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FEE-BASED VERSUS FIXED INCOME REIMBURSEMENT:
A COMPARATIVE ANALYSIS OF STAFF PHYSICIANS AND CIVILIAN
HEALTH AND MEDICAL PROGRAM OF THE UNIFORMED SERVICES
(CHAMPUS) PARTNERSHIP PHYSICIANS AT BLANCHFIELD ARMY
COMMUNITY HOSPITAL, FORT CAMPBELL, KENTUCKY

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A Graduate Management Project
Submitted to the Faculty
of Baylor University
In Partial Fulfillment of the
Requirements for the Degree
of
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by
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Abstract

The Army's Gateway to Care Program brings both the direct care budget and the CHAMPUS budget under the control of the local hospital commander. Hospital commanders must determine the best way to maintain access to quality health care while minimizing costs.

This study measured, compared, and contrasted the outpatient health care services being delivered by military staff physicians and CHAMPUS Partnership physicians in a family practice and a pediatric clinic setting.

Specific variables being studied include patient demographics, the relative acuity of the patients as measured by procedure codes, numbers and types of visits per day, and the use of pharmacy and laboratory ancillary services.

The family practice data included 2,633 cases and 18 physicians. Statistically significant differences were found in all 14 variables examined including gender, age, pharmacy usage and laboratory usage.

The pediatric data was limited to six CHAMPUS Partnership physicians. Data was compiled on 2,553 cases. A number of statistically significant differences were found among the physicians.

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Introduction

The Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) provides health care to family members and eligible beneficiaries when care is not available from military, civil service, or contract health care providers and facilities within the Military Health Services System of direct care hospitals and clinics.

Roughly 8.6 million outpatient visits and 2.8 million hospital days are provided annually at a cost of nearly \$2.7 billion (Fant & Pool, 1990).

According to fiscal year 1990 Defense Medical Information System (DMIS) data, the Blanchfield Army Community Hospital 40 mile radius catchment area included nearly 45,000 CHAMPUS eligible beneficiaries. Over 20,000 bed days and nearly 45,000 outpatient visits were provided under the CHAMPUS program. DMIS figures for fiscal year 1990 showed total CHAMPUS expenditures exceeded \$13.6 million.

Blanchfield Army Community Hospital resource summary data provided by the resource manager (W. M. Kociscak, MAJ, US Army, personal communication, January 23, 1992) shows that expenditures for direct care provided by Blanchfield Army Community Hospital in

fiscal year 1990 totalled over \$26.7 million.

Under the Army's Gateway to Care Program, both the direct care budget and the CHAMPUS budget will be under the control of the local hospital commander. For Blanchfield Army Community Hospital, this means the total budget for fiscal year 1990 was over \$40.3 million.

It is still unclear as to how local hospital commanders can most efficiently and effectively manage the total health care budgets for their respective catchment areas while providing optimal health care.

Under Gateway to Care initiatives commanders must determine a way to maintain access to quality health care while minimizing the associated costs.

One option available is the Military-Civilian Health Services Partnership Program, generally referred to as the CHAMPUS Partnership Program. This program was authorized by Department of Defense Instruction (DODI) Number 6010.12, dated October 22, 1987. Further implementation instructions for Army Health Services Command medical treatment facilities were provided in a memorandum dated 29 January 1988, subject: Implementation of Military-Civilian Health Services Partnership Program.

The Partnership Program was designed to allow CHAMPUS eligible beneficiaries to receive health care from civilian providers inside the walls of the military treatment facility. The program was to be implemented when the military treatment facility was unable to provide needed health care services from its own personnel resources.

The DODI 6010.12 (1987) required analysis of potential Partnership Providers on a case-by-case basis. Several areas were to be considered in the analysis. Partnership Providers were to be brought into a military treatment facility to provide health care service needs that the facility could not meet with existing resources. Services provided by the CHAMPUS Partnership Providers are expected to be more economical than the cost of those services would be under standard CHAMPUS.

Additionally, the use of CHAMPUS Partners must be compatible with the mission of the military treatment facility. Partnership Program providers must also meet the high quality standards established for military treatment facilities.

One facet of the Partnership Program that makes it attractive to eligible beneficiaries is that it waives

all requirements for payment of the CHAMPUS deductible amount and any copayments.

The fact that the Partnership Program allows beneficiaries to receive care without making copayments or meeting deductibles often makes it a popular program. One drawback is the potential for increased utilization. In effect, a military treatment facility can create supplier induced demand by implementing Partnerships.

The implementing instructions provided by Health Services Command state that "MTF commanders are encouraged to negotiate Partnership Agreements with local providers and institutions as a means of minimizing the total government cost of providing health services authorized on current mission templates" (HSC memorandum, subject: Implementation of Military-Civilian Health Services Partnership Program, 29 January 1988, p. 2).

The need to minimize government costs becomes a key issue under the Gateway to Care Program. Before a commander can make a determination about how to minimize costs, he must know what health care services are being provided by whom, who is receiving those services, and what are there relative costs.

Problem Statement

The Commander of Blanchfield Army Community Hospital needs to know if there is a significant difference in the provider profiles or the characteristics of patients seen by physicians reimbursed on a fee-for-service basis (CHAMPUS Partnership Program Providers) and the physicians receiving fixed reimbursement (staff physicians).

Literature Review

The Military-Civilian Health Services Partnership Program is a relatively new program having been implemented in Army military treatment facilities as recently as 1988 (Health Services Command, 1988). Because it is such a new program in the fairly specialized market of military medicine, little formal academic research has been completed.

That is one of the key reasons the focus of this management study is a comparative analysis of providers. The goal of this project is not to determine if the CHAMPUS Partners are in some way better or worse than staff providers, but rather to measure their similarities and differences.

There is no doubt that physicians have significant impact upon health care expenditures. Rosen (1989)

estimates that physicians control over 75% of all health care expenditures. This may be a low estimate. A question that then arises is what influences a physician to provide health care services in a certain manner.

One possible influence on physician behavior that has received considerable interest is reimbursement. This study will examine physician behavior considering two payment or reimbursement mechanisms: salary based or fixed income reimbursement, and fee-for-service reimbursement. There are advantages and disadvantages to each method.

Salary based or fixed income reimbursement is attractive from an administrative point of view. There are no special managerial requirements to monitor what services are being provided. A physician simply gets the same salary for a specified time period. Herein lies another advantage to fixed income reimbursement. Physicians have no incentives built into the reimbursement system for deliberate behaviors that ultimately result in increased costs. Fixed income reimbursement may in itself help to keep down over-utilization of health services. Another major advantage to salary based reimbursement is that

physicians are able to pursue both organizational and professional norms in providing quality care.

But salary based reimbursement systems are not without their drawbacks. A significant problem is that there are no incentives for physicians to become more productive or to increase efficiency in the delivery of health services. Another potential problem is the possibility that fixed income reimbursement systems might foster physician insensitivity to patient's desires. Salary based reimbursement systems may also have a significant negative impact on physician morale. Physicians who believe that they are working harder than other providers may not feel that they are being rewarded for their efforts. Another problem with fixed income systems is that they tend to produce very limited amounts of information about the content of the health services delivered. (Rosen, 1989).

Fee-for-service systems, on the other hand, tend to produce copious amounts of detailed information about what health services were delivered. These systems also tend to reward those physicians who are especially productive or efficient. Another advantage to fee-for-service reimbursement systems is that they are popular with physicians.

Fee-for-service systems also have their weaknesses. They have a tendency to be expensive to administer because of the higher billing costs. They also present possible incentives for unethical behavior. There may be incentives to expand utilization beyond what is medically necessary and appropriate. The chance exists that patients may be billed under the wrong or more expensive procedure codes or they might even be billed for procedures that were not performed. Under fee-for-service reimbursement systems, there is also a possibility that patients may be processed too quickly with a corresponding drop in the level of health care quality. (Rosen, 1989).

Numerous studies have been done examining the effects of changes in reimbursement systems. Most tend to focus on physician induced demand for health services.

There are several reasons why physicians might influence the demand for health services. One fairly obvious reason for physicians to artificially induce demand is the omnipresent fear of malpractice suits. A physician might order more laboratory tests or radiological procedures than are medically indicated

from fear of, or as protection against future lawsuits.

A second set of reasons for physicians to induce demand are economic incentives. Some physicians might want to increase their workload while others might want to enhance their personal incomes (Rice, 1983).

Dr. Rice (1983) cites a study of physician prices and resulting revenues during and after the 1971 to 1974 Economic Stabilization Program. Physician price increases were held to less than three percent per year while total physician revenues grew at a rate of 10 to 19 percent per year. The study's conclusions were that price controls failed to control health care expenditures. Individual prices for services were controlled but overall expenditures increased due to increasing volume and complexity of services. These results are consistent with the concept of physician induced demand.

Physician induced demand is not merely an American phenomenon. A study by Krasnik, et al. (1990) examined physician behavior in Denmark. Physician reimbursement in the city of Copenhagen transitioned from a capitation based system to a combined fee-for-service and capitation based system in October 1987. The researchers were able to collect data before the change

to develop a baseline and they then collected data at two different times, March and November 1988, after the change. The area surrounding Copenhagen was already on a mixed fee-for-service and capitation based system. Information about physician behavior was collected there to serve as a control group. Physician to patient contacts in Copenhagen increased significantly more than in the control group with a 95 percent confidence interval. There was not a corresponding significant increase in the total number of patients seen. There was a significant ($p < 0.05$) increase in the occurrence of diagnostic and curative services that were subject to fee-for-service based reimbursement.

