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Unintended Pregnancy and Contraception Among Active Duty Servicewomen and Veterans

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Abstract

The number of women of childbearing age who are active duty service members or veterans of the U.S. military is increasing. These women may seek reproductive health care at medical facilities operated by the military, in the civilian sector or through the Department of Veterans Affairs. This article reviews the current data on unintended pregnancy and prevalence of and barriers to contraceptive use among active duty and veteran women. Active duty servicewomen have high rates of unintended pregnancy and low contraceptive use which may be due to official prohibition of sexual activity in the military, logistic difficulties faced by deployed women and limited patient and provider knowledge of available contraceptives. In comparison, little is known about rates of unintended pregnancy and contraceptive use among women veterans. Based on this review, research recommendations to address these issues are provided.

Keywords

Military Women; Active Duty; Service women; Contraception; Pregnancy; Pregnancy Prevention; Unintended Pregnancy; Veterans

Introduction

Now, more than ever, the United States military relies on the direct participation of women. Currently, 20% of new military recruits, 15% of active duty military personnel and 17% of

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Reserve and National Guard forces are women.[3] Over 400,000 women are active duty, National Guard or Reserve members.[4] In comparison, in 1973, women comprised only 2% of the active duty population.[5] As the number of women in the military has increased, the population of women veterans has also increased. There are presently more than 1.8 million U.S. female veterans, up from 1.1 million in 1980, who comprise 8% of the total veteran population.[6–8] By 2036, it is projected that the proportion of women veterans will almost double to 15%.[9]

Both the Department of Defense (DOD) and Department of Veterans Affairs (VA) are making concerted efforts to ensure the provision of quality health care to women who are serving or have served in the U.S. military[10–11], yet many women also seek care from civilian physicians. As such, health care providers within the community, as well as those in the DOD and VA, need to be aware of the reproductive health needs of this population.

Existing Military Health Care Structure

The DOD provides medical benefits for active duty personnel, retirees, Reservists and National Guard members called to active duty, and certain dependents under the worldwide health care plan called TRICARE. Under TRICARE, most health care is provided by a military treatment facility.[12] Military personnel covered by TRICARE may be referred to a civilian medical provider if care is unavailable at the local military treatment facility or if they live and work more than 50 miles from the nearest treatment facility.[13,14] Servicemembers may also seek care outside the military treatment facility or referral network, but this may not be reimbursed.[13]

After leaving active military service, women veterans may seek care from a community physician using TRICARE (where accepted), private health insurance, Medicaid or Medicare.[8] Women veterans who are honorably discharged active duty service personnel or eligible Reservists or National Guard members may also qualify for cost-free or subsidized health care services through the VA based on the presence of a service-related medical condition (i.e., service connection) and/or income-based need at any time after discharge from the military.[8] Operation Enduring Freedom (Afghanistan) and Operation Iraqi Freedom (OEF/OIF) veterans may receive health care services at the VA for five years following discharge regardless of income or service-connection.[15]

Women veterans are the fastest growing group of new VA health center users and eligible women may receive preventive care, gynecological care, maternity and some infertility care through the VA.[8] However, only 14% of all female veterans sought healthcare at a VA site in 2008–2009 with the vast majority, 76%, obtaining healthcare exclusively at non-VA sites.[16] Of those who used VA services, 53% were dual VA and non-VA users.[17] Among all women veterans, greater than 60% of both VA and non-VA health care visits in 2008–2009 were to address specific women's health care issues.[18] Even though these women are seeking care at a VA medical center more frequently than female veterans from previous eras, a large majority continue to obtain obstetric and gynecological care from non-VA providers.

Reproductive Health Needs of Military Women

Active duty and veteran women are largely of childbearing age. Approximately 75% of new military recruits are under 22 years of age.[19] In total, 42% of all female veterans are currently of childbearing age and over 90% of female veterans who served after 9/11/01 are between 18 and 44 years old.[18] These women have reproductive health issues that may not be typically thought of when considering military and veteran health care.

Because of its potentially high burden for military women, as well as its impact on military operations, prevention of unintended pregnancy is one reproductive health issue of particular importance. Unintended pregnancy among active duty servicewomen can be problematic for several reasons. Deployed servicewomen with an unintended pregnancy may face significant obstacles in seeking timely prenatal care and even greater barriers to accessing safe abortion services.[20–21] Furthermore, the military careers of women who become pregnant may be prematurely halted thus restricting their economic and professional achievements.[26] For the military, unintended pregnancy is costly, limits unit readiness and results in decreased deployment of military recruits.[22–23]

In this article we review the existing literature on unintended pregnancy and contraceptive use among women in the military. This review revealed high rates of unintended pregnancy among active duty servicewomen which may result from limited use of effective methods of contraception. The data on unintended pregnancy and contraceptive use is far greater among active duty servicewomen than women veterans. Yet, the risk factors that predispose women to unintended pregnancy may persist as they transition out of active service and become veterans. The gaps in knowledge about these key issues among military and veteran women are highlighted and provide the basis for research recommendations to further enhance the reproductive health care provided to these women.

