Increasing Maternity Leave and Decreasing Attrition Rates of U.S. Active Duty Women in the Prenatal and Immediate Postpartum Period

Lt Col Minette S.R. Herrick, USAF, BSC[*]*; Weiwen Chai, PhD*[†]

ABSTRACT

Introduction:

The USA currently does not have a national parental leave policy. In 2016, the Secretary of Defense increased the allotted maternity leave for active duty U.S. military members from 6 to 12 weeks. The purpose of this study was to understand the potential impact of this change on attrition rates of active duty women in the Army, Air Force, Navy, and Marines from their initial prenatal visit through the first year postpartum.

Methods:

All active duty women who had a confirmed pregnancy in the electronic health record from 2011 to 2019 were included for consideration in the study. A total of 67,281 women met the inclusion criteria. These women were followed from their initial documented prenatal visit for 21 months (9 months gestation and 12 months postpartum) for removal from the Defense Eligibility and Enrollment Reporting System signaling attrition from service presumably related to pregnancy or childbirth. Logistic regression models were used to assess the association between maternity leave policy and attrition adjusting for covariates.

Results:

Overall, women who were allotted 6 weeks of maternity leave were associated with higher attrition relative to women provided 12 weeks of maternity leave (odds ratio = 1.36; 95% CI, 1.31-1.42; $P < .0001$), representing a 22% decrease in attrition rates of women given 12 weeks vs. 6 weeks of leave. This impact of attrition rate was the greatest among members who were of lower rank (6 weeks vs. 12 weeks of leave: junior enlisted (E1-E3), 29.2% vs. 22.0%, $P < .0001$ and non-commissioned officer (E4-E6), 24.3% vs. 19.4%, $P < .0001$) and who served in the Army (28.0% vs. 21.2%, $P < .0001$) and Navy (20.0% and 14.9%, $P < .0001$).

Conclusions:

Family-friendly health policy appears to have the intended outcome of retaining talent in the military workforce. The impact of health policy on this population can provide a glimpse into the influence of similar policies should they be implemented nationwide.

INTRODUCTION

Women have formally served in the U.S. Military since 1901 in accordance with the establishment of the Army Nurse Corps. Since that time, women have been afforded opportunities to serve in unique and diverse roles in all branches of the military. Until 1976, women were involuntarily separated from the military if they became pregnant while in the service.[1] Laws have since been re-aligned to allow pregnant women the option to continue military service through their pregnancy and beyond.

Federal maternity leave started in 1993 with the enactment of Public Law 103-3, the Family and Medical Leave Act (FMLA), which required up to 12 weeks of unpaid leave for mothers of newborns or adopted children.[2,3] However, maternity leave in the USA is not compulsory for employers. There are exceptions to companies being required to offer the FMLA, including company size (employing fewer than 50 people) and tenure (mother's employment is less than 12 months).[3,4] Although the FMLA tends to be more available than paid maternity leave, many women cannot afford to take unpaid leave from work, especially those of low socioeconomic status.[5] Additionally, some companies require women to utilize other sources of leave, such as sick leave, vacation, or holiday time, before they are eligible to take unpaid or disability time off.[4] As of 2021, only 24% of workers in the USA had access to paid family leave and 89% had access to unpaid family leave.[6]

The National Defense Authorization Acts of 2008 and 2009 were the first to expand parental leave coverage to military members.[7] Until 2015, active duty women were granted 6 weeks of non-chargeable convalescent leave for postpartum recovery. At the end of 2014, the Department of the Navy augmented its postpartum leave to include a maternity leave of up to 18 weeks. This change was short-lived as the Secretary of Defense, Ashton Carter, implemented a new Department of Defense (DoD) maternity leave policy

[*]Air Force Institute of Technology Student, University of Nebraska–Lincoln, Lincoln, NE 68503, USA

[†]Nutrition and Health Sciences, University of Nebraska–Lincoln, Lincoln, NE 68583, USA