There has been a trend in the United States since the 1970s for physician reimbursement mechanisms to shift from fee-for-service towards salary-based reimbursement. The increase in the numbers of health maintenance organizations and other prepaid physician group practices have been a major impetus in this trend. (Hickson, Altemeier, & Perrin, 1987).

A study of pediatric residents at Vanderbilt University in Nashville, Tennessee was conducted. Ten second year and eight third year residents were randomly assigned to one of two groups. One group

received fee-for-service reimbursement of \$2.00 per patient visit and the other group received a fixed reimbursement of \$20.00 per month. Historical averages for patient load indicated that residents saw approximately ten patients per month.

The patients were assigned to the various physicians by several means. Residents could recruit patients from inpatient wards, the walk-in clinic, and the emergency room. Walk-in patients could also be assigned by the clinic secretary to the first available opening. Neither the secretary nor the patients knew what group the resident was in. Residents were asked not to reveal their income or how they were paid to anyone.

The study revealed some interesting results. Fee-for-service reimbursement seemed to provide an incentive for continuity of care. The percentage of visits by a primary physician was significantly higher for the fee-for-service group, $p < 0.05$. The average number of visits scheduled was higher ($p < 0.01$) as well as the number of visits completed ($p < 0.05$) for the fee-for-service group. Additionally, the fee-for-service group had a significantly higher ($p < 0.01$) number of

well-child visits. (Hickson, Altemeier, & Perrin, 1987).

There was at least one study done comparing the cost of Army pediatricians to other pediatricians: Standard CHAMPUS and CHAMPUS Partnership pediatricians as well as Primary Care for the Uniformed Services (PRIMUS) clinic pediatricians.

Overhead costs for both Army providers and CHAMPUS partners were calculated from the Medical Expense Reporting System (MEPRS). MEPRS considers personnel costs for physicians and support personnel, utilities, building and equipment depreciation, supplies, fire and police protection, and a percentage estimate for ancillary services such as pharmacy, laboratory, and radiology. (Callahan & Pierce, 1991).

The methodology used by Callahan and Pierce to assign overhead costs appears to be sound within the limitations of the MEPRS system. The researchers assigned the same amount of overhead costs for both Army and CHAMPUS Partnership pediatricians.

The Callahan and Pierce (1991) study also focused largely on the cost of physician accessions and not on all the costs associated with providing health services. The authors took the accession cost for each

category of Army pediatrician, based upon where they were educated, and divided it by the average number of patients seen collectively. They ignored any effect that the physician's training might have had on his/her efficiency or productivity.

To develop a standard cost for CHAMPUS providers, Callahan and Pierce (1991) took the total dollars spent on CHAMPUS outpatient visits and divided it by the total number of patients seen. They made no attempt to consider the types of services provided or the patient's acuity. In essence, these authors concluded that Army providers were less expensive than CHAMPUS Partnership providers, PRIMUS clinic providers, and standard CHAMPUS providers.

Purpose Statement

The purpose of this study is to measure, compare, and contrast the outpatient health care services being delivered by two groups of physicians to determine if there is a significant difference in provider profiles or patient characteristics. Specific variables being studied include patient demographics, the relative acuity of the patients as measured by procedure codes, numbers and types of visits, and the use of pharmacy and laboratory ancillary services.

Methods and Procedures

This study involves the measurement of four types of subjects: 1) CHAMPUS Partnership physicians, 2) Staff physicians, 3) Patients of CHAMPUS Partnership physicians, and 4) Patients of staff physicians.

Blanchfield Army Community Hospital has a total of 23 CHAMPUS Partnership providers. Of those 23, only 21 are physicians. The other two providers are nurses: a Certified Registered Nurse Anesthetist and an Obstetrical/Gynecological Nurse Practitioner.

The 21 Partnership physicians work in the following seven clinical areas: family practice, general outpatient clinic, neurology, pediatrics, urology, orthopedic surgery, and otolaryngology.

Of the seven clinical areas, the family practice/outpatient clinic physicians and pediatric clinic physicians were selected as the principal study groups because of their large patient volume and relatively large numbers of both military staff and CHAMPUS Partnership physicians.

Unfortunately insufficient data could be gathered on military staff physicians in the pediatric clinic. Data was collected on all six CHAMPUS Partnership physicians and their patients which allows the

development of both a physician and a patient profile. Comparisons with military staff physicians can not be made.

Due to the clinical similarities of the general outpatient clinic and the family practice clinic, these groups can be combined for comparison. The study included five CHAMPUS Partners from the general outpatient clinic and 13 staff physicians from the family practice clinic. No attempt was made to exclude nonmilitary staff physicians. There are no Department of Army Civilian physicians working in either of these clinics.

The two groups of family practice/outpatient clinic patients were convenience samples. I did not attempt to randomize the patient groups since the samples included all available members of the population. The patient groups were separated based upon whether they saw a CHAMPUS Partnership physician or a staff physician. Active duty military patients are excluded from the study since it is unusual for a CHAMPUS Partnership physician to treat active duty soldiers.

Information about the CHAMPUS Partnership physicians and the patients they saw was readily

available. Since they are reimbursed on a fee-for-service basis, the CHAMPUS Partnership physicians must file a standard claim form for each patient encounter. An example claim form is in Appendix A. By examining claims submitted through the Blanchfield Army Community Hospital's Coordinated Care Division, information was collected about the patients seen by each Partnership physician. Patient conditions were identified from the claim form based upon the designated International Classification of Disease, Ninth Revision (ICD-9) (Jones, 1990) clinical procedure code. Information about the type of visit was captured based upon the Current Procedures Terminology (CPT) Code (Kirschner, Coy, Edwards, Leoni, McManamara O'Heron, Pollack, Ryan, & Willard, 1991).

Specific information about the military staff physicians and their patients is not as readily available. The military reporting system does not routinely collect information such the designated International Classification of Disease, Ninth Revision (ICD-9) clinical procedure code or the Current Procedures Terminology (CPT) Code. While this trait makes the military's fixed reimbursement system easy to administer, it makes detailed analyses difficult.

Recent changes to Federal legislation authorize military treatment facilities to submit claims for payment to third party insurance companies. Third party outpatient claims can only be submitted for outpatient health services provided to non-active duty eligible beneficiaries. This population is almost identical to the population served by the CHAMPUS Partnership physicians. The primary difference being CHAMPUS Partnership physicians cannot be reimbursed for services provided to retirees that are over age 65 and eligible for Medicare coverage.

Blanchfield Army Community Hospital has developed a patient encounter form, or superbill, used to collect information for the submission of claims for third party reimbursement. An example of the form is in Appendix B. The use of the patient encounter form in third party outpatient collections is a new effort. Its use was implemented in the family practice and general outpatient clinics on 5 February 1992. Implementation began in the Pediatrics clinic on 15 February 1992.

By examining the patient encounter forms submitted through the Blanchfield Army Community Hospital's Patient Administration Division Claims Section,

information will be collected about the number of patients seen by each military staff physician. Patient conditions will be identified from the claim form based upon the designated clinical procedure code.

There is a significant drawback to the use of the third party collections superbill for data collection. It includes only those patients who report that they have third party health insurance. This eliminates large numbers of patients from the data.

Information about the use of ancillary services in pharmacy and pathology are readily available. The original intent of this study was to include radiological services but information about providers and patients is not collected within the radiology department. Future studies should incorporate the utilization of radiological services.

Information about pharmacy utilization was obtained from the Blanchfield Army Community Hospital Outpatient Pharmacy System (BACH OPS). This automated system has the capability to sort by provider type and provider clinic or service as well as by patient name. CHAMPUS Partnership physician and military staff physician prescriptions are currently entered into the system. The system will also provide information

concerning costs and expenses generated by providers.

Information about laboratory requests is captured in a system similar to the one used in pharmacy. Information is available sorted by provider type as well as patient name.

Information concerning the subject groups was collected during the period 15 February 1992 to 15 April 1992.

The nature of the data collected in this analysis lends itself to descriptive statistics. This enabled the development of an average profile of the military staff physician and the CHAMPUS Partnership provider. Additionally, the data was tested for statistically significant differences using the chi square and the independent Student's t tests.

Variables

There were fifteen variables considered in the study. They addressed areas concerning physician status, patient demographics, use of pathological laboratory services, and pharmacy services.

The first variable was physician status. Physician status, that is, whether they are military staff or CHAMPUS Partner, was designated as a binary or dichotomous independent variable. All physicians who

were CHAMPUS Partnership physicians were coded one. All military staff physicians were coded zero.

The second variable considered was the patient's gender. It was also a binary variable. Patients were coded one if male and zero if female.

The third variable considered was the patient's age. It was computed based upon the date of birth entered on the claims form. All ages were computed as of 15 April 1992 rather than the date health services were rendered.

The fourth variable collected was the status of the sponsor, or the individual who establishes the patient's eligibility for health care. It was entered as a dichotomous variable. Individuals whose sponsor was on active duty were coded as one and zero otherwise. Examples of sponsors that were coded as zero include retirees and deceased.

Variables five, six, and seven identified the patient's relationship to the sponsor. This data was not collected for pediatric patients since they were all children of a sponsor. Variable five was labelled "self" and coded dichotomously with one signifying that the patient was the sponsor. If the patient was not the sponsor, for example a child or spouse, this

variable was coded zero. Variable six was labelled "spouse" and coded one if the patient was the sponsor's spouse and zero otherwise. The seventh variable was called "child" and coded one if the patient was the sponsor's child, zero otherwise.