Active Duty Servicewomen

The Burden of Unintended Pregnancy

While all members of the U.S. armed forces are prohibited from engaging in sexual intercourse outside of marriage[24], when surveyed unmarried service personnel do endorse sexual activity.[25–29] The specific context of these sexual encounters is unknown but may occur in violation of military policy, during vacation from active duty[30], while under the influence of alcohol or drugs[29], or be forced.[27] Since sexual intercourse is prohibited in most situations, active duty personnel often forgo condom use to avoid incriminating evidence.[27] Servicewomen may avoid use of other methods of contraception for the same reason, but no studies have addressed this. It is in this scenario of sexual activity without use of contraception that servicewomen are at risk for unintended pregnancy.

Several studies among women serving in the military report rates of unintended pregnancy exceeding rates seen in the general population. Approximately 50% of U.S. women will have an unintended pregnancy.[31–32] Studies among women in the Air Force reveal that 54–60% of women reported an unplanned pregnancy,[23, 33] among whom 71% stated they were unhappy to be pregnant.[33] Surveys of women in the Navy demonstrate similarly high rates of unintended pregnancy at approximately 50–60%.[34–35] Female Army soldiers also have high rates of unwanted or mistimed pregnancies at 55–65%.[22, 36] In a 2005 survey conducted by the DOD, 16.2% of military women 20 years old or younger reported an unintended pregnancy in the last year.[37] In the general population, the total pregnancy rate, including intended and unintended pregnancies, was 7.1% for similarly aged women in 2005.[38] As in the general population, unintended pregnancy among military women is most commonly associated with younger age, unmarried status, and lower educational levels.[22, 35–36] Additionally, servicewomen at highest risk for unintended pregnancy typically have lower military rank.[22–23, 36]

While there is no established link between unintended pregnancy and military sexual trauma, defined as severe or threatening forms of sexual harassment and sexual assault sustained in military service,[39] victims of sexual violence in the civilian population have been found to be at higher risk for unintended pregnancy.[40] In the U.S. general population, approximately 18% of women surveyed reported that they had been the victim of a

completed or attempted rape during their lifetime and 5% of rapes resulted in pregnancy.[41–42] Over 20% of all women veterans and 15% of OEF/OIF veterans reported being victims of military sexual trauma.[39, 43] A survey of 130 military women with unintended pregnancy revealed that 4% were a result of rape.[21] Further research among victims of military sexual trauma may reveal this to be a significant factor contributing to unintended pregnancy.

Epidemiologic data on the outcomes of unintended pregnancy among servicewomen are limited. Specifically, abortion rates among servicewomen are unknown because federal policy restricts DOD funding of abortion to cases in which pregnancy is life-threatening to the mother and limits provision of abortion services at DOD facilities to cases of rape, incest, or in which pregnancy threatens the life of the mother.[20–21, 44] As a result of these policies, active duty servicewomen must seek abortion services outside the military health system and at their own expense. In addition to abortion, there is little data on prenatal care or birth outcomes among servicewomen with an unintended pregnancy.

Contraceptive Use

Unintended pregnancy among active duty servicewomen is largely related to lack of contraceptive use. In fact, 50–62% of servicewomen presenting with an unintended pregnancy were not using contraception when they conceived.[23, 34, 36] In a survey of 503 sexually active Army women, 67% did not intend to become pregnant within the next year, yet the desire to avoid pregnancy did not translate into contraceptive use.[28, 34] Similarly, surveys of active duty military personnel of reproductive age demonstrate that although 70–85% were sexually active, nearly 40% used no contraception.[33, 35, 45–46] Young and unmarried women, who are generally at greater risk for unintended pregnancy than older, married women, were less likely to use contraception.[46–47] In studies investigating contraceptive use among deployed women, only 54% filled a prescription for hormonal contraceptives[47] and 43% actually used hormonal contraception while overseas.[48]