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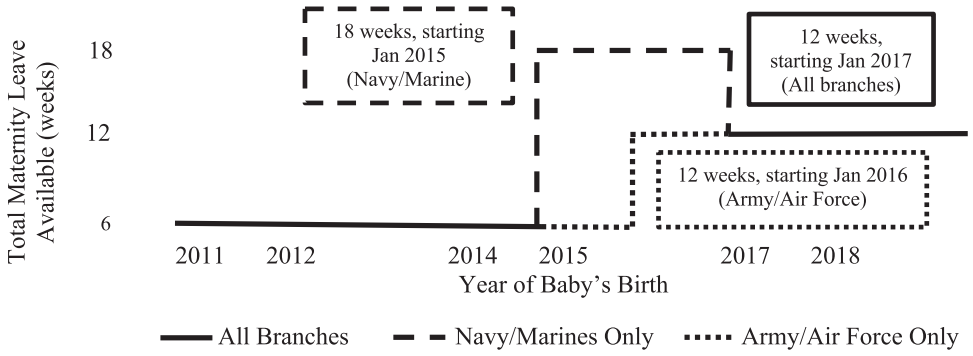

FIGURE 1. Policy change over time: Total leave available to women based on baby's date of birth in accordance with the Secretary of the Navy and Secretary of Defense guidelines.

effective from January 2016.[8] This policy effectively authorized up to 12 weeks of time off (6 weeks convalescent and 6 weeks of maternity leave) after the birth of a child.[8] This was a step forward for members in all services except those in the Navy and Marine Corps who lost the newly instated additional 6 weeks of time off (Fig. 1). On January 4, 2023, the DoD further expanded this program to provide 12 weeks of parental leave to birth parents (both the mother and father) after a period of convalescent leave.[9] Both of the most recent policies have benefits for adoptive parents as well. Although limited, research demonstrates the positive impact of the DoD maternity leave policy change. One study conducted among active duty Marine mothers found women provided with 6 weeks of maternity leave tended to save up their allotted (chargeable) leave in the time leading up to the birth event and would take additional time off at the end of the 6-week period. In contrast, when women were given 12 weeks of maternity leave, they did not save up leave to use in conjunction with the allotted 12 weeks. These women also used less leave in the subsequent year than those given 6 weeks.[10]

When the Secretary of Defense Carter announced the maternity leave policy change and goals, the primary purpose was to provide an incentive for "retaining talent."[8] Replacing military personnel because of attrition (employee departure from the organization) can have significant fiscal and time ramifications, making retention efforts essential.[11,12] Therefore, the aim of this research was to provide insight into the retention of U.S. active duty military women in the Army, Air Force, Navy, and Marines with the implementation of the maternity leave policy. We compared attrition rates over the period from initial prenatal visit through 1 year postpartum between women provided 6 weeks of maternity leave (2011-2015) and women provided 12 weeks of maternity leave (2016-2019).

METHODS

Data and Attrition Determination

Assigned data analysts contracted through the Defense Health Agency pulled data, in adherence to the approved data request sharing template, from the Defense Eligibility and Enrollment Reporting System (DEERS), Standard Inpatient Data Record, Military Health System GENESIS, Comprehensive Ambulatory/Professional Encounter Record, Military Health System Data Repository, Armed Forces Health Longitudinal Technology Application, and Composite Health Care System II. The DEERS houses information on all active duty (all branches) members and their dependent family members.

The primary outcome measure of the study was attrition, which was defined as a departure from the military any time after conception to 1 year postpartum. Active duty women with a confirmed pregnancy, as indicated by their initial prenatal visit in the health care record, were followed from their first obstetrics appointment for 21 months (9 months gestation plus 12 months postpartum) to identify attrition cases potentially related to pregnancy. If a woman remained in the system past the 1-year postpartum point (21 months from the initial prenatal visit), she was counted as non-attrition. If a woman was removed from the DEERS or received a different code (e.g., moved from an active duty code to a dependent code) within the defined time frame (21 months from the initial prenatal visit), she was counted as attrition related to pregnancy. Although separating from the military could be related to things other than childbirth, it was impossible to account for any specific reason. In this research, we assumed all separations were related to pregnancy or childbirth. This limitation was consistent across all age groups.

Participants

All active duty women in the Army, Air Force, Navy, and Marines who had a confirmed pregnancy in the electronic health record from 2011 to 2019 were included in the study ($n = 94{,}326$). If a woman had multiple pregnancies within the time frame, only the most recent pregnancy was included in the data analysis ($n = 21{,}072$ pregnancies were excluded to meet the independence assumption of the statistical model). Because of the change in Navy and Marine Corps policy from 6 to 18 weeks of maternity leave starting from January 2015 and lasting through December 2016, pregnancies that

fall into this category were excluded from primary data analysis ($n = 5973$). After the inclusion criteria were met, the total population for analysis was $n = 67{,}281$.

