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U.S. Army - Baylor University

Graduate Program in Health Care Administration

# Deployment and the Military Family:
# Impact on Levels of Health Care Demand

A Graduate Management Project Submitted to the Program Director in Candidacy

for the Degree of Master's in Health Administration

20 October 2005



By

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## Abstract

The purpose of this research was to study the effects of deployment on the health care demands of family members. Anecdotal evidence and previously conducted studies suggested that family members of deployed sponsors seek health care at a greater rate than family members whose sponsors are not deployed. The opportunity to test this hypothesis presented itself when nearly half of the 700 staff members of Naval Hospital Bremerton deployed as a unit, Fleet Hospital Bremerton. Statistical analyses were conducted on 48 families of Fleet Hospital personnel who deployed in 2003 and 63 families of non-Fleet Hospital personnel who did not deploy. After applying t-tests between the two groups as well as among each group for two time periods (including one period when none were deployed), no statistically significant difference in health care utilization rates was discovered as a result of deployment in this population sample. Studies in other populations, however, may yield different results.

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# Deployment and the Military Family: Impact on Patterns of Health Care Demand

## INTRODUCTION

The American military's culture of "taking care of our own" is a long and proud tradition. Attending to the health care needs of the active duty military member is considered paramount to the goal of achieving and maintaining a ready and capable fighting force. Over time, mission readiness and the health status of the service member have become almost synonymous.

More recently, military leaders have begun to acknowledge the effects of family member health on mission readiness. They realized that the service member's effectiveness is often directly related to the health of his or her family members. As the care provided to the entire military family improved, and continues to improve, so does the mission readiness and capability of the Department of Defense as a whole.

The importance of military planning can never be over-emphasized. From one military action to the next, planning that is based on either historical data or other predictive methods helps set the standard for everything from resource allocation to the estimation of logistical requirements. The same holds true for health care planning. If accurate predictions are made, plans can be created to meet the needs, resulting in the

most effective and efficient use of all available resources. In times of increased operational tempo coupled with budget and force reductions, "doing more with less" becomes a greater challenge. For more effective planning, however, it is important to quantify those challenges wherever and whenever possible.

Conditions Which Prompted the Study

A general perception exists among many health care professionals that military family members seek health care with greater frequency when their sponsors are deployed than when their sponsors are home. Theories set forth by casual observers abound. A few examples of those theories can be described with these possible scenarios:

- The deployment of the service member causes increased stress levels for the remaining family members. The additional stress proves to be a detriment to the family members' health, causing them to seek additional health care.

- Seeking health care as a means of satisfying a need for social interaction, a stereotypical young mother, in exasperation or desperation, looks to the health care community for reassurance and support when her husband is deployed.

- The deployed service member is normally the provider of basic health care needs. His or her absence leads to a degradation of family member health, creating the need for

intervention by health care providers.

- In an alternate scenario, the person responsible for health care in the service member's absence is not entirely comfortable with that role. He or she lacks the confidence to handle the role, perhaps fearing the worst, and excessively seeks health care to compensate.

- Finally, some wonder whether the deployment of medical staff members and the re-distribution of the additional workload to those remaining lead to the perception that there is an increased demand for health care.

However, before determining which of these scenarios ring true, if any, one must first evaluate the initial perception: Does the sponsor's deployment cause an increase in the family's health care utilization?

The opportunity to study the basis for this perception has arisen due to recent military actions that have resulted in increased individual and unit deployments. As a result of these actions, many military treatment facilities (MTF's) have experienced the deployment of a percentage of their staff members or the deployment of units from within their catchment areas. This is true for the area served by Naval Hospital Bremerton. These occurrences allow for simultaneous observation of deployments and their effects on patient visit data.

## Statement of the Problem

This study primarily asks: In a given population, do health care utilization rates of family members show an appreciable increase when their sponsors are away on a deployment, compared with a matching period of time when their sponsors are not deployed? As a means of controlling for extraneous effects on utilization, a second question will be addressed in this study. The second question asks whether there is a difference in the health care utilization rates between family members of sponsors who were deployed and family members of other sponsors who were not deployed during the same timeframe.

If the health care utilization rate in a given population does rise during a deployment, the extent to which it rises may dictate the application of preventive health measures. The answers to the questions posed in this study would also help planners to ensure the placement of appropriate levels of health care resources in the wake of a deployment.

## Literature Review

A great amount of research has been conducted on the effects of deployment on service members and their families. However, much of the research offers only qualitative glimpses into the effects of deployment. In an annotated bibliography (Swan, R., et al, 2002), more than 60 separate studies addressed issues such as the effects of deployment on mental health, child and

family adjustment, job outcomes, and marital relationships, but none directly addressed the effects of deployment on the health care system. Most of the studies were focused on the active duty service member. The few studies that focused on family members were limited to stress and adjustment factors of the spouses and behavioral and academic factors of the children, not on their health care utilization.

The existing research on the effects of deployment can be divided into two categories. One body of research explored the effects of deployment on the active duty personnel or their families, or both. Mental health and behavioral issues were often addressed. According to one study, Navy children and adolescents were at risk for psychiatric hospitalization during their fathers' deployments (Levai, M., Kaplan, S., Ackermann, R., & Hammock, M., 1995). Other researchers examined the coping mechanisms and psychological well being of 74 Army wives whose husbands were stationed in the Persian Gulf (Knapp, T. & Newman, S., 1993). Another study reported that children of deployed fathers exhibited higher levels of symptoms of depression and anxiety than their peers whose fathers were present (Jensen, P., Grogan, D., Xenakis, S., & Bain, M., 1989). One gender-neutral study found that children of deployed personnel reported increased stressors and symptoms of depression, compared with children and families of nondeployed personnel (Jensen, P.,

Martin, D., & Watanabe, H., 1996). Finally, addressing the advent and growing trend of women serving in deployable units, a study compared the children of Navy mothers who deployed with children of Navy mothers who did not deploy. Perhaps not surprisingly, considering all the previously noted research, children in the first group exhibited higher and more clinical levels of internalizing behavior than children in the second group (Kelley, M. et al., 2001). Although this body of research does not describe or quantify the effects of deployment on the health care system, it does well to show the negative effects of deployment on family members' mental health.

