

Military Women's Health While Deployed: Feminine Hygiene and Health in Austere Environments

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Using data from the clinical log information at the Joint Base Balad Women's Health Clinic in Iraq from September 2007 to May 2008, the authors were able to identify the problems and educational needs that will help military women make informed decisions about their health and hygiene before deployment.

Since the beginning of the American Revolutionary War, women have been serving our country without hesitation.^{1,2} However, not until the start of Desert Storm in 2002 did women's health come to the forefront.² Currently, 15% of the U.S. Armed Forces are women, and 10% are deployed.²⁻⁴ While deployed, women are concerned about menstruation, contraception, infections, and basic feminine hygiene, and they must deal with these concerns in the most austere conditions.⁵ Historically, women have not been adequately prepared for these health issues during deployment and have been forced to manage these health needs on their own.^{5,6} Military women are inundated with pre-deployment briefings with little attention to women's health education. Previous research has recommended continued education for women and health care providers (HCPs) in this area.^{7,8}

The purpose of this descriptive, retrospective study is to gain a better understanding of the specific health needs of deployed women. The study uses the clinical log information that was maintained by

the women's health clinic HCPs stationed at the Women's Health Clinic at Joint Base Balad (formerly Balad Air Base) in Iraq, from September 2007 to May 2008. This study will describe common women's health issues among deployed women. Data were analyzed using chi-square analysis. The long-term goal of this study is to increase knowledge about women's health issues for deployed women and their HCPs.

BACKGROUND

Military nursing research experts agree that women's health and deployment, including health promotion and health care related diseases, is a vital issue in today's military that should be studied.⁹ The social ecologic model framework is a model used to identify concepts used in prevention and improvement of poor health.¹⁰ Specifically, ecologic concepts or links can influence health; therefore, the individual and the environment (link) are independent, and health is the outcome of this relationship.¹⁰ Deployment fits this framework as an employment, work, or health link, and its physical, social, and psychological aspects can impact a woman's health. There is a high level of danger and poor working conditions in deployment that can

affect health directly or indirectly.

Operations Desert Shield and Desert Storm marked the first large-scale deployment of women.¹¹ In the deployed setting, significant differences in female health care have been identified.^{6,12} During these operations more than 26% of all visits were gynecologic or woman related.¹¹ Also, studies have reported women having abnormal, heavy vaginal bleeding and a higher incidence of vaginal and urinary tract infections (UTIs) in a deployed setting.¹³ Although this area is improving, management of deployed health care personnel and supplies are tailored to meet the medical needs of the setting and size of the unit and are based on the health care patterns of men, which are different from women.¹⁴⁻¹⁶ In most deployed settings, gynecologic services have been unavailable or inadequate.⁶ Furthermore, even in the setting of an integrated force, women are often hesitant to present concerns or to highlight difficulties in the field. This hypothesis is the result of a lingering fear that women should be excluded from military service.¹⁷ Additionally, in deployed settings, the enlisted medical personnel available may not have the experience or supplies to deal with these concerns.¹³ With few gynecologic HCPs available to diagnose

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Table 1. Women's health category cross-tabulation

	Women's health category				
	Well woman	Contraceptive	Gynecologic problems	Sexually transmitted, vaginal, and UTIs	Pregnancy/ possible pregnancy
U.S. Army	443	183	93	134	87
U.S. Air Force	58	105	29	31	15
U.S. Marine Corps	4	0	0	0	0
U.S. Navy	2	2	0	1	1
Civilian/ Contractor	36	15	8	11	2
Other	3	2	1	0	0
Total	546	307	131	177	105

UTI = urinary tract infections.

and treat women's health needs, military leadership relies heavily on the medical technicians at the forward operating bases. This lack of qualified HCPs further underlies why women are hesitant to seek care for their needs. The hesitancy persists while the percentage of women deployed continues to rise.²

Second, although military women receive their health care information from their HCPs, military briefings, and the Internet, multiple studies have shown that military women have limited knowledge about how to take care of simple female needs such as menstruation.⁷⁻¹⁷ Menstrual irregularities were more pronounced in a deployed setting, and women voiced a desire for menstrual suppression.^{3,7} Consistent predeployment screening is lacking. For example, during Operation Desert Storm, 22% of women needed Papanicolaou smears; 44% were unable to receive gynecologic care while deployed; and 77% wanted menstruation and birth control management.¹³ The majority of these visits could have

been prevented with predeployment screening and proper education.