Statistical Analysis

Women were stratified by year of delivery to identify if they had 6 weeks (2011-2015) or 12 weeks (2016-2019) of maternity leave. The demographic characteristics were compared between the 6-week leave and 12-week leave groups as well as between attrition and non-attrition groups using Chi-squared tests for categorical variables and *t*-test for the continuous variable. Attrition rates (yes or no) were compared dichotomously between the 6-week leave group and the 12-week leave group using a Chi-squared test. A logistic regression model was used to estimate odds ratios and 95% CIs for 6 weeks vs. 12 weeks of maternity leave (exposure/independent variable) with attrition (yes or no, outcome/dependent variable). The model was adjusted for race and ethnicity, age, marital status, branch of service, and military rank (Table I). These covariates were added to the model based on the time order sequence as listed earlier. Interaction terms between cofactors listed above were added to the model to assess for interactions. Since our analysis showed significant interactions of maternity leave policy with the branch of service and military rank in relation to attrition ($P < .0001$), we further performed stratified analysis to compare attrition rates between women with 6 weeks of leave and women with 12 weeks of leave by the branch of service and military rank, respectively. Statistical Analysis System was used for all statistical analyses. Considering the large sample size of our study, *P*-value <.01 was considered statistically significant.

RESULTS

Our study population included 67,281 pregnancy events, of which we identified 14,077 (21%) cases of attrition potentially related to pregnancy. A total of 38,278 pregnancies occurred during 2011-2015 (6 weeks of leave) and 29,003 occurred during 2016-2019 (12 weeks of leave). The overall attrition rate was significantly lower for women given 12 weeks of maternity leave ($n = 5218$, 18.0%) compared to those given 6 weeks of maternity leave ($n = 8859$, 23.1%, $P < .0001$), representing a 22% decrease in attrition rate after expanding leave time from 6 weeks to 12 weeks. The mean age was 26.2 ± 5.3 years. The majority of the women were non-white (56.0%), married (67.7%), and of the rank of E4-E6 (56.7%). Representation from the Army was the highest of all the branches (48.1%). Women who left the military were younger compared to those who did not ($P < .0001$). Race, marital status, branch of service, and military rank were all independent predictors of attrition ($P < .0001$) (Table I). Women who were allotted 6 weeks of maternity leave were associated with a higher attrition rate relative to women provided with

TABLE I. Characteristics of Active Duty Women by Attrition Status

	All active duty women	Attrition[a] Yes	Attrition[a] No	*P*[b]
n	67,281	14,077	53,204	<.0001
Age (year, mean ± SD)	26.2 ± 5.3	24.4 ± 4.1	26.6 ± 5.4	<.0001
Race and ethnicity, *n* (%)[c]				<.0001
Asian/Pacific Islander	4272 (6.4)	687 (4.9)	3585 (6.8)	
Black	18,737 (28.0)	3734 (26.7)	15,003 (28.4)	
American Indian or Alaska Native	1067 (1.6)	256 (1.8)	811 (1.5)	
Hispanic	10,966 (16.4)	2344 (16.8)	8622 (16.3)	
White	29,403 (44.0)	6553 (46.8)	22,850 (43.3)	
Other/unknown	2377 (3.6)	422 (3.0)	1955 (3.7)	
Marital status, *n* (%)				<.0001
Married	45,526 (67.7)	8796 (62.5)	36,730 (69.0)	
Single	21755 (32.3)	5281 (37.5)	16,474 (31.0)	
Branch of service, *n* (%)				<.0001
Air Force	13,530 (20.1)	1579 (11.22)	11,951 (22.5)	
Army	32,383 (48.1)	8126 (57.7)	24,257 (45.6)	
Navy	16,350 (24.3)	2885 (20.5)	13,465 (25.3)	
Marines	5018(7.5)	1487 (10.6)	3531 (6.6)	
Military rank, *n* (%)				<.0001
Junior enlisted (E1-E3)	17,063 (25.4)	4484 (31.8)	12,579 (23.6)	
Non-commissioned officer (E4-E6)	38,164 (56.7)	8849 (60.0)	29,715 (55.9)	
Senior non-commissioned officer (E7-E9)	2362 (3.5)	40 (0.3)	2322 (4.4)	
Junior officer (O1-O3)	6758 (10)	859 (6.1)	5899 (11.1)	
Senior officer (O4-O10)	2550 (3.8)	236 (1.7)	2314 (4.4)	
Warrant officer (W1-W5)	384 (0.6)	9 (0.1)	375 (0.7)	

[a]Attrition: departure from military over the period from initial prenatal visit through 1 year postpartum.