The other body of research delved into the health care implications of the aforementioned research. One study aptly stated that while family separations are inherent to military life, it vaguely noted that the resulting stress could cause problems that the family brings to the health care system (Blount, B., Curry, A., & Lubin, G., 1992). Similarly, another military health care study advised doctors who see children to determine the main reasons for a child's consultation, because data show that the most significant factors associated with consultation frequency were the psychological state of the mother, the mother's own consultation frequency, and the number of children in the family (Leach, J., Ridsdale, L., & Smeeton, N., 1993). Adding to this vein of research, another study

compared military wives with civilian wives in the same community. The researcher found that while the two groups were similar in health, the military wives visited the family physician with their children more often (Anson, O., Rosenzweig, A., & Shwarzmann, P., 1993). The culmination of the preceding research was nearly reached with a study of health care usage by military families in Okinawa, Japan (McNulty, P., 2003). The collected data included several surveys and tools used to measure mental health and adaptive abilities of family members as well as health care visits. The findings revealed an increased number of visits among children of deployed families, but it was not clear to what extent. It was also reported that half of all the families surveyed sought acute health care at least once during the six-month study period. Other values were listed, but no comparisons were made.

To summarize the two bodies of research, it can be concluded that mental health is negatively affected by a sponsor's deployment. Mental health issues also manifest themselves in ways that might lead a family to seek even routine health care. However, none of the presently available research has measured the effects of deployment on health care utilization.

## Purpose

The purpose of this study is to determine if family members' health care utilization rates increase when their sponsors are

deployed compared with a time when their sponsors are home. If this is found to be true, the degree to which it is true could drive certain health care delivery and planning decisions. For example, if there is a remarkable increase in health care utilization rates during a deployment, planners may want to consider ways to offset those increased health care needs, either through intervention and preventive health measures or through appropriately increased staffing. A quantifiable measurement would prove to be a valuable tool for MTF's and health care planners. Statistical analyses of the data are described in the next section.

## METHODOLOGY AND PROCEDURES

In order to conduct this quantitative, retrospective study, the initial goal was to obtain data from the local afloat forces. The additional facet of comparing the surface community with the submarine community could have added a potentially insightful layer to the research. However, as anticipated, the heightened operational tempo and related security concerns made communication all but impossible between the researcher and the operational forces.

The opportunity to move forward on this research topic presented itself with the deployment of Fleet Hospital personnel from Naval Hospital Bremerton (NHB). In February 2003, approximately half of the active duty staff members assigned to

NHB deployed with Fleet Hospital Bremerton. This provided a fairly even distribution of personnel, both deployed and non-deployed, on whom data were collected as the basis of this study.

To begin data collection, the first objective was to determine the time period of the study. The deployment period was February to June 2003, approximately five months. Rather than selecting the immediately preceding five-month period with which to compare the deployment period, data from the same five calendar months of the previous year were collected. This method helped control for seasonal or cyclical differences in health care needs, such as influenza season, allergy season, or school physicals.

Next, only families who were present for the entire duration of the study were included. This helped prevent the data from being skewed due to military transfers in and out of the area, affecting health care utilization rates and the number of health care visits by those in transition. For example, a family that averaged four appointments per month would normally accumulate approximately 20 visits over each of the five-month periods. However, if they had transferred to another location in mid-April 2003 and that fact did not get noted, their health care utilization rate would have seemed to decline by half during the second period of the study. This could lead to faulty findings.

Therefore, assuming that most military assignments are three years in length, only staff members with projected rotation dates between October 2003 and December 2004 were included in the study. Staff members who were serving on an extension of their normal assignment period were also excluded because it was discovered to be very difficult to readily and accurately identify them through existing personnel records data.

Applying the above criteria on the alpha rosters of Fleet Hospital (FH) and non-Fleet Hospital (NFH) personnel, 128 and 130 sponsors were identified, respectively. The FH personnel were the ones who deployed during this research period; the NFH personnel did not deploy. By excluding the staff with no dependent family members, the data were scaled back further, leaving 48 FH sponsors and 63 NFH sponsors. The total number of families included in this study was 111. The following table describes the population sample:

Table 1

Description of Groups

| Group | # of sponsors/ratio | # of enlisted/ratio | # of male/ratio | # of family members | Avg. # of family members per sponsor |
|---|---|---|---|---|---|
| FH | 48/43.24% | 30/62.50% | 37/77.08% | 108 | 2.25 |
| NFH | 63/56.76% | 42/66.67% | 39/61.90% | 139 | 2.21 |

Before any statistical tests are performed, the ratios

immediately yield some information and suggest opportunities for further analysis. First, the greater number of non-deploying sponsors might have simply been a reflection of the relatively fewer number of billets required by the FH. However, because the total number of available personnel was greater than the number of necessary FH billets, any decisions regarding each assignment could have impacted the make-up of the FH population. For instance, if a sponsor had a family or family member with overwhelming or specialized health care needs, he or she may have been spared this deployment for the sake of another similarly trained and willing volunteer. Such actions could have negatively affected the representative nature of the samples and the outcome of the study. (This may not apply to the few individuals in the very small pools of highly specialized billets, for whom there are limited or no replacement options.) It is uncertain whether or not the organizational leadership faced any such issues, but because these issues can be sensitive on many levels, an investigation of this type was not conducted as part of the study.

Secondly, the ratio of enlisted to officer personnel was likely driven mainly by the normal military structure, where enlisted personnel greatly outnumber officers, and by billet requirements. As such, there may be little to be gained by studying variations between the two groups, since those billet

requirements were and are driven by mission requirements. While it may be interesting to discover any differences in the health care data between officers and enlisted personnel, that could serve as a future topic for further analysis.

Finally, there appears to be a gender imbalance in the FH group. Again, as with each individual's assignment to the FH, an in-depth examination of this apparently unequal distribution was not conducted due to the potentially sensitive issues that may have contributed to the resulting imbalance. It is unknown if the apparent inequities were the result of a decision-making process or if the ratio was merely representative of the population. Confidence in the leadership's decision-making process makes further investigation into the gender ratio irrelevant; otherwise, it would be an issue to be addressed under equal opportunity guidelines. Aside from the ratio, another potential study could examine differences in health care usage, based on the gender of the sponsor as well as the gender of individual family members.

