0919', '0920', '0929', '0930', '0931', '0939', '0940', '0941', '0942', '0943', '0949', '0950', '0951', '0952', '0956', '0957', '0958', '0959', '0970', '0971', '0979', '0980', '0982', '0986', '0987', '0990', '0991', '0992', '0998', '0999', '09040', '09049', '09150', '09151', '09152', '09161', '09162', '09182', '09189', '09320', '09321', '09322', '09323', '09389', '09481', '09482', '09483', '09484', '09485', '09487', '09489', '09810', '09811', '09813', '09815', '09816', '09817', '09819', '09830', '09831', '09835', '09837', '09840', '09842', '09849', '09850', '09852', '09859', '09883', '09886', '09889', '09941', '09950', '09951', '09952', '09953', '09954', '09955', '09956', '09959'
Vaginitis, cervisitis and other pelvic inflammatory conditions	'1121', '6140', '6141', '6142', '6143', '6144', '6145', '6147', '6148', '6149', '6150', '6151', '6159', '6160', '61610', '61611', '6162', '6163', '6164', '61650', '61651', '6168'
Female infertility	
Female infertility	'6280', '6281', '6282', '6283', '6284', '6288', '6289', '62981'
Benign breast conditions	
Conditions of the breast, abnormal findings	'7938', '79380', '79381', '79389'
Carcinoma in situ of the breast	'2330 '

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Reproductive health conditions n (%)	ICD-9-CM codes
Breast conditions benign	'2383', '2393', '6100', '6101', '6102', '6103', '6104', '6108', '6109', '6110', '6111', '6112', '6113', '6114', '6115', '6116', '61171', '61172', '61179', '6118', '61181', '61182', '61183', '61189', '6119', '6120', '6121', '79382', '217 '
Sexual dysfunction	
Sexual dysfunction	'30271', '30272', '30273', '30274', '30275', '60784', '6250', '6251', '6232', '6233', 'V417 '
Urinary conditions (including incontinence)	
Urinary tract infections	'03284', '59000', '59001', '59010', '59011', '5902', '5903', '59080', '59081', '5909', '5950', '5952', '5953', '5954', '59581', '59589', '5959', '5970', '59780', '59789', '59800', '59801', '5990', '7887', '09940', '09949'
Other diseases of the bladder or urethra	'59582', '5960', '5961', '5962', '5963', '5964', '5965', '59659', '5966', '5967', '5968', '59689', '5969', '59781', '5981', '5982', '5988', '5989', '5991', '5992', '5993', '5994', '5995', '59984'
Urinary incontinence	'59651', '59652', '59653', '59654', '59655', '59981', '59982', '59983', '7883', '78830', '78831', '78832', '78833', '78834', '78835', '78836', '78837', '78838', '78839', '78891'
Urinary symptoms	'03284', '59000', '59001', '59010', '59011', '5902', '5903', '59080', '59081', '5909', '5950', '5952', '5953', '5954', '59581', '59589', '5959', '5970', '59780', '59789', '59800', '59801', '5990', '09940', '09949', '7887 '
Other female reproductive organ conditions	
Fibroids	'2180', '2181', '2182', '2189', '2191', '2198', '2199 '
Other carcinoma in situ of female genital organs	'2332', '2333', '23330', '23331', '23332', '23339'
Ovarian cysts	'6200', '6201', '6202'
Polycystic ovaries	'2564 '
Prolapse of the female genital organs	'6180', '61800', '61801', '61802', '61803', '61804', '61805', '61809', '6181', '6182', '6183', '6184', '6185', '6186', '6187', '6188', '61881', '61882', '61883', '61884', '61889', '6189 '
Benign gynecologic neoplasm	'2190', '220 ', '2210', '2211', '2212', '2218', '2219', '6213', '62130', '62131', '62132', '62133', '62134', '62135'
Other dysplasia	'6230', '62401', '62402', '79510', '79511', '79512', '79513', '79514', 'V1323', 'V1324'
Other female genital disorders	'6146', '6210', '6212', '6227', '6231', '6237', '62409', '6242', '6243', '6246', '62931', '62932', '6267', '6190', '6191', '6192', '6198', '6199', '6203', '6204', '6205', '6206', '6207', '6208', '6209', '6211', '6214', '6215', '6216', '6217', '6218', '6219', '6220', '6223', '6224', '6226', '6228', '6229', '6234', '6235', '6236', '6238', '6239', '6241', '6244', '6245', '6248', '6249', '6255', '6258', '6259', '6290', '6291', '6299', '62920', '62921', '62922', '62929', '62989', 'V1329', 'V557 '
Any gynecologic cancer	
Cervical cancer	'79506', 'V1041', '1800', '1801', '1808', '1809 '
Ovarian cancer	'1830', 'V1043'
Uterine cancer	'179 ', '1820', '1821', '1828','V1042'
Cancer of other female genital organs	'181 ', '1832', '1833', '1834', '1835', '1838', '1839', '1840', '1841', '1842', '1843', '1844', '1848', '1849', '79516', 'V1040', 'V1044'
Menopausal disorders	
Menopausal disorders	'2562', '2563', '25631', '25639', '2568', '2569', '6270', '6271', '6272', '6273','6274', '6278', '6279', 'V074 '
Breast cancer	
Breast cancer	'1740', '1741', '1742', '1743', '1744', '1745', '1746', '1748', '1749', '1750', '1759', 'V103'
Osteoporosis	
Osteoporosis	'73300', '73301', '73302', '73303', '73309', 'V5868'

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P96690 IB 10-660