Among servicewomen who use contraception, less effective methods are commonly used. Approximately 30% of sexually active female military personnel reported condom use during their last sexual encounter, but consistent condom use during each act of intercourse was uncommon.[25, 49] Oral contraceptive pills (OCPs) were the method most frequently used,[36, 47] although less than 40% of women at risk for unintended pregnancy used this method. [34, 45, 50] The contraceptive injection was used by less than 15% of sexually active Navy personnel.[34] Even smaller proportions of servicewomen used highly effective methods of contraception such as the intrauterine device (IUD), contraceptive implant, or male or female sterilization.[34, 45, 47]

Similar to civilian women, military women may not use contraception due to concerns about side effects including nausea, weight gain, headache, and abnormal bleeding.[36] There are, however, special circumstances faced by servicewomen that limit consistent contraceptive use. For instance, deployed female soldiers working long shifts across multiple time zones reported difficulty adhering to a daily contraceptive schedule.[27] Other servicewomen reported difficulty using the contraceptive patch in harsh deployment climates; 58% of users in one study stated the patch fell off,[48] and problems with patch adhesion resulted in 60% of women discontinuing use.[45] Many women, upon experiencing unwanted side effects, found it easier to discontinue contraceptive use than overcome multiple hurdles[27] such as lack of availability of their chosen method in areas of deployment,[45] inability to keep medications in the barracks due to limited space and privacy, and limited military health care provider knowledge of available contraceptives.[51–52]

Low rates of contraceptive use among servicewomen may also be attributable to limited reproductive health education and knowledge prior to joining the military. A qualitative study of 29 sexually experienced Navy servicewomen found that prior to entering the military few had used contraception.[27] Furthermore, a survey of 244 Army women revealed that 26%, 44% and 44% had never heard of the contraceptive implant, IUD or emergency contraception, respectively.[51] In a study to assess reproductive health knowledge among 69 female Navy personnel, knowledge scores regarding contraceptives (21.2 on a 32 item scale) and IUDs (1.2 on a 4 item scale) was low.[53]

The Army, Navy and Air Force have implemented family planning education programs for active duty and deployed personnel. In two separate studies of Navy servicewomen evaluating these programs, those who received contraceptive education had lower pregnancy rates at the end of the study period compared to the control group (0 vs. 14%, $p<0.001$, n=198[54]and 23% vs. 77%, no p-value reported, n=173[55]). However, a trial conducted among female Marine Corps recruits showed no difference in unintended pregnancy rates between women who participated in a pregnancy prevention program and women who did not (6.7% vs. 7.3%, $p=0.8$, n=2157).[56] In a qualitative study of 10 Navy women addressing contraceptive decision-making, those who had previous sexual health education were more likely to use contraception[52] suggesting that reproductive health education while in the military may reduce unintended pregnancy in this population.

Emergency contraception (EC) may also help reduce unplanned pregnancy among active duty servicewomen. Yet, a survey of 302 Air Force personnel demonstrated awareness of EC was lower among those who were younger than 22 years old (57% vs. 71%, $p=0.01$), unmarried (59% vs. 71%, $p=0.02$), and had lower education levels (58% vs. 69%, $p=0.03$),[33] that is, those at greatest risk for unintended pregnancy. Among the 124 servicewomen surveyed, only 19% could report the proper time interval in which EC should be taken.[33] Among male and female enlisted personnel, 25% stated they were unwilling to use EC, 42% felt its use should be tightly restricted, and 30% had ethical concerns about the medication.[33] Nevertheless, 56% felt EC should be available upon deployment.[33] Those providing healthcare to active duty personnel may also have limited knowledge about EC. A study of 68 military health care providers in 2008 revealed 34% of providers did not know the proper time interval during which EC could be prescribed and 38% incorrectly believed that it could not be prescribed to women who had contraindications to hormonal contraceptive use.[57]

Use of hormonal contraception is beneficial to active duty servicewomen not only for prevention of unintended pregnancy, but also for induction of menstrual suppression. Deployed women reported that menses were difficult to manage because military gear affected self-care and environmental factors including heat, sand, limited restroom facilities, and long work hours without a break prevented changing sanitary products.[58] Among deployed women, 66% reported a strong desire for hormonally induced amenorrhea during deployment and 57% of those who used hormonal contraception to induce menstrual suppression reported high satisfaction with this method.[45, 59] Compared to conventional OCP users, those who used pills continuously reported greater adherence with daily pill use (53% vs. 100%, $p=0.02$, n=62[60] and 42% vs. 73%, $p=0.02$, n=500[59]) and fewer lost duty days relating to menstrual disturbances (14% vs. 0%, n=62[60] and 21% vs. 12%, n=500[59], no p-values reported). Given the possibility of menstrual suppression, both sexually active and abstinent servicewomen may benefit from hormonal contraceptive use.