As an added measure to reduce flaws and prevent misinterpretation of the results, it was important to ensure that appointment availability was sufficient. By showing that excess appointments were always available, it can be reasoned that the number of visits accumulated by family members was not artificially capped because demand exceeded availability.

Following are the data regarding the availability of appointments during the study:

Table 2

Available, Filled, and Unused Appointments

| 2002 | Feb | Mar | Apr | May | Jun |
|---|---|---|---|---|---|
| Available | 6719 | 7969 | 7457 | 7661 | 6333 |
| Filled | 6192 | 7272 | 6709 | 6707 | 5662 |
| Unused | 527 | 697 | 748 | 954 | 671 |
| 2003 | | | | | |
| Available | 7629 | 8915 | 7814 | 7709 | 6910 |
| Filled | 6977 | 8143 | 7093 | 7083 | 6323 |
| Unused | 652 | 772 | 721 | 626 | 587 |

Note: As a representative sample, this table shows the number of appointments in three of the largest primary care clinics (Family Practice, Pediatrics, and Internal Medicine) at Naval Hospital Bremerton. However, the patient visit data comprising this study were collected from all outpatient clinics.

Once the subjects to be included in this study were identified, records of patient visits were retrieved with the assistance of the Hospital's Managed Care office staff. The electronic data resided on the Hospital's Composite Health Care System (CHCS). The study was limited to outpatient primary care visits only, because their larger numbers would be less sensitive to variation than the smaller number of inpatient visits. Additionally, every visit was scrutinized for type and reason, and appointments of a regimented, periodic nature were excluded so as not to skew the results. Examples of such appointments include well-baby checks, which occur with a relatively high frequency during early infancy, and routine

obstetrical check-ups, which occur with increasing frequency toward the end of gestation. Because these "health care maintenance" types of appointments are essentially scheduled by the provider or the organization to achieve a certain standard of care, they are less likely to represent visits scheduled independently by or for the patient.

In summary, the retrospective periods of data collection were February through June of 2002 and February through June of 2003. The latter timeframe was the deployment period of the FH personnel. The two groups examined were the families of FH and NFH personnel assigned to the Command for the entire duration of the study. Outpatient visit data were collected for each family group, excluding health maintenance visits that might have artificially driven up frequencies.

## Ethical Considerations

Patient privacy and the security of personally identifiable information are paramount. Important steps were taken to ensure the privacy and protection of the patient data contained in this study. First, permission to conduct this study was requested from and granted by the Hospital's Commanding Officer, via the Director for Administration. The following plan was proposed to the chain of command, found to be satisfactory, and put into action:

The Human Resources Office generated an updated alpha roster

containing the names and Social Security Numbers (SSNs) of all staff members. By identifying the staff members assigned to the Fleet Hospital, an administrator divided the personnel into two groups, FH and NFH, and filtered the results based on the aforementioned projected rotation dates. Those two rosters were then delivered to the staff in the Managed Care office. The Managed Care office is also responsible for gathering and evaluating data for population health studies, so the staff members were well versed on data collection and the importance of patient privacy. The staff used the SSNs to retrieve all patient visit data under those SSNs during the two time periods, excluding the Family Member Prefix of 20 and thereby eliminating the active duty sponsors' health care data. As requested by the researcher, the Managed Care staff then deleted all SSNs and gave each family group an identification number. Family groups with Fleet Hospital-assigned sponsors were labeled F01, F02, etc. Family groups with non-Fleet Hospital sponsors were labeled N01, N02, etc. These new lists were then delivered to the researcher, thereby reducing the potential for disclosure of personally identifiable health care information.

## Statistical Analyses

The alternate hypothesis ($H_a$) is that the number of patient visits was positively related to the sponsors' deployment. The null hypothesis ($H_0$) is that deployment had no discernable effect

on the number of patient visits. Alpha probabilities were set at the $p = .05$ level for data analyses. Comparisons were made between and within groups.

Appendix A includes the descriptive statistics for the following variables in the two groups, Fleet Hospital (FH) and non-Fleet Hospital (NFH) families: Family Size (number of dependents per sponsor), Appointments in 2002 (per family unit), Appointments in 2003 (per family unit), Appointments per FM in 2002 (average per family member), and Appointments per FM in 2003 (average per family member).

Appendix B provides visual representation of the data elements in histogram form. By pairing like elements together, one can begin to draw conclusions about the data. Normal curves are also shown against the histograms, displaying the similarities between the variables.

Appendix C shows the statistical analyses of the data. Independent and dependent t-tests were used to compare the variables between the FH and NFH groups, and variables within each group, respectively. GraphPad Software, Incorporated© was used to conduct these analyses.

## FINDINGS, LIMITATIONS, AND UTILITY OF RESULTS

Based on the casual observations by health care professionals and on the loosely related findings of previously conducted research, this study was expected to show a

statistically significant correlation between deployment and health care utilization rates, compared with a similar duration of non-deployment and with a control group of family members whose sponsors did not deploy at all. For this dataset or population sample, however, no statistically significant differences in health care utilization rates could be attributed to the sponsors' deployment or non-deployment status, whether a member of the Fleet Hospital team or not. The alternate hypothesis ($H_a$) stated that the number of patient visits would be positively related to the sponsors' deployment. As shown in each of the analyses in Appendix C, the sponsors' deployment had no discernable effect on the numbers of recorded patient visits and presumably the health care utilization rates of the family members. For these findings, the null hypothesis ($H_0$) cannot be rejected. In a study without limitations and confounding factors, this might debunk the theory that families' health care demands increase when their sponsors are away on a deployment.

For this study, there were several shortcomings. First, as addressed earlier in the description of the population sample, preexisting health care concerns of family members could have altered the otherwise potential randomness of assignments to the Fleet Hospital. This form of "cherry picking", if it existed, would have affected the outcome of this study by artificially tipping the balance of personnel. The same might apply to the

apparent gender imbalance.