[b]*P*-values for differences between active uty women who left military (attrition) and active duty women who did not leave military (non-attrition) using *t*-test for continuous variables and Chi-squared test for categorical variables.

[c]459 participants had missing value on race and ethnicity.

TABLE II. Attrition Rates for Active Duty Women With 6 Weeks of Maternity Leave and Active Duty Women With 12 Weeks of Maternity Leave by Branch of Service

Branch of service	Attrition[a] (yes) 6 weeks of leave (2011-2015)	Attrition[a] (yes) 12 weeks of leave (2016-2019)	P[b]
Army ($n = 32,383$)	28.0%	21.2%	<.0001
Air Force ($n = 13,530$)	12.1%	11.1%	.056
Navy ($n = 16,350$)	20.0%	14.9 %	<.0001
Marines ($n = 5018$)	31.0%	27.7 %	.01

[a]Attrition: departure from military over the period from initial prenatal visit through 1 year postpartum.
[b]*P*-values for differences in attrition rates between active duty women with 6 weeks of maternity leave and active duty women with 12 weeks of maternity leave using Chi-squared test.

TABLE III. Attrition Rates for Active Duty Women With 6 Weeks of Maternity Leave and Active Duty Women With 12 Weeks of Maternity Leave by Military Rank

Military rank	Attrition[a] (yes) 6 weeks of leave (2011-2015)	Attrition[a] (yes) 12 weeks of leave (2016-2019)	P[b]
Junior enlisted E1-E3 ($n = 17,063$)	29.2%	22.0%	<.0001
Non-commissioned officer E4-E6 ($n = 38,164$)	24.3%	19.4%	<.0001
Senior non-commissioned Officer E7-E9 ($n = 2362$)	1.4%	2.0 %	.30
Junior officer O1-O3 ($n = 6578$)	13.7%	11.6 %	.01
Senior officer O4-O10 ($n = 2550$)	9.5%	9.0%	.68
Warrant officer W1-W5 ($n = 384$)	1.9%	2.8%	.55

[a]Attrition: departure from military over the period from initial prenatal visit through 1 year postpartum.
[b]*P*-values for differences in attrition rates between active duty women with 6 weeks of maternity leave and active duty women with 12 weeks of maternity leave using Chi-squared test.

12 weeks of maternity leave (6 weeks vs. 12 weeks of leave: odds ratio = 1.36; 95% CI, 1.31-1.42; $P < .0001$) adjusting for covariates (race and ethnicity, age, marital status, branch of service, and military rank).

Table II demonstrates attrition rates for women receiving 6 weeks of maternity leave and women receiving 12 weeks by branch of service. The impact of the leave policy on the attrition rate varied across the service branches. The newly implemented longer maternity leave policy (12 weeks) had a significantly lower attrition rate compared to the 6-week leave policy among mothers in the Army ($P < .0001$) and Navy ($P < .0001$). Meanwhile, the attrition rates were not statistically different between 12-week leave and 6-week leave policy among women in the Air Force ($P = .056$). Similarly, the impact of a longer leave policy was modest among women in the Marines ($P = .01$).

The policy impact was greater among members of lower rank than those of higher rank. Junior enlisted (E1-E3) and non-commissioned officers (E4-E6) left the service at considerably lower rates with the increased time off ($P < .0001$) (Table III). Junior officers (O1-O3) also showed a decrease in attrition rates following the implementation of longer leave times ($P = .01$). There were no major differences in attrition rates between 12 weeks of maternity leave policy and 6 weeks among senior officers ($P = .68$), senior non-commissioned officers ($P = .30$), and warrant officers ($P = .55$). In general, women with higher military ranks (senior officers, senior non-commissioned officers, and warrant officers) had much lower attrition rates than women with lower military ranks (junior enlisted and non-commissioned officers) regardless of the leave policy status.