Current researchers in women's health and deployment agree education needs to be provided to women before deployment in dealing with sexually transmitted infections (STIs), sexual risk behavior, menstruation, and prevention of vaginal infections and pregnancy.^{7,8,11,18} Yet many women did not know that education was a possibility before deployment. The austerity of the deployed location has an impact on the decision to seek medical care.⁵ For example, before deployment many women were misinformed about the correct use of birth control and stopped their oral contraceptive only to begin experiencing heavier menstruation and menstrual cramps.

Last, there is the incidence of pregnancy and STIs among deployed women.^{11,18} Though not the most common diagnoses in deployed women, STIs can put women at serious risk if not cared for in a timely manner. Before 1971, pregnancy was deemed incompat-

ible with military service, but the law was amended in 1974.¹⁹ Until 2008, general order No. 1 prohibited sexual relationships in a deployed location.^{11,20} As a result, many women were choosing to stop birth control while deployed. Pregnancy also deserves mention for its serious impact on the mission. It represents the top reason for evacuation due to the policy that pregnant military women must be administratively deployed with the cost being \$10,000 per pregnant woman.^{11,21,22}

Many women choose to stop birth control based on their HCP's recommendation, because they did not plan to have sex.¹¹ However, sex still occurs during deployment. Research has shown that women have the highest rate of STIs, and it increases in a deployed setting.^{18,23} Also, if they initially started birth control due to heavy, painful menses, their symptoms return after discontinuing birth control. Further complicating the matter, birth control previously used to alleviate symptoms may not be avail-

Procedure	Sexual assault nurse examinations	Total
64	1	1,005
11	1	250
3	0	7
0	0	6
3	0	75
0	0	6
81	2	1,349

able.¹³ Women should have the opportunity to make an educated decision before deployment, not during a 12-hour guard shift while they are trying to decide about the next time they can change their tampon. Therefore, when women are deployed, they are susceptible to incurring more female-related symptoms due to an austere environment, further magnifying deployment as an ecologic link.

SETTING AND METHODS

This was a descriptive, retrospective study of the clinical log information (N = 1,358) maintained by the women's HCPs stationed at the Women's Health Clinic at Joint Base Balad in Iraq from September 2007 through May 2008. The clinic provided gynecologic care to all women deployed to that location. All military and civilian women were eligible for health care. The log began as a quality assurance tool maintained by all deployed women's HCPs for process improvement. The study was approved by the Wilford Hall Medical Center's institutional

review board in January 2009. All data were completely de-identified, and the only information included for analysis was branch of service and purpose of visit.

The purpose of a visit was divided among 5 categories: (1) well-woman examination—annual examination with Papanicolaou test and breast examination; (2) contraceptive management—progestin-only contraceptive shots, contraception refills, contraception problems, starting contraception, and intrauterine device check; (3) gynecologic problems—polycystic ovarian syndrome, endometriosis, abnormal bleeding, pelvic pain, dysmenorrhea, breast lump or mass, and menopausal issues; (4) STIs—vaginal infections, cystitis: gonorrhea/chlamydia, herpes simplex virus, genital warts, syphilis, yeast infection, bacterial vaginosis, trichomonas, and UTI; (5) pregnancy—any pregnancy detected during deployment including miscarriages.

The categories were based on the appointment types established. Data were analyzed using descriptive statistics and tests of association. A test of significance was conducted using a chi-square test on data collected with branch of service attached to each purpose of visit. Statistical significance was considered to be $P < .05$.

RESULTS

From September 2007 through May 2008, there were a total of 1,358 visits to the women's health clinic. Of these, 1,005 (74%) were U.S. Army and 205 (15%) were U.S. Air Force. Using SPSS version 15.0 for data analysis, as summarized in Table 1, the top reasons for the visit were well woman (40.0%) and contraceptive management (22.7%). STI/vaginal infections/

UTIs (13.2%), complex gynecologic problems (9.7%), and pregnancy (8.2%), procedures (6.0%) and sexual assault nurse examinations (0.2%) comprised the remaining 37.3% of reasons for the visit.

When comparing the women from the U.S. Army and U.S. Air Force (N = 1,253), there was a clear difference in the purpose for their visits to the clinic. For women in the U.S. Army, 44% received a well woman examination; whereas only 23% of the U.S. Air Force women received a well woman examination ($P < .0001$). Also, there was a difference in the percentage of women who came for contraceptive management: U.S. Army women (63.5%) vs U.S. Air Force women (42.0%) ($P < .0001$). A statistically significant difference ($P < .0001$) was also seen in the number of U.S. Army women who received gonorrhea and chlamydia screenings during their women's health visits vs the U.S. Air Force women (26.5% vs 14.7%, respectively); and a difference in the number of U.S. Army women who required a Papanicolaou test during their visit (29.0%) vs the U.S. Air Force women (9.7%). There were no statistically significant differences noted in rates of care sought for UTI and pregnancy and possible pregnancy or procedures by service.