Secondly, it would have been extremely difficult to identify all potential sources of health care. If family members were covered by private or corporate health insurance, or paid out-of-pocket, and sought care outside of the MTF, that could have had an effect on the findings. Such events could have occurred in the geographic area of the MTF or elsewhere in the U.S., or the world for that matter, if family members traveled away during the research period. That possibility was not addressed with this population sample.

As a final example of a confounding factor, it may be difficult to accurately assess health care demands of family members whose sponsors work at an MTF. It is conceivable that some health care needs are met "behind the scenes" by the sponsor, who might assist their family members in gaining access to clinic services outside of the appointment system. If this type of access fails to get recorded as a patient visit, those family members would seem to make fewer health care demands. In order to fully reject the alternate hypothesis, these research limitations and confounding factors must be addressed and reduced where possible prior to conducting the same statistical analysis with this population or others.

If this statistical analysis could be conducted retrospectively with many of the referenced studies, or among

the vast number of population samples in today's high-operational-tempo military, different results and a more accurate assessment might be achieved. Because this study did not summarily accept nor reject the alternate hypothesis, the jury is still out.

Since so much of the current body of research points to an apparently greater need for health care for families whose sponsors are away, findings in other studies might finally be able to quantify that greater need. By quantifying this increase in health care utilization, health care executives would have a tool with which to better manage the needs of the beneficiary population and ensure the proper allocation of their medical resources.

Additionally, by comparing sub-sets within the sample, such as officer versus enlisted and male versus female, health care planners could potentially tailor the medical response to best fit the needs of the population. Findings of follow-on research could be applied to elicit and enhance community support and clinical "best practices" as applicable.

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# Appendices

A. Descriptive Statistics*

B. Frequency Distributions (Histograms)*

C. Statistical Analyses**

*SPSS: Statistical Package for the Social Sciences, V.11.5

**GraphPad Software, Inc. © 2002-2005

## Appendix A. Descriptive Statistics

Number of valid observations (listwise) = 48

Variable F_FAM_SZ
Fleet Hospital (FH) Staff Members' Family Size

| | | | |
|---|---|---|---|
| Mean | 2.2500 | Sum | 108 |
| Std Dev | 1.08176 | S.E. Mean | .1561 |
| Minimum | 1.00 | Variance | 1.170 |
| Maximum | 5.00 | Missing observations - 0 | |

Variable F_APS_02
Appointments by FH Families, February - June 2002

| | | | |
|---|---|---|---|
| Mean | 7.7917 | Sum | 374 |
| Std Dev | 8.88690 | S.E. Mean | 1.2827 |
| Minimum | 0.00 | Variance | 78.977 |
| Maximum | 39.00 | Missing observations - 0 | |

Variable F_APS_03
Appointments by FH Families, February - June 2003

| | | | |
|---|---|---|---|
| Mean | 7.5000 | Sum | 360 |
| Std Dev | 7.77612 | S.E. Mean | 1.1224 |
| Minimum | 0.00 | Variance | 60.468 |
| Maximum | 25.00 | Missing observations - 0 | |

Variable F_FM_02
Appointments per FH Family Member, February - June 2002

| | | | |
|---|---|---|---|
| Mean | 3.3868 | Sum | 162.57 |
| Std Dev | 3.53489 | S.E. Mean | 0.5102 |
| Minimum | 0.00 | Variance | 12.495 |
| Maximum | 16.00 | Missing observations - 0 | |

Variable F_FM_03
Appointments per FH Family Member, February - June 2003

| | | | |
|---|---|---|---|
| Mean | 3.2743 | Sum | 157.17 |
| Std Dev | 3.75205 | S.E. Mean | 0.5416 |
| Minimum | 0.00 | Variance | 14.078 |
| Maximum | 21.00 | Missing observations - 0 | |

Number of valid observations (listwise) = 63

Variable N_FAM_SZ
Non-Fleet Hospital (NFH) Staff Members' Family Size

| | | | |
|---|---|---|---|
| Mean | 2.2063 | Sum | 139 |
| Std Dev | 1.13818 | S.E. Mean | .1434 |
| Minimum | 1.00 | Variance | 1.295 |
| Maximum | 5.00 | Missing observations - 0 | |

---

Variable N_APS_02
Appointments by NFH Families, February - June 2002

| | | | |
|---|---|---|---|
| Mean | 8.2698 | Sum | 521 |
| Std Dev | 9.09308 | S.E. Mean | 1.1456 |
| Minimum | 0.00 | Variance | 82.684 |
| Maximum | 38.00 | Missing observations - 0 | |

---

Variable N_APS_03
Appointments by NFH Families, February - June 2003

| | | | |
|---|---|---|---|
| Mean | 9.4444 | Sum | 595 |
| Std Dev | 10.45849 | S.E. Mean | 1.3176 |
| Minimum | 0.00 | Variance | 109.380 |
| Maximum | 42.00 | Missing observations - 0 | |

---

Variable N_FM_02
Appointments per NFH Family Member, February - June 2002

| | | | |
|---|---|---|---|
| Mean | 3.8193 | Sum | 240.62 |
| Std Dev | 4.61558 | S.E. Mean | 0.5815 |
| Minimum | 0.00 | Variance | 21.304 |
| Maximum | 29.00 | Missing observations - 0 | |

---

Variable N_FM_03
Visits per NFH Family Member, February - June 2003

| | | | |
|---|---|---|---|
| Mean | 4.9841 | Sum | 314 |
| Std Dev | 7.09298 | S.E. Mean | 0.8936 |
| Minimum | 0.00 | Variance | 50.310 |
| Maximum | 42.00 | Missing observations - 0 | |