Women Veterans

The Burden of Unintended Pregnancy

Unlike in the active duty population, there is no published data regarding the prevalence of unintended pregnancy among women veterans. However, women veterans share many of the risk factors for unintended pregnancy found among active duty servicewomen and civilian women. Similar to active duty servicewomen, women veterans are predominantly unmarried, have lower educational levels and disproportionately represent racial and ethnic minorities, all of which are associated with unintended pregnancy.[5] Women veterans are also more likely to have experienced intimate partner violence than non-veteran women (33% vs. 24%, $p<0.01$) and intimate partner violence is associated with higher unintended pregnancy rates.[61–62]

Unplanned pregnancy can be particularly problematic for women veterans who have unstable social environments or those with chronic medical conditions using potentially teratogenic medications. Women veterans are more likely than their non-veteran female counterparts to be homeless (OR 3.58; 95% CI, 2.95–4.33)[63] and are disproportionately affected by post-traumatic stress disorder, depression, and other mental health issues.[3] Furthermore, among women veterans who filled a prescription at the VA, 49% received a potentially teratogenic medication and, similar to non-VA populations[64–65], 63% did not receive contraceptive counseling or a contraceptive method prior initiating medication use.[66] For these reasons, preconception and contraceptive counseling are both critical to optimize health prior to pregnancy.

Contraceptive Use

As the population of women veterans seeking care within the VA system grows, advancements are rapidly being made to address their reproductive health needs.[7] Women veterans who use VA services are generally satisfied with the care provided at VA women's clinics and report an increase in available contraceptive options over recent years.[67] Several VA processes facilitate contraceptive use including the provision of a 3 month, instead of monthly, supply of medications which may include contraceptives, no or limited co-pays for outpatient prescriptions, complete coverage of IUDs, and multiple mechanisms through which to obtain refills including an online or mail order service.

However, potential barriers to contraceptive use, including limited use and provider knowledge, have been reported. In a 2006 study that described available contraceptive services in 166 VA medical facilities, 97% offered on-site management of hormonal contraception, yet only 63% offered on-site placement of IUDs.[68] IUD availability was more common in centers with a gynecologist (OR 20.4; 95% CI, 7.0–58.7) or clinician providing women's health training (OR 3.4; 95% CI, 1.2–9.8).[68] Similarly, another 2008 study found that 85% of VA facilities with a gynecologist provided IUD insertion compared to 14% without a gynecologist ($p<0.01$).[69]

Emergency contraceptive pills are available on the VA National Formulary and processes are in place to ensure that women veterans have timely and advanced access to this medication if desired.[70] Although these encouraging procedures exist, no studies have addressed the use of EC among women veterans.

Comment

The population of active duty servicewomen and women veterans of childbearing age is growing. Given the existing health care structure, health care providers in the military, at VA medical centers, and within the civilian community must work together to care for these

women. Data reveal that, compared to the civilian population, military women are at relatively high risk for unintended pregnancy. This may be because women in the military are predominantly young, unmarried, have lower educational achievement and lower socioeconomic status, and are more likely to be members of racial and ethnic minority groups than the general population.[19] Each of these demographic characteristics are associated with higher rates of unintended pregnancy.[31] Limited use of effective methods of contraception also likely plays a role in the high burden of unintended pregnancy in this population. From this review, several potential barriers to contraceptive use are revealed which warrant further investigation.

Sexual activity among military personnel is generally prohibited. Military personnel avoid condom use for fear of punishment[27], but it has yet to be determined if servicewomen avoid obtaining more effective methods of contraception from military facilities for the same reason. Furthermore, a large proportion of women are sexually assaulted while serving in the military. It has yet to be determined how much sexual violence contributes to unintended pregnancy within this population. Perhaps more importantly, the best methods to protect women from this violence and subsequent unintended pregnancy are unknown.

While servicewomen are generally satisfied with the health care provided by the DOD, deployed servicewomen, in particular, reported facing limitations in the range of reproductive health care services and supplies available overseas.[71] Limited resources may arise because the DOD tailors medical capability to the setting and size of the unit deployed. While it may not be feasible to stock overseas military treatment facilities with a variety of daily, weekly and monthly contraceptives, deployed servicewomen may benefit from use of long-acting reversible methods of contraception like the IUD and contraceptive implant. Further research on the uptake and ease of use of these methods among deployed servicewomen is needed.

Deployed servicewomen have additionally reported a lack of confidence in the contraceptive knowledge of military medical personnel stationed overseas.[51–52] This potential barrier to contraceptive use could be further examined by introducing educational interventions for overseas medical personnel regarding reproductive health and contraception. If education of medical personnel results in greater adoption of contraception, unintended pregnancy among servicewomen could be reduced.