DISCUSSION

The top 2 reasons for visits at the women's health clinic in Iraq were for preventive reasons: well-woman examinations and contraceptive management. Although, the demographics reflect a deployed setting, they are also consistent with existing literature. However, many of the contraceptive problems that were diagnosed could have been avoided

with proper education before deployment. By improving women's knowledge about their health, they will be more prepared and less likely to require a clinic visit to manage routine feminine care. This approach will improve readiness as well as conserve resources in a deployed setting.

For women that came to the women's health clinic for a specific problem requiring treatment, STIs, vaginal infections, and UTIs were the most common. These findings were consistent with those of the Center for Disease Control and Prevention, which has identified the most common diagnoses among childbearing-age women to be bacterial vaginosis, candidiasis vaginitis, trichomonas vaginalis, and UTIs.²⁰

In addition to these common reasons for a visit to the women's health clinic, there were also many complex gynecologic problems that needed to be addressed and managed. As women's HCPs in a deployed setting, the researchers were not expecting to see such complex gynecologic problems. During the data collection period, several patients were diagnosed with endometriosis, dysfunctional uterine bleeding, and menopause. Although these conditions would normally require routine management at their home station, they became very challenging in the deployed setting. There are limited equipment and supplies to manage complex cases, and medications to treat these diagnoses often are not readily available. Therefore, it is important to be ready to handle the routine and the complex.

The statistically significant differences identified by service were an interesting finding. It is possible that the lower percentage of U.S.

Air Force women requesting well-woman examinations and contraceptive management may reflect different practice patterns during the predeployment period. However, more likely this difference may be attributed to differences in the total length of deployment. The U.S. Army tends to deploy for longer periods of time compared with their U.S. Air Force counterparts (12-15 months compared with 4-6 months, respectively), but length of deployment was not available for analysis. Additionally, the U.S. Army tends to be positioned in more austere settings during deployment, for example, 12-hour tower guard shifts and convoys. Although the reasons for the differences are unclear, recognizing these service-specific practice patterns is important to better prepare deployed women and HCPs.

Overall, the findings of this study are consistent with previous research that has underscored the need for military women to be aware of all their health options in order to make an informed decision before deployment.^{4,7} Despite these consistent themes, more attention is still needed on gender-specific health care in deployed locations.²⁴ Deployment continues to impact women, and these findings support previous research. All too often women are returning from deployment feeling as though their personal health needs were not met.⁷ Future research must focus on interventions to ensure that women have the necessary knowledge and resources, which are desperately needed, to adequately manage their personal health needs in the deployed environment. Based on the results of this study, there may also be a need to tailor these interventions for service-specific needs.

CONCLUSION

Women's health care in the deployed environment is a complex issue with identified gaps in knowledge and resources. With military women continuing to support military operations throughout the world, it is important to adequately address women's health needs in the deployed environment. Health care providers need to be proactive and ask women at every visit whether they will be deployed, to allow for early intervention. This study provides an unique perspective of the types of women's health care provided in-theatre and identifies clear service-specific differences. Although further research is needed to develop evidence-based interventions to address these identified gaps, the results of this descriptive study can be used to guide clinical practice and women's health policies before and during deployment.

Practical application of these findings shows that HCPs who care for women before deployment should address possible deployment-related women's health concerns with their patients. Many times women may not know what questions to ask relating to their health or even be aware of what could happen while deployed. Therefore, HCPs should raise preventive health questions, such as date and result of last Papanicolaou test, menstrual irregularities or difficulties, and history of vaginitis or UTIs.

Once areas of concern are identified, HCPs should offer suggestions on how women can manage these issues while deployed. For example, HCPs can offer menstrual suppression through the use of oral contraceptives, progestin-only contraceptive shots, implantable contraceptive devices, or an intra-uterine system. First, women need

to be educated about the benefits of contraception; not only pregnancy prevention, but also help with dysmenorrhea, menorrhagia, and dysfunctional uterine bleeding. Health care providers must allow adequate time for adjusting to medication before deployment. Second, HCPs need to educate women on ways to prevent vaginitis and UTIs. Last, there should be a thorough discussion on prevention of STIs and pregnancy through abstinence or condom use. These areas will need to be addressed continually, and findings from this and future research will be crucial to the advancement of women's health during deployment. ●

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