## Appendix B. Frequency Distributions (Histograms)

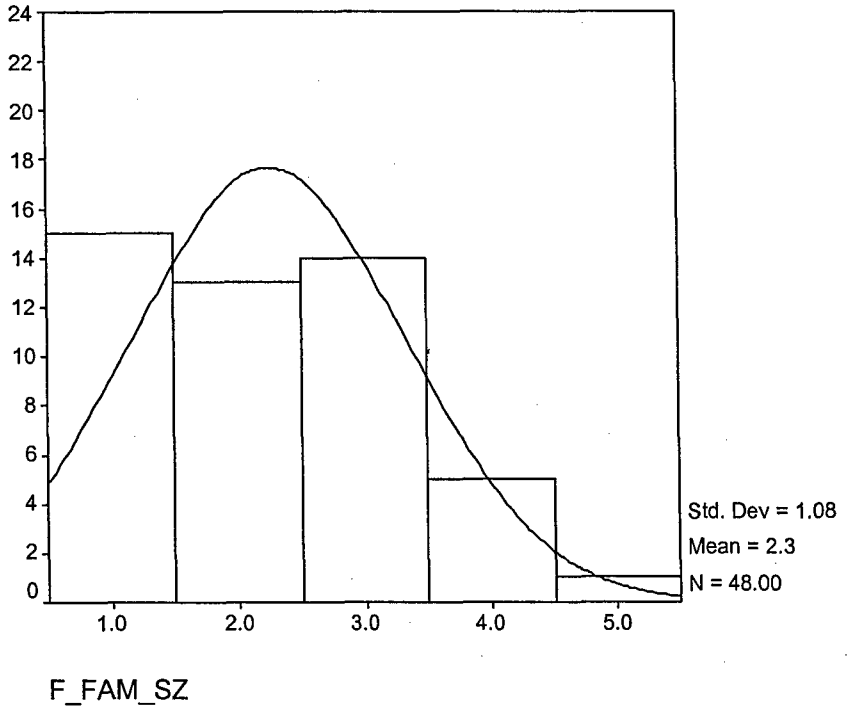


**Figure 1 - Fleet Hospital Family Size**

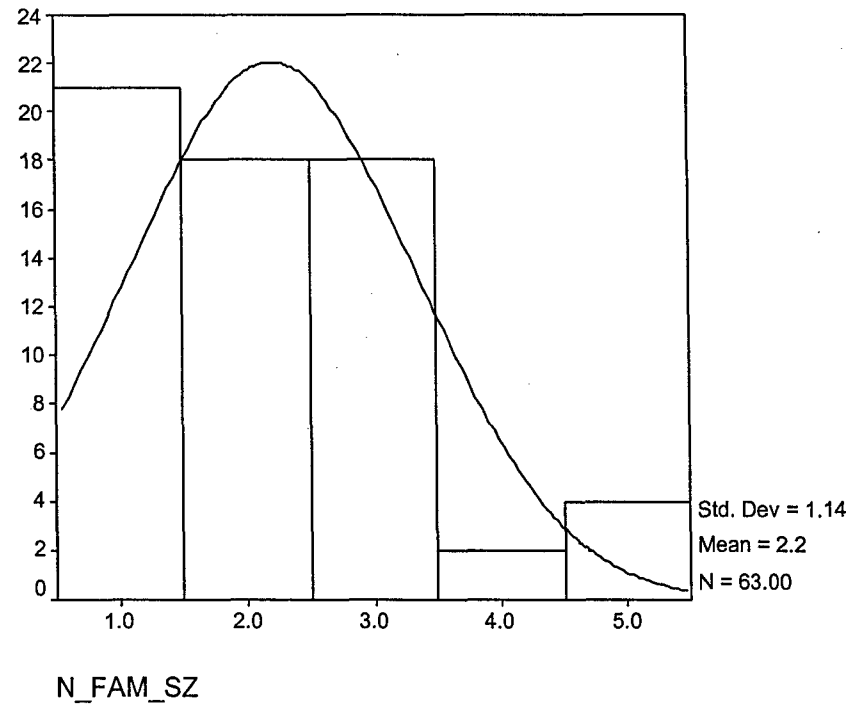


**Figure 2 - Non-Fleet Hospital Family Size**

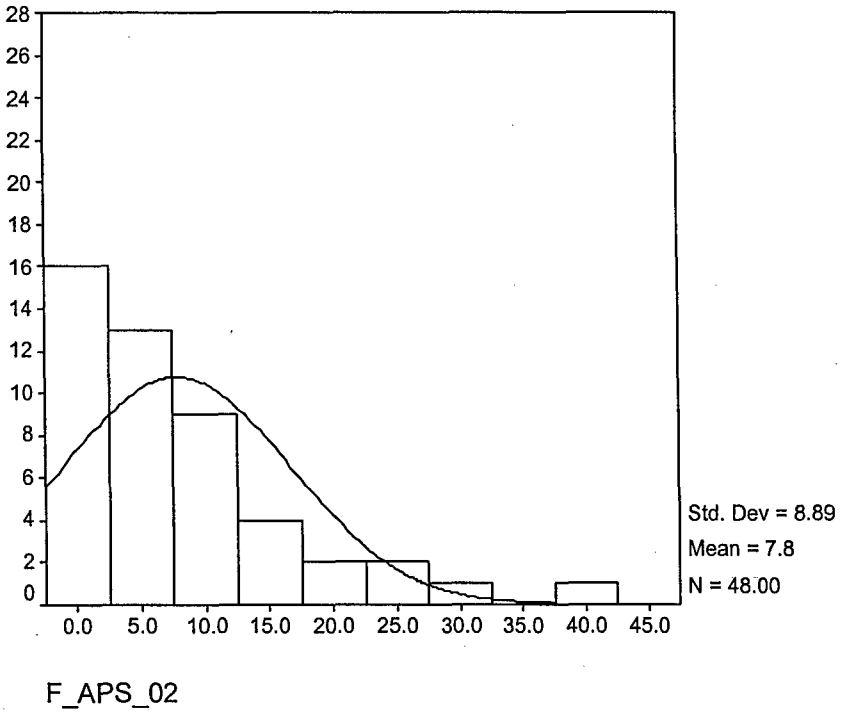


**Figure 3 - FH Appointments per Family, 2002**

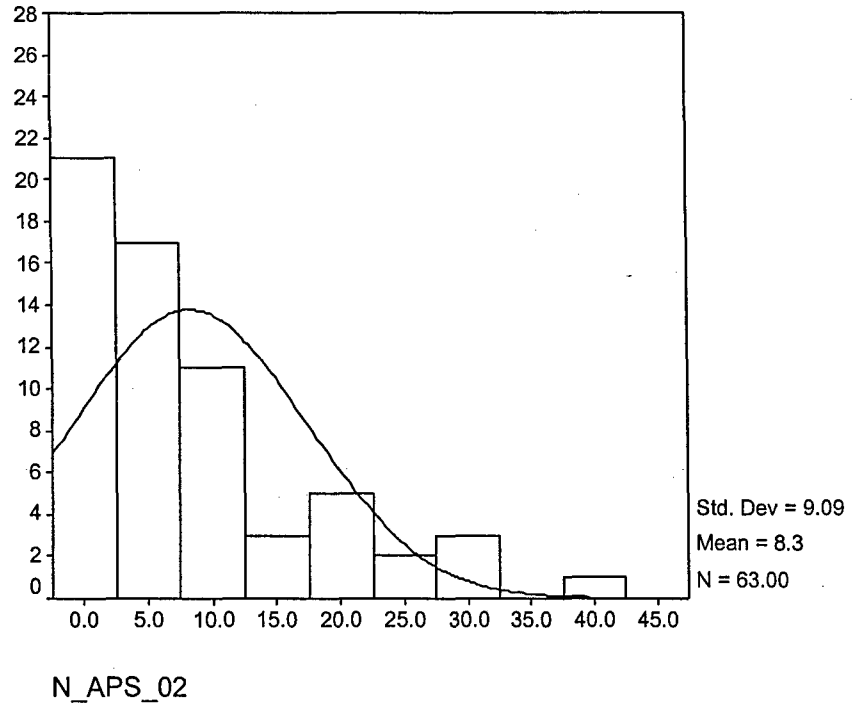


**Figure 4 - Non-FH Appointments per Family, 2002**

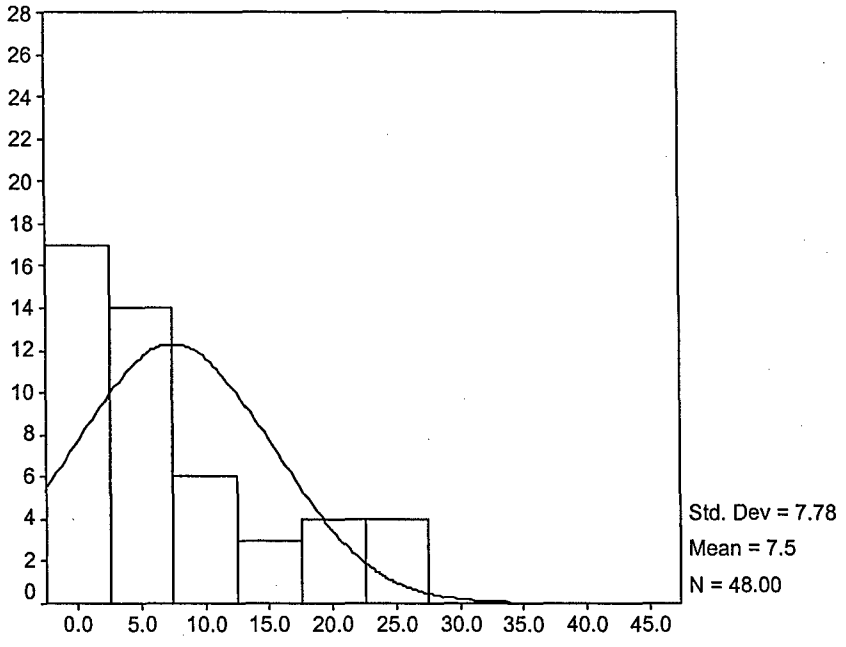


**Figure 5 - FH Appointments per Family, 2003**

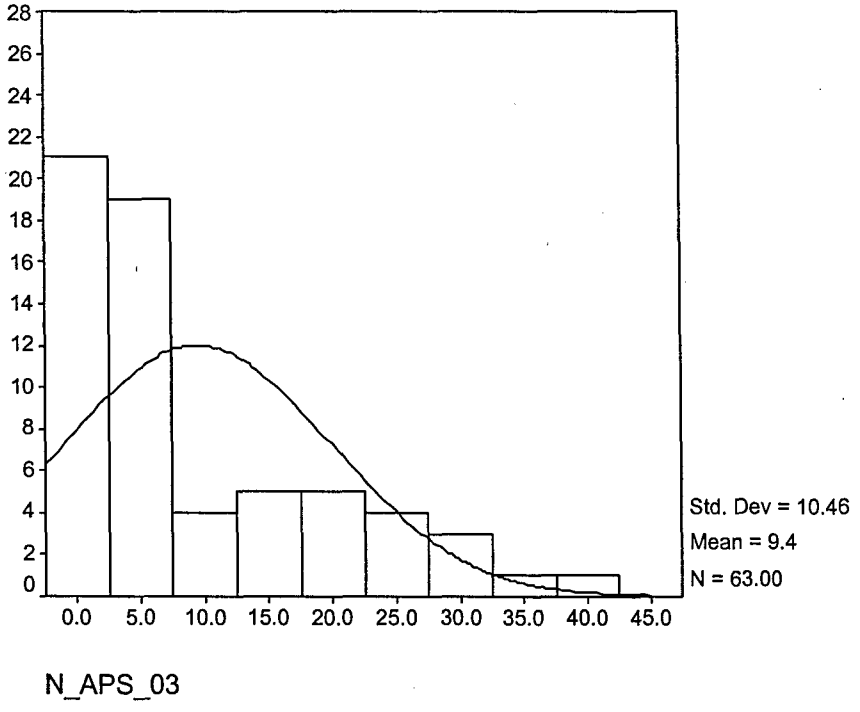


**Figure 6 - Non-FH Appointments per Family, 2003**

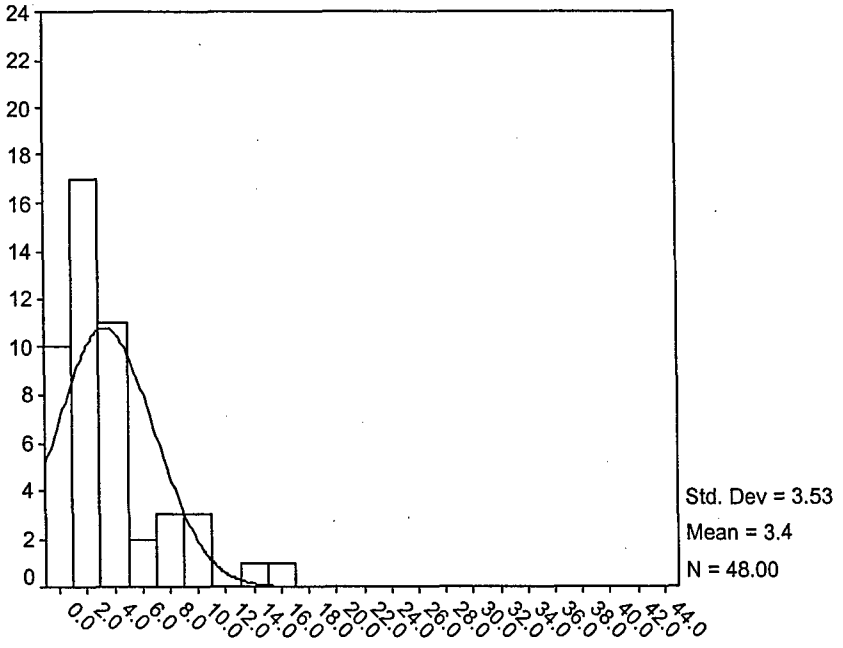


**Figure 7 - FH Appointments per Family Member, 2002**

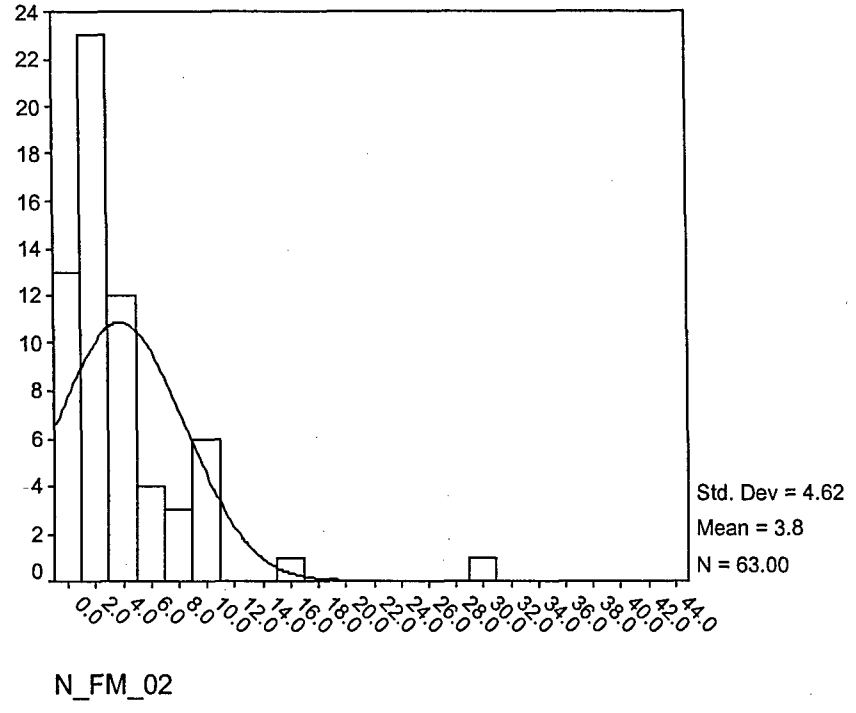


**Figure 8 - Non-FH Appointments per Family Member, 2002**

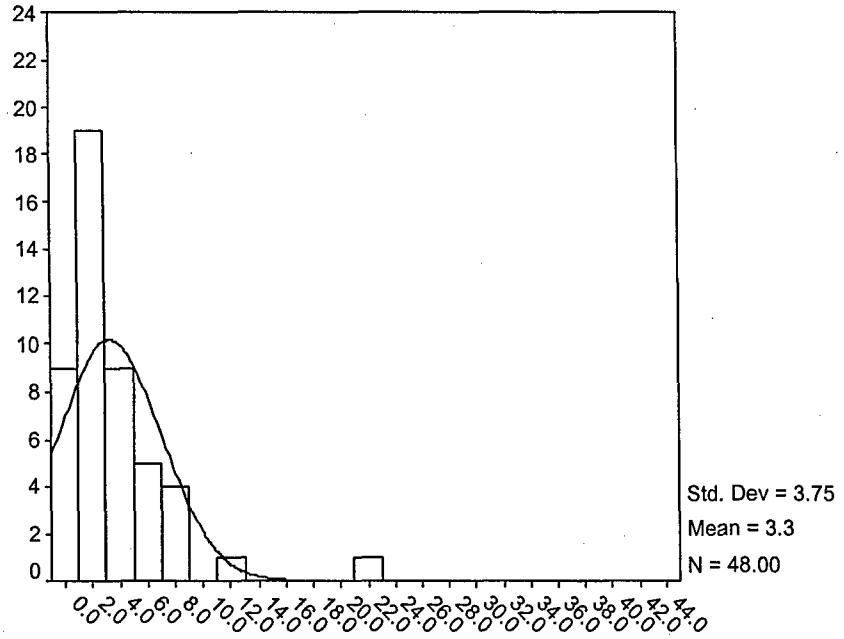


**Figure 9 - FH Appointments per Family Member, 2003**

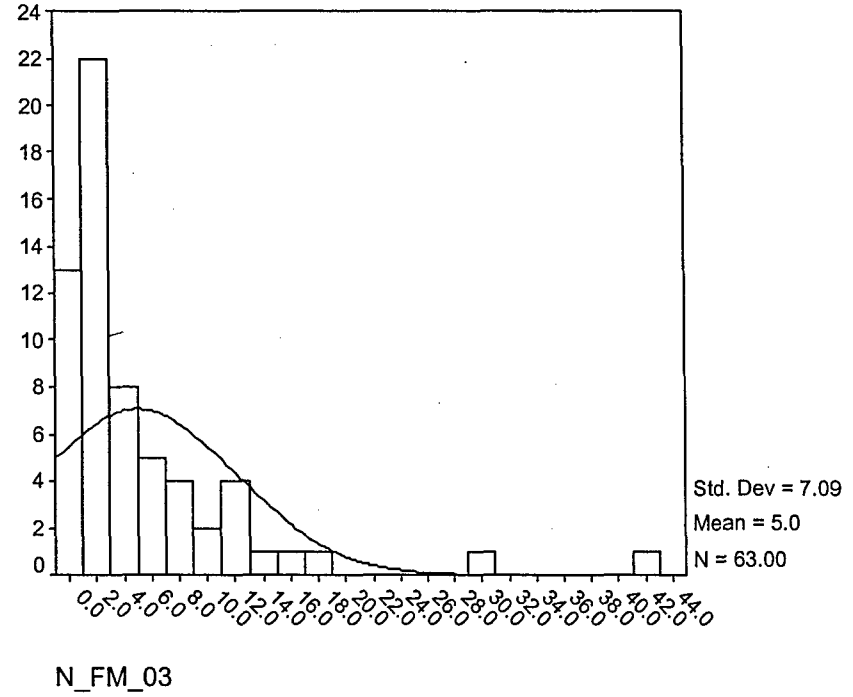


**Figure 10 - Non-FH Appointments per Family Member, 2003**

## Appendix C. Statistical Analyses

Independent *t*-test results

| Group | FH - Family Size | NFH - Family Size |
|---|---|---|
| Mean | 2.2500 | 2.2063 |
| Standard Deviation | 1.08176 | 1.13818 |
| Standard Error of the Mean | 0.1561386 | 0.1433972 |
| Number | 48 | 63 |