In addition to education of military health care providers, direct education of servicewomen may also result in greater use of contraception. The available literature reveals that women at highest risk for unintended pregnancy are least likely to have experience with or knowledge about highly effective methods of contraception and emergency contraception. Educational interventions conducted among servicewomen are few and equivocal – further research is needed. Moreover, tailored interventions to facilitate use of hormonal contraception for menstrual suppression could have the added benefit of reducing unintended pregnancy.

In comparison to the active duty population, data on unintended pregnancy and contraceptive use among women veterans is sparse. The magnitude of unintended pregnancy, subpopulations of women veterans at greatest risk for unintended pregnancy, prevalence of contraceptive use, barriers to contraceptive use, levels of contraceptive knowledge among providers and patients, system variations on contraceptive availability, and effect of reproductive health education are all unknown. While the VA health system is recognized for an integrated electronic health records system which facilitates research, many of these questions cannot be answered using an electronic database. Additionally, data in this database is limited to those who use VA care and many women veterans seek care

outside the VA system. To adequately answer these research questions, prospective studies and randomized trials are needed.

The demographic characteristics of women who serve in the U.S. military are changing. Active duty and veteran women are often young and unmarried and may be using multiple health systems to access health care. Some may have experienced an unintended pregnancy, had limited contraceptive education, and little experience using contraceptives effectively. Furthermore, these patients may have unique characteristics placing them at risk for unintended pregnancy and may suffer from conditions which could result in adverse pregnancy outcomes. Understanding and addressing the needs of these women will give health care providers an opportunity to improve reproductive health care as well as pregnancy outcomes for this population.

Military Service Duty Definitions

- **Active Duty**[1]: Enlisted personnel and officers providing full-time duty in the active military service of the United States (Army, Navy, Air Force, Coast Guard and Marine Corps) and active duty status in the Reserves and the National Guard (other than for training).
  - **Deployed Personnel**[2]: Active duty personnel who are relocated to desired operational areas. Deployment encompasses all activities from origin or home station through destination specifically including intra-continental U.S., intertheater and intratheater movement.
- **Reservist**[2]: Members of the Military Services who are not in active service but who are subject to call to active duty. The Reserve Component consists of the Army and Air National Guard and the Army, Navy, Marine Corps, Air Force and Coast Guard Reserve.
- **Veterans**[1]: Individuals who have served, but are not currently serving, on active duty in the U.S. Army, Navy, Air Force, Marine Corps, Coast Guard, National Guard or Reserves, or who served in the U.S. Merchant Marine during World War II.

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References

1. U.S. Census Bureau. [cited 2011 July 14] Veterans: Definitions and Concepts. U.S. Census Bureau [Internet]. 2010. Available from: http://www.census.gov/hhes/veterans/about/definitions.html
2. DoD. Dictionary of Military Terms. [cited 2011 July 14] Department of Defense [Internet]. 2010. Available from: http://www.dtic.mil/doctrine/dod_dictionary/
3. Bean-Mayberry, B.; Huang, C.; Batuman, F., et al. [cited 2011 Mar 31] Systematic review of Women Veterans Health Research 2004–2008. Department of Veterans Affairs [Internet]. 2010 Oct. Available from:http://www.hsrd.research.va.gov/publications/esp/womens-health.pdf
4. VA. Statistics on Women in the Military. [cited 2011 Sept 20] Women in Military Service For America Memorial Foundation, Inc [Internet]. 2010. Available from: http://www.womensmemorial.org/PDFs/StatsonWIM.pdf