The eighth variable categorizes the type of visit based upon the Physicians Current Procedures Terminology (CPT) Code (Kirschner et al, 1991). The CPT code provides a crude measure of the complexity required for medical decision making and problem solving as well as resource utilization. There are two categories within the clinic visit variable. The first is established patients and the second is new patients. For each of the categories there are five types of visits: brief, limited, intermediate, extended, and comprehensive. A matrix was constructed as shown in Table 1. The clinic visits were then numerically coded from one to ten.

The next four variables dealt with the use of pathological laboratory testing. The first laboratory variable captured was the number of laboratory tests ordered by a physician that could not be performed within the hospital. The tests are currently performed at a reference laboratory in Nashville, Tennessee. The

second lab variable was the actual cost of the tests sent to the reference laboratory.

The next lab variable was the number of laboratory tests ordered by a physician that could be performed in the hospital laboratory. The fourth lab variable was the cost associated with performing the in-house lab work. The in-house laboratory tests in the following areas were included in the data collection:

hematology, chemistry, urinalysis, immunology, and basic blood bank testing. Microbiological procedures and any tests involving the incubation of cultures are not included in the study. The laboratory data system does not collect information about these tests.

The next three variables dealt with the pharmacy services ordered by physicians. The first pharmacy variable indicates whether or not a patient resides within Blanchfield Army Community Hospital's 40 mile radius zip code catchment area. A patient was coded as one if they reside within the catchment area and zero otherwise.

The second pharmacy variable considered was the number of prescriptions dispensed for a given visit. The final pharmacy variable was the total cost of the prescriptions dispensed. The pharmacy's administrative

overhead of \$3.15 per prescription is not included in the total cost of medications dispensed since it is the same for patients of both provider groups.

The last variable collected was the International Classification of Disease, Ninth Revision (ICD-9) code that the physician indicated as the patient's complaint.

Family Practice and Outpatient Clinic Results

The combined Family Practice/Outpatient Clinic data set includes a total of 2,633 cases seen by 18 physicians in either the Family Practice or the Outpatient Clinics. Each case represents a single patient encounter and not necessarily a unique person. One person may have been treated several times and would account for several cases. The combined data set for both military staff family practice physicians and outpatient clinic CHAMPUS Partnership physicians is presented in Table 2.

Female patients accounted for 76% of the cases. The average patient age as of 15 April 1992 was 39.64 with a standard deviation of 15.54 years. Overall, patient ages ranged from 1.3 years to 93.3 years. Nineteen percent of the cases were themselves the sponsor establishing eligibility for care. Sixty-nine

percent of the cases were spouses and 12% of the cases were children. The sponsors of patients were active duty military in 47% of the cases.

The mean value coded for a patient visit was 6.09. This represents an intermediate visit with a new patient.

In-house laboratory tests were ordered for 415 cases. The average number of tests per patient that had in-house laboratory tests performed was 3.2 with a standard deviation of 2.27 tests. Numbers of tests received ranged from zero to eleven. The average cost for in-house laboratory work was \$7.62 with a standard deviation of \$6.41. Total costs ranged from zero to \$41.10.

Laboratory tests were sent to the Nashville reference laboratory for 47 of the cases. The average number of tests submitted for patients receiving reference laboratory work was 1.32 with a standard deviation of 0.76 tests. The number of reference laboratory tests sent to Nashville ranged from one to four. The average cost for the tests submitted to the reference laboratory was \$42.68 with a standard deviation of \$29.10. Total costs ranged from \$13.28 to \$153.28.

Almost 51% of the cases in the data set of 2,633 had medications dispensed. Over 93% of the cases receiving medications were categorized as residing within the 40 mile radius zip code catchment area. The average number of prescriptions per patient having medications dispensed was 2.08 with a standard deviation of 1.22. The number of prescriptions per case receiving medications ranged from one to eleven.

It was possible for each of the 2,633 cases in the combined data set to have more than one ICD-9 condition code. There were a total of 4,389 ICD-9 condition codes in the combined data set. Of the 4,389, 65 were identified as missing and deleted from the analysis leaving 4,324 identifiable condition codes. The combined data set had 468 unique ICD-9 condition codes. 228 of the ICD-9 condition codes appeared only once in the data set. 80 of the ICD-9 condition codes appeared twice in the data set. The top 50 most frequently occurring ICD-9 condition codes are listed in Appendix C.

Family Practice Staff Physician Results

Fourteen physicians were members of the Family Practice staff, accounting for 314 cases. Descriptive statistics for this data set are displayed in Table 3.

Male patients accounted for 45% of the cases in the Family Practice staff data set. Children accounted for four percent of the data set and spouses accounted for 51%. Almost 45% of the cases reported that they were the sponsor. Only eight percent of the sponsors were active duty military.

The average visit was coded as 2.7 which represents a limited clinic visit with an established patient.

In-house laboratory work was performed for 34 of the cases. The average number of tests done per case having in-house laboratory work performed was 2.74 tests with a standard deviation of 1.86. The number of tests completed ranged from one to eight. The average cost for the tests performed on the 34 cases was \$6.49 with a standard deviation of \$6.19. Total costs ranged from zero to \$31.25.

Reference laboratory work was sent to Nashville for 11 of the Family Practice cases. The average number of tests performed per case for those having reference laboratory work done was 1.36 with a standard deviation of 0.92 tests. The average cost per case for laboratory work done at the Nashville laboratory was \$40.62 with a standard deviation of \$40.02. Total

costs ranged from \$13.28 to \$120.45.

Of the 314 cases, 170 received prescriptions from the hospital pharmacy. Almost 99% of the cases were reported as living within the 40 mile radius zip code catchment area. The average number of prescriptions received by each of the 170 cases was 2.32 with a standard deviation of 1.68 prescriptions. The number of prescriptions dispensed ranged from one to nine. The average cost for the medications dispensed to the 170 cases was \$25.12 with a standard deviation of \$40.87. Total cost for medications ranged from zero to \$349.35.

The family practice staff physician data set contained 405 ICD-9 condition codes. Of the 405 codes, 57 were identified as missing and deleted. Within the remaining 348 codes, there are 68 unique ICD-9 condition codes. Over 40 percent of the ICD-9 condition codes, 28 out of 68, appeared only once in the data set.

Outpatient Clinic CHAMPUS Partner Results

The other four physicians were outpatient clinic CHAMPUS Partnership physicians who accounted for the remaining 2,319 cases in the data set. Descriptive statistics for this data set are displayed in Table 4.

Male patients account for 21% of the cases in the CHAMPUS Partnership physician data set. The average age of a patient was 37.32 years with a standard deviation of 14.13 years. Ages ranged from 1.7 to 71.2 years.

Seventy-one percent of the cases categorized themselves as spouses. Fifteen percent of the cases were themselves the sponsor and 13% were children. Cases whose sponsor was active duty military accounted for 52% of the data set.

The average visit was coded as 6.5. This represents somewhere between an intermediate visit with a new patient and an extended visit with an established patient.

In-house laboratory tests were performed for 381 cases. The average number of tests per case receiving tests was 3.24 with a standard deviation of 2.30. Total number of tests ranged from one to eleven. The average cost for the laboratory work performed in-house was \$7.72 per case with a standard deviation of \$6.43. Total cost for in-house laboratory tests ranged from zero to \$41.10.

Laboratory tests were submitted to the Nashville reference laboratory for 36 cases. The average number

of tests per case was 1.31 with a standard deviation of 0.71 cases. The total number of tests sent to the reference laboratory ranged from one to four. The average cost per case for tests sent to Nashville was \$43.31 with a standard deviation of \$25.56. Total costs ranged from \$13.28 to \$153.28.

Just over 50% or 1,170 of the 2,319 cases seen by the outpatient clinic CHAMPUS Partnership physicians received medications from the hospital pharmacy. The average number of prescriptions per case was 2.05 with a standard deviation of 1.14. Total prescriptions dispensed per case ranged from one to eleven. The average total cost per case for medications dispensed was \$16.09 with a standard deviation of \$1.14. The total costs for pharmacy ranged from ten cents to \$253.20.

There were 3,984 ICD-9 condition codes identified in the CHAMPUS Partnership physician data set. Eight missing ICD-9 codes were deleted from the data set. The 3,976 remaining identified ICD-9 condition codes included 459 unique codes. There were 228 ICD-9 codes which appeared only once in the CHAMPUS Partnership physician data set.

Pediatric Clinic

During the entire two month collection period from 15 February 1992 through 15 April 1992, only six useable third party insurance claims were originally filed. They were all filed for care provided by a single provider. This lack of data about staff providers prevents the compilation of data about either the military staff physicians or their patients.

All available CHAMPUS claims forms were collected for pediatric care provided by the CHAMPUS Partnership physicians during the period 15 February 1992 through 15 April 1992. There were a total of six CHAMPUS Partnership physicians included in the study. There were 2,558 claims filed during the collection period. Each claim, or case, represents a separate patient encounter and not necessarily separate patients. A single pediatric patient could conceivably have numerous distinct visits during the data collection period. The data obtained from the 2,558 cases are presented in Table 5.

Ninety-nine percent of the patients seen by CHAMPUS Partnership physicians in the pediatric clinic reside within the 40 mile radius zip code catchment area. Of the 2,558 patient encounters, only 823

resulted in the dispensing of medications from the hospital pharmacy. The average number of prescriptions per encounter dispensed for the 823 patients was 1.87 with a standard deviation of 1.02 prescriptions. The number of prescriptions dispensed ranged from one to eight.