Confidence Interval:
The mean of FH Family Size minus NFH Family Size equals 0.043700
95% confidence interval of this difference: -0.37939 to 0.46679

*t* = 0.2047 df = 109
standard error of difference = 0.213

The two-tailed P value equals 0.8382. By conventional criteria, this difference is considered to be not statistically significant.

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| Group | FH Appts 2002 | NFH Appts 2002 |
|---|---|---|
| Mean | 7.7917 | 8.2698 |
| Standard Deviation | 8.8869 | 9.09308 |
| Standard Error of the Mean | 1.2827135 | 1.1456204 |
| Number | 48 | 63 |

Confidence Interval:
The mean of FH Appts 2002 minus NFH Appts 2002 equals -0.478100
95% confidence interval of this difference: -3.8974 to 2.9412

*t* = 0.2771 df = 109
standard error of difference = 1.725

The two-tailed P value equals 0.7822. By conventional criteria, this difference is considered to be not statistically significant.

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| Group | FH Appts 2003 | NFH Appts 2003 |
|---|---|---|
| Mean | 7.5000 | 9.4444 |
| Standard Deviation | 7.776120 | 10.45849 |
| Standard Error of the Mean | 1.1223862 | 1.3176459 |
| Number | 48 | 63 |

Confidence Interval:
The mean of FH Appts 2003 minus NFH Appts 2003 equals -1.94440