5. Holder, K. Post 9/11 Women Veterans; Proceedings of the Annual Meeting of the Population Association of America; 2010 Apr 15–17; Dallas, TX. Housing and Household Economic Statistics Division, U.S. Census Bureau; 2010.
6. Washington DL, Sun S, Canning M. Creating a sampling frame for population-based veteran research: representativeness and overlap of VA and Department of Defense databases. J Rehabil Res Dev. 2010; 47:763–771. [PubMed: 21110250]
7. Yano EM, Hayes P, Wright S, et al. Integration of women veterans into VA quality improvement research efforts: what researchers need to know. J Gen Intern Med. 2010; 25(Suppl 1):56–61. [PubMed: 20077153]
8. [cited 2011 Jun 27] VA. Department of Veterans Affairs Health Care Overview. Department of Veterans Affairs [Internet]. 2009. Available from: http://www.va.gov/healtheligibility/library/pubs/healthcareoverview/#PriorityGroups
9. Veteran Population Projections Model (VetPop). [cited 2011 Jun 24] Projected Female Veteran Population 17 Years and Older: 2000 to 2036. Department of Veterans Affairs [Internet]. 2007. Available from: http://www.va.gov/vetdata/docs/quickfacts/Population-slideshow.pdf
10. DOD. Women's Health Issues. [cited 2011 Sept 14] Department of Defense Health Affairs [Internet]. 1993. Available from: http://www.health.mil/libraries/HA_Policies_and_Guidelines/93-002.pdf
11. [cited 2011 Jun 27] VA. Women Veterans Health Care: About the Program. Department of Veterans Affairs [Internet]. 2011. Available from: http://www.publichealth.va.gov/womenshealth/about.asp
12. Military Advantage. [cited 2011 Jun 25] TRICARE Prime Overview. www.Military.com [Internet]. 2011. Available from: http://www.military.com/benefits/tricare/tricare-prime/tricare-prime-overview
13. Jeffery D. Director, Center for Healthcare Management Studies, Health Program Analysis & Evaluation Division, TRICARE Management Activity. Personal Communication. 2011 Jun 24.
14. Military Advantage. [cited 2011 Jun 25] TRICARE Prime Overview. www.Military.com [Internet]. 2011. Available from: http://www.military.com/benefits/tricare/tricare-prime/tricare-prime-overview
15. Seal, KH. [cited 2011 July 14] Prepared Statement of Karen H. Seal, MD, MPH, Deparment of Medicine and Psychiatry, San Francisco Department of Veterans Affairs Medical Center, Veterans Health Administration, U.S. Department of Veterans Affairs. House Committee on Veterans Affairs [Internet]. 2011. Available from: http://veterans.house.gov/preparedstatement/prepared-statement-karen-h-seal-md-mph-department-medicine-and-psychiatry-san
16. Washington DL, Bean-Mayberry B, Riopelle D, Yano EM. Access to Care for Women Veterans: Delayed Healthcare and Unmet Need. J Gen Intern Med. 2011 In press.
17. Washington DL. Data on dual VA and non-VA use among Women Veterans. Personal Communication. 2011 Jul 14.
18. Washington, DL. Findings from the National Survey of Women Veterans; Proceedings of the VA HSR&D Cyber Seminar; 2011 Jan 12; Los Angeles, CA. VA HSR&D; 2011.
19. DoD. [cited 2011 Mar 31] FY2007 Population Representation in the Military Services: Department of Defense [Internet]. 2007. Available from: http://prhome.defense.gov/mpp/ACCESSION%20POLICY/PopRep2007/download/ExecSum2007.pdf
20. Jacobson JC, Jensen JT. A Policy of Discrimination: Reproductive Health Care in the Military. Womens Health Issues. 2011; 21:255–258. [PubMed: 21570868]
21. Grindlay K, Yanow S, Jelinska K, Gomperts R, Grossman D. Abortion restrictions in the u.s. Military: voices from women deployed overseas. Womens Health Issues. 2011; 21:259–264. [PubMed: 21712143]
22. Custer M, Waller K, Vernon S, O'Rourke K. Unintended pregnancy rates among a US military population. Paediatr Perinat Epidemiol. 2008; 22:195–200. [PubMed: 18298695]
23. Robbins AS, Chao SY, Frost LZ, Fonseca VP. Unplanned pregnancy among active duty servicewomen, U.S. Air Force, 2001. Mil Med. 2005; 170:38–43. [PubMed: 15724852]