The average total cost for the medications dispensed for each of the 823 patient encounters was \$6.24 with a standard deviation of \$8.15. The values for total cost ranged from a low of one cent, a single tablet, to a high of \$62.49. Over 76% of the encounters resulted in total costs less than the mean of \$6.24.

Approximately 51% of the 2,558 patient encounters involved male pediatric patients.

The average age reported for pediatric patients was 4.56 years with a standard deviation of 3.59 years. Ages ranged from 0.02 years, approximately one week old, to a maximum of 18.21 years.

Active duty service members were sponsors of 95% of the pediatric patient's.

The mean value obtained for clinic visits was 5.22 with a standard deviation of 1.06. This represents an average clinic visit coded as an established patient

and an intermediate visit. Clinic visit values ranged from one, an established patient on a brief visit, to ten, a comprehensive visit involving a new patient.

Each patient could have had a varying number of ICD-9 condition codes reported, from one to as many as five. For the 2,558 cases in the data set, 4,261 ICD-9 condition codes were identified. There were 272 distinct ICD-9 codes encountered. There were 145 condition codes which appeared only once in the data set. There were 39 ICD-9 codes which appeared twice in the data set. The most commonly occurring condition (n=749) was code 382.9 which represents an unspecified otitis media or middle ear infection. The second most common condition listed was code 465.9 which identifies an unspecified acute upper respiratory infection (n=628). The top fifty most frequently occurring conditions as reported by the pediatric CHAMPUS Partnership physicians is included in Appendix D.

Discussion of Family Practice/Outpatient Clinic

Any discussion of the results must be careful to consider the methodology used for data collection. The CHAMPUS Partnership physician information appears to be accurate. The staff provider data is more suspect. Staff physicians are new to the process of completing

the superbills. In fact, since the data collection period ended on 15 April, formal classroom instruction has already been provided in the hospital with respect to properly coding health services rendered.

Another potential problem with the family practice staff physician data is the composition of the patient sample. Only those patients who identified themselves as having third party health insurance are included. There is a possibility that patients with third party health insurance are different from the entire patient population.

Values for Student's t and the associated probabilities were computed to measure statistically significant differences between the two groups of providers: family practice staff physicians and outpatient clinic CHAMPUS Partnership physicians. The results are displayed in Appendix E.

There was a statistically significant difference ($p=5.0 \times 10^{-14}$) between the two patient groups' gender. 45% of the family practice staff's patients ($n=313$) were male while only 21% of the CHAMPUS Partnership physician's patients ($n=2319$) were male. This finding is in concert with the statistically significant difference ($p=1.24 \times 10^{-12}$) between the patient groups

with respect to their relationship to the sponsor. Seventy-one percent of the CHAMPUS Partnership physicians' patients reported that they were the sponsor's spouse. If one accepts the premise that the majority of active duty service members on Fort Campbell are male, a natural corollary is that the majority of spouses will be female. Since CHAMPUS Partnership providers do not see active duty patients, it also seems reasonable to see a majority of female patients.

There was a statistically significant difference ($p=3.0 \times 10^{-14}$) between the sponsors of the two groups. Only eight percent of the family practice staff physicians' patients ($n=285$) reported their sponsors were on active duty while 52 percent of the CHAMPUS Partnership physicians' patients ($n=2314$) stated the sponsor was on active duty. One might assume that more of the family practice staff physician's patients are retired.

In support of that assumption is that the CHAMPUS Partnership physicians see younger patients. The average age of the CHAMPUS Partnership patients ($n=2279$) was just over 32 years. This is significantly lower ($p=6.5 \times 10^{-14}$) than the mean of almost 58 for the

family practice staff patients (n=288).

Another interesting difference between the two physician groups is the way the visits were coded. The mean value for a family practice staff visit was 2.70 (n=277) while the average visit for the CHAMPUS Partnership physician was 6.50 (n=2267). This significant difference ($p=4.5 \times 10^{-14}$) may very well be due to the pay-per-visit reimbursement system since the Partnership physicians receive higher reimbursement for higher coded visits. The lack of experience in coding patient visits by family staff physicians may also be a contributing factor to the difference. If the family practice staff physicians were seeing more retirees, one would expect a higher average level of acuity and hence a higher average value per family practice staff visit.

Family practice staff physicians ordered significantly more complicated laboratory work that had to be sent to the Nashville reference laboratory ($p=0.0115$). It also costs significantly more ($p=0.034$). The average cost for a family practice patient (\$1.42) was nearly twice that of a CHAMPUS Partnership patient (\$0.67). Again, this is expected if the family practice staff patients have generally

higher levels of acuity.

The picture of in-house laboratory work is nearly opposite. The outpatient clinic CHAMPUS Partnership physicians (n=2319) ordered significantly more in-house laboratory tests ($p=0.0038$) than the family practice staff physicians (n=314). The average cost per patient for the CHAMPUS Partnership physicians was about 80% higher (\$1.27) than for the family practice staff (\$0.70).

Another interesting finding is that family practice staff physicians wrote more prescriptions than the CHAMPUS Partnership physicians. The average number of prescriptions per patient for family practice staff was 1.26. This is significantly higher ($p=0.003$) than the average of 1.03 for the CHAMPUS Partnership physicians. The cost per patient for family practice physicians was also significantly higher ($p=4.935 \times 10^{-6}$) with an average of \$13.60 versus \$8.10.

Discussion of the family practice and outpatient clinic ICD-9 condition codes focuses on the top 25 most frequently occurring codes. There is a total of 3,976 ICD-9 condition codes in the data set. There are 2,732 condition codes in the top 25 most frequently occurring codes. This represents nearly 69 percent of the total

data set. The top 50 most frequently occurring ICD-9 condition codes are listed in Appendix C.

Student's t tests were attempted for each of the top 25 most frequently occurring ICD-9 condition codes to determine if statistically significant differences exist between the physician groups for the following variables: gender, age, sponsor status, relationship to sponsor (self, spouse, or child), visit code, number of reference laboratory tests, reference laboratory costs, number of in-house laboratory tests, in-house laboratory costs, residence category, number of prescriptions dispensed, and the cost of the medications dispensed.

Several ICD-9 condition codes could not be evaluated using t tests. The condition code 616.1, vaginitis and vulvovaginitis, appeared a total of 117 times in the data set. While 616.1 was overall ranked as the tenth most frequently used ICD-9 condition code, only once did it appear in the family practice staff physician data set.

The twelfth most frequently occurring condition code was 599 which refers to disorders of the urethra and urinary tract. It occurred 104 times in the combined data set but only once in the family practice

staff physician data set.

Acute tonsillitis, code 463, was the sixteenth most frequently occurring ICD-9 condition code (n=51). It never appeared in the family practice staff physician data set.

Depressive disorders not elsewhere classified, ICD-9 code 311, was the eighteenth most frequently occurring condition code (n=40). It also never appeared in the family practice staff physician data set.

The next most frequently occurring ICD-9 condition code was 252, hyperparathyroidism. It also appeared 40 times in the combined data set but only once in the family practice staff physician data set.

The condition code ranked as number 21 was 719.46, pain in joint, lower leg (n=37). It also appeared only once in the family practice staff physician data set.

Condition code 278, obesity, appeared 33 times in the combined data set. All 33 of the occurrences were attributed to Partnership physicians.

The last condition code that could not be analyzed with a t test was 477.9, extrinsic asthma. It appeared a total of 33 times in the combined data but only once in the family practice staff physician data set.

Results of the t tests showing statistical significance as well as descriptive statistics for those ICD-9 codes that could not be tested are shown in Appendix F. Particular care must be taken when comparing the two physician groups based on the statistical analyses presented in Appendix F. The sample sizes in the analyses, while demonstrating statistically significant differences, are often too small to be meaningful. Staff physician sample sizes were as small as $n=2$ and as large as $n=106$. CHAMPUS Partnership sample sizes ranged from $n=101$ to $n=393$.

Discussion of Pediatric Clinic Results

The intent of the study to compare Partnership physicians to military staff physicians was thwarted in the Pediatric clinic. The population served by the pediatrics clinic is a young population. The sponsors of the pediatric patients are often young and have no other health insurance than their benefits under CHAMPUS.

Very little meaningful information about the ordering of laboratory tests was available. Pediatric patients as a group generally do not require a large amount of laboratory services. The CHAMPUS Partnership pediatric physicians ordered a total of seven lab tests

that could be performed in the hospital and only two were sent to the reference laboratory in Nashville during the entire two month period of data collection.

This limited data set can provide meaningful comparison within the group of pediatric CHAMPUS Partnership physicians. Following is a discussion of the results obtained from examination of the CHAMPUS Partnership claims.

The fact that 99% of the pediatric patients reside within Blanchfield Army Community Hospital's 40 mile radius zip code catchment area is to be expected. The parents of the pediatric patients are themselves a relatively young population as evidenced by the fact that 95% of the sponsors were on active duty. One can expect that active duty soldiers would live on or near to the installation. This information could be quite valuable in light of the Army's Gateway to Care program. Given that the vast majority of pediatric patients live within the Fort Campbell catchment area, the hospital commander is responsible for all monies expended in providing their health care both on and off post.

A correlation matrix was also computed for the 2,558 cases to determine values for Pearson's r .

Results are presented in Table 6. Statistically significant relationships ($p < .05$) were found for several variables. It is interesting to note that the CPT code for the clinic visit was statistically significantly correlated to five other variables including the provider, the patient category, the number of prescriptions, the cost of the prescriptions, and the age of the patient.