95% confidence interval of this difference: -5.512376 to 1.62358

$t$ = 1.0801 df = 109
standard error of difference = 1.800

The two-tailed P value equals 0.2825. By conventional criteria, this difference is considered to be not statistically significant.

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| Group | FH FM Appts 2002 | NFH FM Appts 2002 |
|---|---|---|
| Mean | 3.38680 | 3.81930 |
| Standard Deviation | 3.53489 | 4.61558 |
| Standard Error of the Mean | 0.5102174 | 0.5815084 |
| Number | 48 | 63 |

Confidence Interval:
The mean of FH FM Appts 2002 minus NFH FM Appts 2002 equals -0.0432500
95% confidence interval of this difference: -2.0212499 to 1.1562499

$t$ = 0.5395 df = 109
standard error of difference = 0.802

The two-tailed P value equals 0.5906. By conventional criteria, this difference is considered to be not statistically significant.

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| Group | FH FM Appts 2003 | NFH FM Appts 2003 |
|---|---|---|
| Mean | 3.27430 | 4.98410 |
| Standard Deviation | 3.75205 | 7.09298 |
| Standard Error of the Mean | 0.5415618 | 0.8936315 |
| Number | 48 | 63 |

Confidence Interval:
The mean of FH FM Appts 2003 minus NFH FM Appts 2003 equals -1.709800
95% confidence interval of this difference: -3.9462121 to 0.5266121