24. Uniform Code of Military Justice. [cited 2011 Sept 14] Article 120: Rape and Carnal Knowledge. [Internet]. 2006. Available from: http://www.ucmj.us/sub-chapter-10-punitive-articles/920-article-120-rape-and-carnal-knowledge
25. Klein DA, Adelman WP. Adolescent pregnancy in the U.S. military: what we know and what we need to know. Mil Med. 2008; 173:658–665. [PubMed: 18700600]
26. Booth-Kewley S, Minagawa RY, Shaffer RA, Brodine SK. A behavioral intervention to prevent sexually transmitted diseases/human immunodeficiency virus in a Marine Corps sample. Mil Med. 2002; 167:145–150. [PubMed: 11873538]
27. Duke MR, Ames GM. Challenges of contraceptive use and pregnancy prevention among women in the U.S. Navy. Qual Health Res. 2008; 18:244–253. [PubMed: 18216343]
28. O'Rourke K, Richman A, Roddy M, Custer M. Does pregnancy/paternity intention predict contraception use? A study among US soldiers who have completed initial entry training. J Fam Plann Reprod Health Care. 2008; 34:165–168. [PubMed: 18577315]
29. Sadler AG, Mengeling MA, Syrop CH, Torner JC, Booth BM. Military Service, Life Span Sexual Assault Exposures, and Cervical Cytologic Abnormalities. J Womens Health (Larchmt). 2011
30. Hwang LY, Shafer MA, Pollack LM, Chang YJ, Boyer CB. Sexual behaviors after universal screening of sexually transmitted infections in healthy young women. Obstet Gynecol. 2007; 109:105–113. [PubMed: 17197595]
31. 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. [PubMed: 16772190]
32. Finer LB, Kost K. Unintended pregnancy rates at the state level. Perspect Sex Reprod Health. 2011; 43:78–87. [PubMed: 21651706]
33. van Royen AR, Calvin CK, Lightner CR. Knowledge and attitudes about emergency contraception in a military population. Obstet Gynecol. 2000; 96:921–925. [PubMed: 11084178]
34. Thomas MD, Thomas PJ, Garland FC. Contraceptive use and attitudes toward family planning in Navy enlisted women and men. Mil Med. 2001; 166:550–556. [PubMed: 11413736]
35. Thomas AG, Brodine SK, Shaffer R, et al. Chlamydial infection and unplanned pregnancy in women with ready access to health care. Obstet Gynecol. 2001; 98:1117–1123. [PubMed: 11755563]
36. Clark JB, Holt VL, Miser F. Unintended pregnancy among female soldiers presenting for prenatal care at Madigan Army Medical Center. Mil Med. 1998; 163:444–448. [PubMed: 9695607]
37. RTI International. [cited 2011 Jun 27] Department of Defense Survey of Health Related Behaviors Among Active Duty Military Personnel. RTI International [Internet]. 2006. Available from: http://www.ha.osd.mil/special_reports/2005_Health_Behaviors_Survey_1-07.pdf
38. Guttmacher Institute G. [cited 2011 Jun 28] U.S. Teenage Pregnancies, Births and Abortions: National and State Trends and Trends by Race and Ethnicity. Guttmacher Institute [Internet]. 2010. Available from: http://www.guttmacher.org/pubs/USTPtrends.pdf
39. Kimerling R, Gima K, Smith MW, Street A, Frayne S. The Veterans Health Administration and military sexual trauma. Am J Public Health. 2007; 97:2160–2166. [PubMed: 17971558]
40. Gomez AM. Sexual Violence as a Predictor of Unintended Pregnancy, Contraceptive Use, Unmet Need Among Female Youth in Colombia. J Womens Health. 2011; 20:1349–1356.
41. Tjaden, P.; Thoennes, N. [cited 2011 Sept 20] Full report of the prevalence, incidence, and consequences of violence against women: findings from the National Violence Against Women Survey. U.S. Department of Justice, Office of Justice Programs [Internet]. 2000. Available from: http://www.ncjrs.gov/pdffiles1/nij/183781.pdf
42. Holmes MM, Resnick HS, Kilpatrick DG, Best CL. Rape-related pregnancy: estimates and descriptive characteristics from a national sample of women. Am J Obstet Gynecol. 1996; 175:320–324. discussion 324-5. [PubMed: 8765248]
43. Kimerling R, Street AE, Pavao J, et al. Military-related sexual trauma among veterans health administration patients returning from afghanistan and iraq. Am J Public Health. 2010; 100:1409–1412. [PubMed: 20558808]
44. Boonstra H. Off Base: The U.S. Military's Ban on Privately Funded Abortions. Guttmacher Policy Review. 2010; 13:6.