While not an original intent of this study, comparisons were made within the group of six pediatric CHAMPUS Partnership physicians. The following variables were tested using Student's t test: Category, # Prescriptions, Med Cost, Gender, Age Sponsor, and Visit. The results of the tests that showed statistical significance and the $p < .05$ level are shown in Appendix G.

The next test involved developing a correlation matrix showing the relationship of the top 50 ICD-9 codes with the following variables: Provider, Category, # Prescriptions, Med Cost, Gender, Age, Sponsor, and Visit. By limiting the data set to the top 50 ICD-9 codes and discarding cases with missing values, 1155 cases were used in computing the correlation matrix. Only four variables correlated

with statistical significance above the one-tail critical value of $\pm .048$ at the 0.05 level of significance. They were Provider (.175), # Prescriptions (-.069), Age (.094), and Visit (.063).

Conclusions and Recommendations

The fundamental question posed by this study was whether or not there is a difference in physician behavior or patient population when the physicians operate within differing reimbursement mechanisms.

There appear to be statistically significant differences between both the physician groups and the patient groups receiving care.

The family practice staff physicians, on the average, see more male patients than the outpatient clinic CHAMPUS Partnership physicians. The average staff physician's patient is 20 years older and more likely to be retired.

Family practice staff physicians order slightly more laboratory work that must be sent to the Nashville reference laboratory. Outpatient clinic Partnership physicians order more in-house lab work.

Even after finding many significant differences between the two groups of physicians and their patients, questions still remain as to whether or not

the groups really are different. The limitations imposed by the lack of readily available data about physician behaviors make accurate predictions difficult. The use of the third party insurance claim as a data source introduces significant bias into the staff physician sample. The lack of a random sampling methodology available for gathering patient information makes inferences from the data presented here difficult.

Future studies need to incorporate a better methodology for data collection. One solution would be to require some form of third party insurance claim to be completed for every patient seen.

Probably the most complete and accurate source for data would be a retrospective review of outpatient health records. All data could be captured by a small group whose personal biases would be spread evenly throughout the sample groups.

This study provides a baseline of information about family practice staff physicians and CHAMPUS Partnership physicians which can be useful when making day to day management decisions about the provision of health care. Care must be taken to ensure that the statistically significant differences found are actually meaningful differences.

References

- Callahan, C. W. & Pierce, J. R. (1991). Health care for the children of Army service members: Cost of alternatives. Military Medicine, 156(4), 186-189.
- Assistant Secretary of Defense (Health Affairs). (1987, October 22). Department of Defense Instruction Number 6010.12, (Military-Civilian Health Services Partnership Program). Department of Defense, Washington, DC.
- Fant, D. J. & Pool, C. J. (1990). The CHAMPUS reform initiative and fiscal intermediary managed care. Journal of Ambulatory Care Management, 13(3), 22-28.
- Hickson, G. B., Altemeier, W.A., & Perrin, J.M. (1987). Physician reimbursement by salary or fee-for-service: Effect on physician practice behavior in a randomized prospective study. Pediatrics, 80(3), 344-350.
- Jones, M. K. (1990). St. Anthony's inpatient ICD-9-CM Coding Guidelines. Alexandria, VA: St. Anthony Publishing, Inc.
- Kirschner, C. G., Coy, J. A., Edwards, N. K., Leoni, G., McManamara O'Heron, M. R., Pollack, A., Ryan, C. L., & Willard, D. M. (1991). CPT 1992: Physicians' current procedural terminology. Chicago, IL:

American Medical Association.

- Krasnik, A., Groenewegen, P. P., Pederson, P. A., Scholten, P. V., Mooney, G., Gottschau, A., Flierman, H. A., & Damsgaard, M. T. (1990). Changing remuneration systems: Effects on activity in general practice. British Medical Journal, 300, 1698-1701.
- Munley, T. C. (1988, January 29) Memorandum for commanders, HSC MEDCEN/MEDDAC, (Implementation of Military-Civilian Health Services Partnership Program). Headquarters United States Army Health Services Command, Fort Sam Houston, TX.
- Rice, T. H. (1983). The impact of changing medicare reimbursement rates on physician-induced demand. Medical Care, 21(8), 803-815.
- Rosen, B. (1989). Professional reimbursement and professional behavior: Emerging issues and research challenges. Social Science & Medicine, 29(3), 455-462.

Table 1

Variables Used for Clinic Visit

Patient Category		
Visit Type	Established Patient	New Patient
Brief Visit	1	2
Limited Visit	3	4
Intermediate Visit	5	6
Extended Visit	7	8
Comprehensive Visit	9	10

Table 2

Staff and Partnership Descriptive Statistics

Variable	n*	Mean	Deviation	Range
Partner	2633	.88	.32	0 to 1
Gender	2632	.24	.43	0 to 1
Age	2567	39.64	15.54	1.3 to 93.3
Sponsor	2599	.47	.50	0 to 1
Self	2623	.19	.39	0 to 1
Spouse	2623	.69	.46	0 to 1
Child	2623	.12	.33	0 to 1
Visit	2544	6.09	1.79	0 to 9
NRL Test	47	1.32	.76	1 to 4
NRL Cost	47	42.68	29.10	13.28 to 153.28
Lab Test	415	3.20	2.27	1 to 11
Lab Cost	414	7.62	6.41	0 to 41.10
Category	1340	.93	.25	0 to 1
# Srips	1340	2.08	1.22	1 to 11
Med Cost	1337	17.23	26.47	0 to 349.35

*Note - There were a total of 2,633 cases. Varying number of n's was due to missing values in the data set.

Table 3

Family Practice Staff Physician Descriptive Statistics

Variable	n*	Mean	Deviation	Range
Partner	314	0	0	0 to 0
Gender	313	.45	.50	0 to 1
Age	288	57.98	13.98	1.3 to 93.3
Sponsor	285	.08	.27	0 to 1
Self	311	.45	.50	0 to 1
Spouse	311	.51	.50	0 to 1
Child	311	.04	.20	0 to 1
Visit	277	2.70	1.97	0 to 7
NRL Test	11	1.36	.92	1 to 4
NRL Cost	11	40.62	40.02	13.28 to 120.45
Lab Test	34	2.74	1.86	1 to 8
Lab Cost	34	6.49	6.19	0 to 31.25
Category	170	.99	.11	0 to 1
# Scripts	170	2.32	1.68	1 to 9
Med Cost	170	25.12	40.87	0 to 349.35

*Note - There were a total of 314 cases. Varying number of n's was due to missing values in the data set.

Table 4

Outpatient Clinic CHAMPUS Partnership PhysicianDescriptive Statistics

Variable	n*	Mean	Deviation	Range
Partner	2319	1	0	1 to 1
Gender	2319	.21	.41	0 to 1
Age	2279	37.32	14.13	1.7 to 71.2
Sponsor	2314	.52	.50	0 to 1
Self	2312	.15	.36	0 to 1
Spouse	2312	.71	.45	0 to 1
Child	2312	.13	.34	0 to 1
Visit	2267	6.50	1.25	1 to 9
NRL Test	36	1.31	.71	1 to 4
NRL Cost	36	43.31	25.56	13.28 to 153.28
Lab Test	381	3.24	2.30	1 to 11
Lab Cost	380	7.72	6.43	0 to 41.10
Category	1170	.92	.27	0 to 1
# Scrips	1170	2.05	1.14	1 to 11
Med Cost	1167	16.09	23.47	0.1 to 253.2

*Note - There were a total of 2,319 cases. Varying number of n's due to missing values in the data set.

Table 5

Pediatric CHAMPUS Partnership Physician Descriptive
Statistics

Variable	n*	Mean	Deviation	Range
Category	821	0.99	0.12	0 to 1
# Scripts	823	1.87	1.02	1 to 8
Med Cost	823	6.24	8.15	0.01 to 62.49
Gender	2,558	0.51	0.78	0 to 1
Age	2,512	4.56	3.59	0.02 to 18.21
Sponsor	2,555	0.95	0.23	0 to 1
Visit	2,513	5.22	1.06	1. to 10

*Note - There were a total of 2,558 cases. Varying number of n's was due to missing values in the data set.

Table 6

Pediatric Clinic Correlation Matrix Without ICD-9 Codes

	Prov	Cat	# Scripts	Med Cost	Age	Sponsor
Category	-.064					
# Scripts	ns	-.112				
Med Cost	ns	ns	.123			
Gender	ns	ns	ns	.063		
Age	-.081	ns	ns	ns		
Sponsor	ns	.064	ns	ns	ns	-.183
Visit	.270	-.156	.244	.099	-.079	ns

Note. Critical Value (1 tail, $p=0.05$) = +/- .058,

n = 796, ns = not significant.

Service Date _____

Doctor _____

Appendix A

Account No. _____

Comparative Analysis

PATIENT INFORMATION - PLEASE COMPLETE:

Patient Name _____ Home Phone No. **52**

Patient's Sex: M F Patient's Birthdate: Mo _____ Day _____ Yr _____

Sponsor's _____ Sponsor's

Rank and Name _____ Work Phone No. _____

Local Address _____ City _____ State _____ Zip _____

Sponsor's Social Security No. -

Circle: Sponsor's Branch of Service Army Air Force Other _____ Circle: Active Retired Deceased

Circle: Patient Relationship to Sponsor: Spouse Child Self Other _____

SPONSOR OR SPOUSE WORKS AND HAS MEDICAL INSURANCE OTHER THAN CHAMPUS. Circle: Yes No

Complete this block if sponsor or spouse works and patient has medical insurance coverage other than Champus:

Working Person's Name _____ Working Person's Employer _____

Medical Insurance Co. _____

Insurance Co. _____

Address _____ City _____ State _____ Zip _____

Working Person's Social Security No. - Medical Insurance Co. Policy No. _____

Group No. _____ Plan No. _____ Relationship To Patient _____

Signature of patient or authorized person certifies claim information above and authorizes release of medical and insurance information. Signature certifies that patient is enrolled in DEERS and requests that payment under medical insurance programs be made to Sterling Medical.