DISCUSSION

In this retrospective cohort study of 67,281 active duty military women, we found that increased allotment of paid maternity leave from 6 weeks to 12 weeks was associated with decreased attrition rates. Our results are consistent with those of other civilian studies that reported attrition rates were substantially lower after extending maternity leave by a significant amount of time such as 6 to 8 weeks.[13] For example, Accenture reported a 40% decrease in attrition rates when it doubled maternity leave to 16 weeks. Google extended maternity leave from 12 to 18 weeks and its attrition rates dropped by 50%. Aetna's expanded maternity leave resulted in a jump from 77% to 91% of mothers returning to work.[13] Currently, eight states and Washington D.C. have publicly funded maternity leave.[14] Studies have found that paid maternity leave has resulted in higher employment rates of mothers at 9 and 12 months postpartum and continued positive employment into the second year of the child's life, as well as higher breastfeeding rates.[15–18]

We also found that overall military "leavers" tended to be those of lower rank and pay status. This observation has been supported by civilian research, indicating that those of higher pay status are inclined to stay in their jobs at higher rates.[19] Contrary to research in the civilian sector that shows women with spousal support have the higher job flexibility and may leave their job (but not the job market) at higher rates than those without that support, we found that women who were single exited the military at higher rates.[19] This discrepancy could be because of the nature of military jobs. Being a part of the military adds additional familial burdens because of geographical separation from family support, deployments, numerous moves, limited availability of childcare, and the potential increased cost of living associated with many installation locations.[20] Without additional support during these

uniquely military challenges, single women may separate at a higher rate postpartum to achieve a more stable support system. Nevertheless, our findings align with the study by Bacolod et al. that reported enlisted and single mothers in the Marines tended to take more postpartum leave than officers and married members.[10]

By assessing modifying effects and performing stratified analysis by service branch and military rank, we were able to further elucidate the results. The Air Force already had low attrition rates, even with 6 weeks of leave. Therefore, the increase in time off had a limited impact on attrition. In the Marines, attrition rates were previously high in the postpartum period. Thus, the change in attrition rates with the increased leave was not as pronounced. The greatest changes in attrition rates were found in the members of the Army and Navy. The differences between services could be related to the member's satisfaction in other domains of the branch including, but not limited to, access to childcare, other family-friendly health policies, deployment cycles, move cycles, and service time commitment.

Our results also suggest that those members who were of lower rank felt the benefit of the leave more strongly and had a greater inclination to stay in the military following the increase in postpartum leave. This notion is supported by the results from the initiation of California's mandated paid maternity leave policy, which showed women, especially those in lower echelons of socioeconomic status, increased the time taken for postpartum leave from 3 to 6 weeks.[21] This indicates that women who might respond to the benefit of paid maternity leave more strongly are those with lower-paying jobs. They may see this benefit as an extension of wages and the employer's investment in their health and well-being. Health policies, like the one analyzed in this study, could lead to greater retention of employees as they invest in the organization and posture for higher paying and leadership roles. Those of higher rank or status may be in a place in their career where the additional leave would not be as impactful if they are able to retire or separate into a job market where similar benefits would be available to them. This could explain the lack of change in attrition rates for those of higher rank with increased leave opportunities.

To the best of our knowledge, this is the first study that assessed the impact of the military maternity leave policy on attrition among active duty women from all branches of the military. The large sample size ($n = 67{,}281$) including participants across all branches of service, military ranks, and different races and ethnicities considerably strengthens the generalizability of the study results. The uniqueness of our data allows us to accurately assess the attrition rate since the current data originated from administrative records.

Study limitations include the inability to account for separation other than for family reasons. However, reports do confirm that the primary reason that women separate from the service is related to family and care of dependents.[20,22,23] In addition, all women were identified from the date of their initial prenatal care visit. This care could have been very early in gestation or late in gestation. The differences in the date of the initial prenatal visit may have resulted in the time frame of 21 months from the initial visit (9 months pregnancy plus 12 months postpartum) falling outside the desired window of monitoring for attrition, which was 1 year postpartum. The prenatal period of 9 months was included in this analysis because the definition of "attrition potentially related to pregnancy" was determined to be any time after conception to 12 months postpartum. If the prenatal period was not captured in this study, we would have missed 39% of the cases ($n = 5628$). It must be noted that military women must comply with pregnancy testing to be categorized into a non-deployment status and identify occupational restrictions during pregnancy to limit risk to the mother and fetus. Therefore, we assumed that most active duty pregnancies are identified early in gestation. The study also did not account for the presence of a live birth. Varying leave considerations are conferred in the case of a stillbirth or spontaneous abortion.