$t$ = 1.5153 df = 109
standard error of difference = 1.128

The two-tailed P value equals 0.1326. By conventional criteria, this difference is considered to be not statistically significant.

Dependent *t*-test results

| Group | FH Appts 2002 | FH Appts 2003 |
|---|---|---|
| Mean | 7.79 | 7.5 |
| Standard Deviation | 8.89 | 7.78 |
| Standard Error of the Mean | 1.28 | 1.12 |
| Number | 48 | 48 |

Confidence Interval:
The mean of FH Appts 2002 minus FH Appts 2003 equals 0.29
95% confidence interval of this difference: -2.25 to 2.83

*t* = 0.2309 df = 47
standard error of difference = 1.263

The two-tailed P value equals 0.8184. By conventional criteria, this difference is considered to be not statistically significant.

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| Group | NFH Appts 2002 | NFH Appts 2003 |
|---|---|---|
| Mean | 8.27 | 9.44 |
| Standard Deviation | 9.09 | 10.46 |
| Standard Error of the Mean | 1.15 | 1.32 |
| Number | 63 | 63 |

Confidence Interval:
The mean of NFH Appts 2002 minus NFH Appts 2003 equals -1.17
95% confidence interval of this difference: -3.91 to 1.56

*t* = 0.8519 df = 62
standard error of difference = 1.367

The two-tailed P value equals 0.3936. By conventional criteria, this difference is considered to be not statistically significant.