Signed _____		Date _____		Relationship To Patient _____	
DIAGNOSIS CODES:					
ABDOMINAL PAIN	7890	CHICKEN POX	0329	HAYFEVER	4779
ACUTE GASTRITIS	5350	CHLAMYDIA	0998	HEADACHE	7840
ALLERGY	9953	CHOLECYSTITIS	5751	HEMORRHOIDS	4556
ANEMIA	2859	COLD	440	HERPES	0549
ANXIETY	3000	CONJUNCTIVITIS	37230	HIP PAIN	71943
ARTHRITIS	7169	CONSTIPATION	5640	HYPERTENSION	4019
ASTHMA	4930	CRAMP	72982	HYPERCHOLESTEROL	2720
ASTHMATIC BRONCHITIS	4939	CROUP	4644	HYPOTHYROIDISM	2520
BACK PAIN	7245	CYSTITIS	5959	IMPACTION	56030
BACK STRAIN	8479	DERMATITIS	6929	IMPACTED EAR	3804
BLEETER	69289	DIABETES	25000	IMPETIGO	684
BREAST CYST	610	DIARRHEA	5589	INFENZA	4871
BRONCHITIS	490	DIZZINESS	7804	INTROWN NAIL	7030
BURSITIS, SHOULDER	72610	DYSURIA	7881	INSECT BITE	9105
BURSITIS, HIP	7263	EDEMA	7823	KNEE PAIN	71946
CANDIDIASIS	1129	EMPHYSEMA	4928	LARYNGITIS	4640
CELLULITIS	6820	FEVER	7806	LESION, SKIN	7099
CERVICAL STRAIN	8470	FIBROMYOSITIS	7291	LICE	1329
CHEST PAIN	78450	FIBROSITIS	7290	MEASLES	0559
CHEST WALL SYN.	78452	GASTROENTERITIS	5589	MONONUCLEOSIS	075
		GANGLION CYST	72743	MUMPS	0729
				MYOSITIS	7291
				NECK PAIN	7231
				OSTEOARTHRITIS	71590
				OTTIS MEDIA	3829
				OVARIAN CYST	6202
				PHARYNGITIS	463
				PNEUMONIA	486
				PUNCTURE WOUND	8798
				RECTAL BLEED	5693
				SCOLIOSIS	7373
				SEIZURE	7803
				SINUSITIS	4739
				SPRAIN LEG OR KNEE	8449
				SPRAIN THUMB OR FIN.	84210
				SPRAIN ANKLE	84500
				STRESS FRACTURE	7331
				TENDONITIS, SHOULDER	72611
				TISSUE	1120
				TONSILLITIS	463
				TOXEMIA	8424
				URI	4659
				UTI	5990
				VAGINITIS	61610
				VENEREAL DISEASE	0990
				VIRAL INFECTION	0799
				VOMITING	7870
				DIAGNOSES	

SERVICE	CPT	X	CPT	X	PROCEDURES (cont.)	CPT	X
OFFICE VISITS	EST. PT.		NEW PT.				
Comprehensive	90080		90020		Exc. Skin Lesion	11440	
Extended	90070		90017		Injection Therapeutic (V)	90782	
Intermediate	90060		90015		Substance:		
Limited	90050		90010		Dosage:		
Brief	90040		90000		Injection Antibiotic (V)	90788	
CONSULTATIONS			CPT	X	Substance:		
Intermediate	90642		90605		Dosage:		
Extended			90610		Inc. & Drain of Hematoma Sim.	10140	
LABORATORY			CPT	X	Puncture Aspiration of Abscess	10160	
Urinalysis (V)			81002		Spinal Tap	62272	
Strep Screen (Micro & Inter.) (V)			87081		Surgery Minor	12001	
Blood Draw (V)			36415		Miscellaneous		
EARS			CPT	X			
Foreign Body Ext. Aud. Canal			69200				
Impacted Cerumen			69210				
PROCEDURES			CPT	X			
Avulsion			11730				
Destruction Electrocautery			17200				
Drainage, Ganglion Cyst			20550				

Note (V) = Office Visit + Procedure Charge

REFERRING
rev. 7-24-91 PHYSICIAN: _____

M.D. INITIALS _____

Family Practice Clinic
Blanchfield Army Community Hospital
Third Party
Patient encounter form

<u>Office Visit</u>	<u>New Pt</u>	<u>Estab Pt</u>	
Brief	☐	☐	☐ Pre Op Visit
Limited	☐	☐	☐ Post Op Visit
Intermediate	☐	☐	☐ Counsel/Educ
Extended	☐	☐	☐ Telephonic
Comprehensive	☐	☐	

NAME:
TMP/SSN:
HOME PHONE:
DOB:

<u>Consultation</u>	<u>Estab Pt</u>	<u>Confirm</u>	
Brief	☐	☐	Dr. _____
Limited	☐	☐	name: last, first
Intermediate	☐	☐	referred to: _____
Extended	☐	☐	clinic
Comprehensive	☐	☐	

Procedures

☐ Cervical Biopsy	☐ Inj Therapeutic-sub _____ dose _____
☐ Colposcopy	☐ I.V. Hydration
☐ Cryo Therapy	☐ Nebulizer Treatment
☐ Destruction Electrosurgery	☐ Non Stress Test
☐ EKG	☐ Spinal Tap
☐ Endometrial Biopsy	☐ Surgery Minor
☐ Exc. Skin Lesion	☐ Toenail Removal
☐ Flex Sigmoidoscopy	☐ Treadmill
☐ Flex Sigmoidoscopy with Biopsy	☐ Tympanogram
☐ Immunizations	☐ Ultrasound
☐ Impacted Cerumen	☐ Vasectomy
☐ Inc & Drain Abscess	☐ Other _____
☐ Inc & Drain Hematoma	
☐ Inj Antibiotic _____ dose _____	

Diagnosis

☐ 789.0 Abdominal Pain	☐ 610 Breast Cyst	☐ 099.8 Chlamydia
☐ 626.8 Abnormal Uterine Bleeding	☐ 611.72 Breast Lump	☐ 575.1 Cholecystitis
☐ 706.1 Acne	☐ 490 Bronchitis	☐ 460 Cold
☐ 535.0 Acute Gastritis	☐ 727.3 Bursitis	☐ 496 COPD
☐ 995.3 Allergy	☐ 726.10 Bursitis, Shoulder	☐ 0781 Condyloma Acuminatum
☐ 285.9 Anemia	☐ 726.5 Bursitis, Hip	☐ 372.30 Conjunctivitis
☐ 300.0 Anxiety State	☐ 112.9 Candidiasis	☐ 564.0 Constipation
☐ 308.0 Anxiety Reaction	☐ 354.0 Carpal Tunnel Syndrome	☐ 786.2 Cough
☐ 716.9 Arthritis	☐ 682.0 Cellulitis	☐ 729.82 Cramp
☐ 493.0 Asthma	☐ 435.9 Cerebral Ischemia	☐ 464.4 Croup
☐ 493.9 Asthmatic Bronchitis	☐ 847.0 Cervical Strain	☐ 595.9 Cystitis
☐ 724.5 Back Pain	☐ 786.50 Chest Pain	☐ 309.0 Depression
☐ 847.9 Back Strain	☐ 786.52 Chest Wall Syndrome	☐ 692.9 Dermatitis
☐ 629.89 Blister	☐ 428.0 CHF	☐ 250.0 Diabetes Mellitus
☐ 578.1 Blood in Stool	☐ 052.9 Chicken Pox	☐ 558.9 Diarrhea