Another limitation was the inability to control for other socioeconomic factors that may have contributed to the desire for members to leave a stable job. According to the U.S. Bureau of Labor Statistics, the unemployment rate from 2011 to 2019 was consistently on the decline. The peak was 9.1% in 2011 with a low of 3.5% in 2019.[24] Based on the job market alone, leaving the service between 2016 and 2019 (12 weeks of maternity leave) would have been more favorable than leaving from 2011 to 2015 (6 weeks of maternity leave) when unemployment rates were higher. Thus, the data would have been skewed toward the null had employment outside the military been a driving factor in deciding to leave. According to the U.S. Government Accountability Office report,[25] women account for 16.5% of the active duty population. Overall attrition rates in the military have been declining between 2011 and 2018. Furthermore, women were 28% more likely to attrit from the service than men, and active duty married females with dependents and unmarried women with dependents were more likely to leave the service than those women who were unmarried without dependents.[25] The impact could be branch specific. For example, in the Navy, married active duty service members with dependents and unmarried with dependents were 17% and 35% more likely to separate, respectively, than their unmarried without dependent counterparts. Thus, this complexity of secular military trends could provide a challenge to ascertain the relation between the maternity leave policy and the reduction in attrition rates observed in the current research.

CONCLUSIONS

When the Secretary of Defense Carter set out to change the maternity leave policy, it was supported to "encourage workforce recruitment and retention and help support the well-being of military families."[8] This study suggests the intent of retaining talent has somewhat been achieved. Additional health policies in the military should focus on supporting

single parents and members of lower rank as they likely hold a higher burden than their counterparts and attrit at higher rates. Further qualitative studies are necessary to validate additional goals of improvement of the well-being of military families through the implementation of this and other family-friendly policies.

Our results indicate that the extension of military paid maternity leave from 6 weeks as previously implemented to 12 weeks was associated with a significantly lower attrition rate among active duty military women. Understanding the impact of family-friendly health policy on this population can provide a glimpse into the influence of similar policies should they be implemented nationwide. As the USA is lagging behind the rest of the world in the implementation and execution of policy to support women in the workforce after the postpartum period,[26] this study can be a sounding board for further change. Paid maternity leave is one of the means to retain talent in the workforce.

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CONFLICT OF INTEREST STATEMENT

None declared.

DATA AVAILABILITY

The data underlying this article cannot be shared publicly because of the restriction of the Data Sharing Agreement established in the procurement of the data and put forth by the Defense Health Agency Privacy and Civil Liberties Office: https://health.mil/Military-Health-Topics/Privacy-and-Civil-LibertiesI.

CLINICAL TRIAL REGISTRATION

Not applicable.

INSTITUTIONAL REVIEW BOARD

This research was considered exempt human subjects research by the University of Nebraska–Lincoln's Institutional Review Board (IRB; Project ID: 21,257). Additional approval was granted through the 59th Medical Wing Institutional Human Research and Protections Office (Number: FWH20220004X). The Data Sharing Agreement was approved through the Defense Health Agency Privacy and Civil Liberties Office (Data Sharing Agreement Number: 21-2759). Before providing data to the investigators, all data were de-identified as outlined in the approved de-identification plan. Because of the inability to identify individual people with the data provided and the nature of the study as retrospective and observational in design, the IRB did not require consent from the participants.

INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE

Not applicable.

INDIVIDUAL AUTHOR CONTRIBUTION STATEMENT

M.S.R.H. designed the research and analyzed that data and drafted the original manuscript. W.C. reviewed and edited the manuscript. All the authors read and approved the final manuscript.

INSTITUTIONAL CLEARANCE

This research was approved by the Defense Health Agency Privacy and Civil Liberties Office and the 59th Medical Wing Human Research and Protections Office.

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