45. Nielsen PE, Murphy CS, Schulz J, et al. Female soldiers' gynecologic healthcare in Operation Iraqi Freedom: a survey of camps with echelon three facilities. Mil Med. 2009; 174:1172–1176. [PubMed: 19960825]
46. Borsay-Trindle LA, Pass CM, Gilzean SM. Unplanned pregnancy among active-duty Army females as a readiness issue. Mil Med. 1991; 156:82–86. [PubMed: 1900595]
47. Hormonal Contraceptive Use among Female Service Members, Active Components, U.S. Armed Forces, January 2004–March 2006. Medical Surveillance Monthly Report. 2007; 14:9–13.
48. Thomson BA, Nielsen PE. Women's health care in Operation Iraqi Freedom: a survey of camps with echelon I or II facilities. Mil Med. 2006; 171:216–219. [PubMed: 16602519]
49. Von Sadovszky V, Ryan-Wenger N, Germann S, Evans M, Fortney C. Army women's reasons for condom use and nonuse. Womens Health Issues. 2008; 18:174–180. [PubMed: 18359640]
50. Markenson G, Raez E, Colavita M. Female health care during Operation Desert Storm: the Eighth Evacuation Hospital experience. Mil Med. 1992; 157:610–613. [PubMed: 1470358]
51. Battista RM, Creedon JF Jr, Salyer SW. Knowledge and use of birth control methods in active duty Army enlisted medical trainees. Mil Med. 1999; 164:407–409. [PubMed: 10377708]
52. Chung-Park MS. Contraceptive decision-making in military women. Nurs Sci Q. 2007; 20:281–287. [PubMed: 17595410]
53. Gallagher CK, Lall R, Johnson WB. Contraceptive knowledge, contraceptive use, self-esteem among Navy personnel. Mil Med. 1997; 162:288–291. [PubMed: 9110557]
54. Chung-Park MS. Evaluation of a pregnancy prevention programme using the Contraceptive Behavior Change model. J Adv Nurs. 2008; 61:81–91. [PubMed: 18173736]
55. Hughes TC, Staren-Doby D. Reducing unintended pregnancy in young, single active duty women in an overseas environment. Mil Med. 2003; 168:11–14. [PubMed: 12546238]
56. Boyer CB, Shafer MA, Shaffer RA, et al. Evaluation of a cognitive-behavioral, group, randomized controlled intervention trial to prevent sexually transmitted infections and unintended pregnancies in young women. Prev Med. 2005; 40:420–431. [PubMed: 15530594]
57. Chung-Park M. Emergency contraception knowledge, attitudes, practices, and barriers among providers at a military treatment facility. Mil Med. 2008; 173:305–312. [PubMed: 18419035]
58. Trego LL. Military women's menstrual experiences and interest in menstrual suppression during deployment. J Obstet Gynecol Neonatal Nurs. 2007; 36:342–347.
59. Powell-Dunford NC, Cuda AS, Moore JL, Crago MS, Kelly AM, Deuster PA. Menstrual suppression for combat operations: advantages of oral contraceptive pills. Womens Health Issues. 2011; 21:86–91. [PubMed: 21185993]
60. Powell-Dunford N, Cuda AS, Moore JL, Crago MS, Deuster PA. Menstrual suppression using oral contraceptives: survey of deployed female aviation personnel. Aviat Space Environ Med. 2009; 80:971–975. [PubMed: 19911522]
61. Dichter ME, Cerulli C, Bossarte RM. Intimate partner violence victimization among women veterans and associated heart health risks. Womens Health Issues. 2011; 21:S190–S194. [PubMed: 21724140]
62. Miller E, Decker MR, Mccauley HL, et al. Pregnancy coercion, intimate partner violence and unintended pregnancy. Contraception. 2010; 81:316–322. [PubMed: 20227548]
63. Gamache G, Rosenheck R, Tessler R. Overrepresentation of women veterans among homeless women. Am J Public Health. 2003; 93:1132–1136. [PubMed: 12835198]
64. Schwarz EB, Maselli J, Norton M, Gonzales R. Prescription of teratogenic medications in United States ambulatory practices. Am J Med. 2005; 118:1240–1249. [PubMed: 16271908]
65. Schwarz EB, Postlethwaite DA, Hung YY, Armstrong MA. Documentation of contraception and pregnancy when prescribing potentially teratogenic medications for reproductive-age women. Ann Intern Med. 2007; 147:370–376. [PubMed: 17876020]
66. Schwarz EB, Longo LS, Zhao X, Stone RA, Cunningham F, Good CB. Provision of potentially teratogenic medications to female veterans of childbearing age. Med Care. 2010; 48:834–842. [PubMed: 20706159]

67. Mattocks KM, Nikolajski C, Haskell S, et al. Women veterans' reproductive health preferences and experiences: a focus group analysis. Womens Health Issues. 2011; 21:124–129. [PubMed: 21353978]

68. 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–S39. [PubMed: 16637943]

69. Seelig MD, Yano EM, Bean-Mayberry B, Lanto AB, Washington DL. Availability of gynecologic services in the department of veterans affairs. Womens Health Issues. 2008; 18:167–173. [PubMed: 18329895]

70. [cited 2011 Jun 29] VA. Pharmacy Benefits Management Medical Advisory Panel, VISN Pharmacist Executive. Department of Veterans Affairs [Internet]. 2010. Available from: http://www.pbm.va.gov/ezminutes/Ez_Minutes_Aug_Oct_10/EZ_Minutes_Aug-Oct%202010.htm#Levonorgestrel_Advanced_Provision

71. GAO. [cited 2011 Jun 25] Defense Health Care: Health Care Benefit for Women Comparable to Other Plans. U.S General Accounting Office [Internet]. 2002. Available from: http://www.gao.gov/new.items/d02602.pdf