Pharmacy _____ Lab _____ X-Ray _____ Other Referrals _____ Continued on back

Comparative Analysis

Diagnosis Continued

☐ 780.4 Dizziness	☐ 715.90 Osteoarthritis	☐ 079.9 Viral Infection	54
☐ 788.1 Dysuria	☐ 380.10 Otitis Externa	☐ 078.1 Warts (Common)	
☐ 782.3 Edema	☐ 382.9 Otitis Media	☐ V20.2 Well Baby Exam	
☐ 492.8 Emphysema	☐ 381.00 Otitis Serous	Other _____	
☐ V25.9 Family Planning/Counsel	☐ 620.2 Ovarian Cyst		
☐ 780.7 Fatigue	☐ 789.0 Pain, Abdomen/Epigastric		
☐ 780.6 Fever	☐ 724.5 Pain, Back		
☐ 729.1 Fibromyositis	☐ 786.52 Pain, Chest		
☐ 729.0 Fibrositis	☐ 388.70 Pain, Ear		
☐ 558.9 Gastroenteritis/Colitis	☐ 784.0 Pain, Head/Face		
☐ 727.43 Ganglion Cyst	☐ 723.1 Pain, Neck		
☐ 088.1 Gonorrhea	☐ 625.9 Pain, Pelvis		
☐ 477.9 Hayfever	☐ 785.1 Palpitations		
☐ 784.0 Headache	☐ 614.9 Pelvic Inflammatory Disease		
☐ 455.6 Hemorrhoids	☐ 462 Pharyngitis, Viral		
☐ 054.9 Herpes	☐ 034.0 Pharyngitis, Strep		
☐ 719.45 Hip Pain	☐ V70.3 Physical, Annual/School/Sport		
☐ 272.0 Hypercholesterol	☐ 486 Pneumonia		
☐ 272.4 Hyperlipidemia	☐ 650.0 Pregnancy		
☐ 401.9 Hypertension	☐ 879.8 Puncture Wound		
☐ 252.0 Hyperthyroidism	☐ 782.1 Rash		
☐ 560.30 Impaction (Fecal)	☐ 5198 Reactive Airway Disease		
☐ 380.4 Impacted Ear	☐ 56.93 Rectal Bleed		
☐ 684 Impetigo	☐ 477.9 Rhinitis		
☐ 307.72 Impotence	☐ 737.3 Scoliosis		
☐ 487.1 Influenza	☐ 780.3 Seizure		
☐ 703.0 Ingrown Nail	☐ 473.9 Sinusitis		
☐ 910.5 Insect Bite	☐ 844.9 Sprain Leg/Knee		
☐ 719.46 Knee Pain	☐ 842.10 Sprain Thumb/Finger		
☐ 464.0 Laryngitis	☐ 845.00 Sprain, Ankle		
☐ 709.9 Lesion, Skin	☐ 733.1 Stress Fracture		
☐ 132.9 Lice	☐ 726.11 Tendonitis Shoulder		
☐ 785.6 Lymphadenopathy	☐ 112.0 Thrush		
☐ 055.9 Measles	☐ 463 Tonsillitis		
☐ 075 Mononucleosis	☐ 842.4 Toxemia		
☐ 072.9 Mumps	☐ 465.9 URI		
☐ 729.1 Myositis	☐ 599.0 UTI		
☐ 787.0 Nausea/Vomiting	☐ 616.10 Vaginitis		
☐ 723.1 Neck Pain	☐ 099.0 Venereal Disease		

PRIVACY ACT STATEMENT

Authority: Title 10 USC, SECTION 1095 and EO 9397. Principal purpose(s): Information will be used to collect from private insurers for care provided to military beneficiaries. Such monetary benefits accruing to the military medical facility will be used to enhance health care delivery in the medical treatment facility. Routine use(s): The information on this form will be released only to your insurance company. Disclosure: Voluntary; however, a failure to provide complete and accurate information may result in disqualification for health care from facilities of the uniformed services.

Appendix C

Top 50 Most Frequently OccurringFamily Practice/Outpatient Clinic ICD-9Condition Codes

1. 465.9 Acute Upper Respiratory Infection,
Unspecified Site (n=396)
2. 401.9 Essential Hypertension, Unspecified
(n=375)
3. 473.9 Chronic Sinusitis, Unspecified (n=208)
4. 382.9 Otitis Media, Unspecified (n=160)
5. 490 Bronchitis Not Specified as Acute or Chronic
(n=152)
6. 724.5 Backache, Unspecified (n=133)
7. 272 Disorders of Lipoid Metabolism (n=128)
8. 789 Abdominal Pain (n=124)
9. 462 Acute Pharyngitis (n=118)
10. 616.1 Vaginitis and Vulvovaginitis (n=117)
11. 692.9 Contact Dermatitis and other Eczema,
Unspecified Cause (n=112)
12. 599 Other Disorders of Urethra and Urinary Tract
(n=104)
13. 784 Headache (n=84)
14. 250 Diabetes Mellitus without mention of
complication (n=73)

15. 995.3 Allergy, Unspecified (n=57)
16. 463 Acute Tonsillitis (n=51)
17. 716.9 Arthropathy, Unspecified (n=50)
18. 311 Depressive Disorder not elsewhere classified
(n=40)
19. 252 Hyperparathyroidism (n=40)
20. 723.1 Cervicalgia (n=39)
21. 719.46 Pain in joint, Lower Leg (n=37)
22. 558.9 Other and Unspecified noninfectious
gastroenteritis and colitis (n=37)
23. 278 Obesity (n=33)
24. 477.9 Allergic Rhinitis Cause Unspecified
(n=33)
25. 493 Extrinsic Asthma (n=31)
26. 786.5 Chest Pain (n=31)
27. 300 Anxiety States, Unspecified (n=30)
28. 786.52 Painful Respiration (n=30)
29. 305.1 Tobacco Use Disorder (n=29)
30. 847.9 Sprains and Strains, Unspecified Site of
Back (n=29)
31. 729.1 Myalgia and Myositis, Unspecified (n=25)
32. 610.1 Diffuse Cystic Mastopathy (n=24)
33. 715.9 Osteoarthritis, Unspecified whether
generalized or localized (n=24)

34. 785.6 Enlargement of Lymph Nodes (n=23)
35. 285.9 Anemia, Unspecified (n=22)
36. 726.9 Enthesopathy, Unspecified (n=21)
37. 780.7 Malaise and Fatigue (n=20)
38. 729.5 Pain in Limb (n=19)
39. 706.2 Sebaceous Cyst (n=18)
40. 530.1 Esophagitis (n=18)
41. 719.45 Pain in Joint, Pelvic Region and Thigh
(n=17)
42. 706.1 Other Acne (n=17)
43. 780.4 Dizziness and giddiness (n=17)
44. 782.3 Edema (n=16)
45. 354 Mononeuritis of upper limb and mononeuritis
multiplex (n=16)
46. 625.9 Unspecified symptom associated female
genital organs (n=16)
47. 703 Ingrowing Nail (n=16)
48. 535.5 Unspecified Gastritis and gastroduodenitis
(n=16)
49. 569.3 Hemorrhage of Rectum and Anus (n=15)
50. 733.99 Other and Unspecified Disorders of Bone
and Cartilage (n=15)

Appendix D

Top 50 Most Frequently Occurring Pediatric ICD-9Condition Codes

1. 382.9 Otitis Media Unspecified (n=749)
2. 465.9 Acute Upper Respiratory Infection,
Unspecified Site (n=628)
3. 462 Acute Pharyngitis (n=293)
4. 463 Acute Tonsillitis (n=255)
5. 490 Bronchitis Not Specified as Acute or Chronic
(n=219)
6. 558.9 Other and Unspecified noninfectious
gastroenteritis and colitis (n=195)
7. 780.6 Fever of Unknown Origin (n=192)
8. 692.9 Contact Dermatitis and other Eczema,
Unspecified Cause (n=188)
9. 472 Chronic Pharyngitis and Nasopharyngitis
(n=149)
10. 372.3 Unspecified Conjunctivitis (n=135)
11. 289.3 Unspecified Inflammation of the Lymph
Nodes or Glands (n=67)
12. 799 Ill-defined or Unknown Causes of Morbidity
or Mortality (n=66)
13. 787 Symptoms Involving the Digestive System
(n=64)

14. 493 Extrinsic Asthma (n=57)
15. 782.1 Rash and Other Nonspecific Skin Eruptions (n=45)
16. 52.9 Varicella Without Mention of Complication (n=42)
17. 789 Abdominal Pain (n=32)
18. 995.3 Allergy, Unspecified (n=28)
19. 486 Pneumonia, Organism Unspecified (n=24)
20. 708.9 Urticaria, Unspecified (n=24)
21. 388.7 Otalgia, Unspecified (n=22)
22. 564 Functional Digestive Disorders, Not Elsewhere Classified (n=22)
23. 464.4 Croup (n=20)
24. 473.9 Chronic Sinusitis, Unspecified (n=20)
25. 340 Multiple Sclerosis (n=19)
26. 684 Impetigo (n=19)
27. 783.3 Feeding Difficulties (n=19)
28. 382.4 Unspecified Suppurative Otitis Media (n=18)
29. 535.5 Unspecified Gastritis and gastroduodenitis (n=18)
30. 784 Headache (n=18)
31. 112 Candidiasis of Mouth (Thrush) (n=17)
32. 599 Other Disorders of Urethra and Urinary Tract

- (n=17)
- 33. 464.1 Acute Tracheitis (n=16)
 - 34. 616.1 Vaginitis and Vulvovaginitis (n=15)
 - 35. 910.5 Infected Nonvenomous Insect Bite (n=14)
 - 36. 110 Dermatophytosis (n=13)
 - 37. 380.1 Infective Otitis Externa (n=12)
 - 38. 466.1 Acute Bronchiolitis (n=12)
 - 39. 528 Diseases of the Oral Soft Tissues (n=12)
 - 40. 110.5 Dermatophytosis of the Body (n=11)
 - 41. 110.9 Dermatophytosis of Unspecified Site
(n=11)
 - 42. 341 Other Demyelinating Disease of the Central
Nervous System (n=11)
 - 43. 460 Acute Nasopharyngitis (Common Cold) (n=11)
 - 44. 780.3 Convulsions (n=10)
 - 45. 112.9 Candidiasis of Unspecified Site (n=9)
 - 46. 380.4 Impacted Cerumen (n=9)
 - 47. 477.9 Allergic Rhinitis (n=9)
 - 48. 461.9 Acute Sinusitis (n=8)
 - 49. 464 Acute Laryngitis and Tracheitis (n=8)
 - 50. 681.9 Cellulitis and Abscess of Unspecified
Digit (n=8)

Appendix E

Student's t Tests Comparing Staff Physicians
and CHAMPUS Partnership Physicians

1. Variable Tested: Patient Gender*

	Standard		
	Mean	Deviation	n
Staff	.45	.50	313
Partners	.21	.41	2319
$t(1,2630) = 9.2974, p=5.000 \times 10^{-14}$			

*Note - Gender was coded one if the patient was male.

2. Variable Tested: Sponsor Status*

	Standard		
	Mean	Deviation	n
Staff	.08	.27	285
Partners	.52	.50	2314
$t(1,2597) = -14.6146, p=3.000 \times 10^{-14}$			

*Note - Sponsor status coded one if the sponsor is active duty.

3. Variable Tested: Patient Age

Standard

	Mean	Deviation	n
Staff	57.98	13.98	288
Partners	37.32	14.13	2279

$t(1,2565) = 23.4160, p=6.500 \times 10^{-14}$

4. Variable Tested: Self*

	Standard		n
	Mean	Deviation	
Staff	.45	.50	311
Partners	.15	.36	2312

$t(1,2621) = 12.7716, p=1.600 \times 10^{-13}$

*Note - Self is coded one if the patient was the sponsor.

5. Variable Tested: Spouse*

	Standard		n
	Mean	Deviation	
Staff	.51	.50	311
Partners	.71	.45	2312

$t(1,2621) = -7.2595, p=1.240 \times 10^{-12}$

*Note - Spouse is coded one if the patient is the sponsor's spouse.

6. Variable Tested: Child*

	Standard		
	Mean	Deviation	n
Staff	.04	.20	311
Partners	.13	.34	2312

$$t(1,2621) = -4.6514, p=1.730 \times 10^{-3}$$

*Note - Child is coded one if the patient is the sponsor's child.

7. Variable Tested: Visit

	Standard		
	Mean	Deviation	n
Staff	2.70	1.97	277
Partners	6.50	1.25	2267

$$t(1,2542) = -44.3867, p=4.500 \times 10^{-14}$$

8. Variable Tested: NRL Test*

	Standard		
	Mean	Deviation	n
Staff	.05	.30	314
Partners	.02	.18	2319

$$t(1,2631) = 2.2751, p=0.0115$$

*Note - NRL Test variable is the number of laboratory tests sent to the Nashville reference laboratory.

9. Variable Tested: NRL Cost*

	Standard		
	Mean	Deviation	n
Staff	1.42	10.34	314
Partners	0.67	6.21	2319

$t(1,2631) = 1.8263, p=0.0340$

*Note - NRL Cost refers to the total cost of laboratory tests sent to the Nashville reference laboratory.

10. Variable Tested: Lab Test*

	Standard		
	Mean	Deviation	n
Staff	.30	1.05	314
Partners	.53	1.52	2319

$t(1,2631) = -2.6730, p=0.003782$

*Note - Lab Test refers to the number of laboratory tests performed within the hospital.

11. Variable Tested: Lab Cost*

	Standard		n
	Mean	Deviation	
Staff	.70	2.85	314
Partners	1.27	3.86	2319

$$t(1,2631) = 9.2974, p=5.000 \times 10^{-14}$$

*Note - Lab Cost refers to the total cost of laboratory tests done within the hospital.

12. Variable Tested: Category*

	Standard		n
	Mean	Deviation	
Staff	.99	.11	170
Partners	.92	.27	1171

$$t(1,1339) = 3.1210, p=0.0009206$$

*Note - Category is coded one if the patient resides within the hospital's 40 mile radius zip code catchment area.

13. Variable Tested: # scrips*

	Standard		n
	Mean	Deviation	

Staff	1.26	1.69	314
Partners	1.03	1.30	2319

$t(1,2631) = 2.7351, p=0.003139$

*Note - # Scripts refers to the total number of prescriptions dispensed for a single patient visit.

14. Variable Tested: Med Cost*

	Standard		n
	Mean	Deviation	
Staff	13.60	32.54	314
Partners	8.10	18.49	2318

$t(1,2630) = 4.4287, p=4.935 \times 10^{-6}$

*Note - Med Cost refers to the total cost of prescriptions dispensed for a single patient visit.

Appendix F

Significant Results of T Tests Among ICD-9 CodesFamily Practice Staff Physicians andCHAMPUS Partnership Physicians

 ICD-9 Code = 465.9 Variable Tested: AGE

	Staff	Partners
Mean =	56.5200	32.1567
Std. Dev. =	4.5255	12.7340
n =	2	388
t = 2.7018 (d.f. = 388)		p = 3.599×10^{-3}

ICD-9 Code = 465.9 Variable Tested : SPONSOR

	Staff	Partners
Mean =	.0000	.6132
Std. Dev. =	.0000	.4876
n =	2	393
t = -1.7762 (d.f. = 393)		p = .0382

ICD-9 Code = 465.9 Variable Tested: VISIT

	Staff	Partners
Mean =	1.0000	6.9634
Std. Dev. =	.0000	.5052
n =	3	383

$t = -20.4199$ (d.f. = 384) $p = 7.000 \times 10^{-14}$

ICD-9 Code = 401.9 Variable Tested: GENDER

	Staff	Partners
Mean =	.4717	.3717
Std. Dev. =	.5016	.4842
n =	106	269

$t = 1.7819$ (d.f. = 373) $p = .0378$

ICD-9 Code = 401.9 Variable Tested: AGE

	Staff	Partners
Mean =	60.2613	50.0775
Std. Dev. =	9.3015	10.3106
n =	97	263

$t = 8.5303$ (d.f. = 358) $p = 5.000 \times 10^{-14}$

ICD-9 Code = 401.9 Variable Tested: SPONSOR

	Staff	Partners
Mean =	.0421	.1747
Std. Dev. =	.2019	.3804
n =	95	269

$t = -3.2384$ (d.f. = 362) $p = 6.565 \times 10^{-4}$

ICD-9 Code = 401.9 Variable Tested: SELF

	Staff	Partners
Mean =	.4906	.3606
Std. Dev. =	.5023	.4811
n =	106	269
t = 2.3265 (d.f. = 373)		p = .0103

ICD-9 Code = 401.9 Variable Tested: SPOUSE

	Staff	Partners
Mean =	.5094	.6283
Std. Dev. =	.5023	.4842
n =	106	269
t = -2.1173 (d.f. = 373)		p = .0174

ICD-9 Code = 401.9 Variable Tested: VISIT

	Staff	Partners
Mean =	2.3030	6.4106
Std. Dev. =	1.7983	1.4272
n =	99	263
t = -22.6637 (d.f. = 360)		p = 6.500×10^{-14}

ICD-9 Code = 473.9 Variable Tested: GENDER

	Staff	Partners
Mean =	.4500	.1223
Std. Dev. =	.5104	.3286

n = 20 188
 t = 3.9881 (d.f. = 206) p = 4.625×10^{-5}

ICD-9 Code = 473.9 Variable Tested: AGE

	Staff	Partners
Mean =	50.4289	36.2120
Std. Dev. =	14.2711	12.9931
n =	17	184
t = 4.2811 (d.f. = 199)	p = 1.445×10^{-5}	

ICD-9 Code = 473.9 Variable Tested: SPONSOR

	Staff	Partners
Mean =	.1111	.5455
Std. Dev. =	.3234	.4993
n =	18	187
t = -3.6141 (d.f. = 203)	p = 1.900×10^{-4}	

ICD-9 Code = 473.9 Variable Tested: SELF

	Staff	Partners
Mean =	.3500	.0749
Std. Dev. =	.4894	.2639
n =	20	187
t = 4.0025 (d.f. = 205)	p = 4.379×10^{-5}	

ICD-9 Code = 473.9 Variable Tested: SPOUSE

	Staff	Partners
Mean =	.5500	.7914
Std. Dev. =	.5104	.4074
n =	20	187
t = -2.4553 (d.f. = 205)		p = 7.455×10^{-3}

ICD-9 Code = 473.9 Variable Tested: VISIT

	Staff	Partners
Mean =	2.5882	6.7056
Std. Dev. =	2.0328	.8235
n =	17	180
t = -16.5480 (d.f. = 195)		p = 0.000

ICD-9 Code = 382.9 Variable Tested: VISIT

	Staff	Partners
Mean =	3.0000	6.8701
Std. Dev. =	2.0000	.6437
n =	3	154
t = -9.7815 (d.f. = 155)		p = 3.000×10^{-14}

ICD-9 Code = 490 Variable Tested: GENDER

	Staff	Partners
Mean =	.8571	.2621

Std. Dev. = .3780 .4413
 n = 7 145
 t = 3.5034 (d.f. = 150) p = 3.028×10^{-4}

ICD-9 Code = 490 Variable Tested: AGE

	Staff	Partners
Mean =	61.3403	37.3928
Std. Dev. =	30.3660	14.1280
n =	6	144
t = 3.8401 (d.f. = 148)	p = 9.092×10^{-5}	

ICD-9 Code = 490 Variable Tested: SPONSOR

	Staff	Partners
Mean =	.1429	.4966
Std. Dev. =	.3780	.5017
n =	7	145
t = -1.8377 (d.f. = 150)	p = .0340	

ICD-9 Code = 490 Variable Tested: SELF

	Staff	Partners
Mean =	.7143	.1793
Std. Dev. =	.4880	.3849
n =	7	145
t = 3.5485 (d.f. = 150)	p = 2.588×10^{-4}	

ICD-9 Code = 490 Variable Tested: SPOUSE

	Staff	Partners
Mean =	.1429	.6621
Std. Dev. =	.3780	.4746
n =	7	145
t = -2.8477 (d.f. = 150)		p = 2.511×10^{-3}

ICD-9 Code = 490 Variable Tested: VISIT

	Staff	Partners
Mean =	3.5714	6.8714
Std. Dev. =	1.9024	.7476
n =	7	140
t = -10.2910 (d.f. = 145)		p = 5.000×10^{-14}

ICD-9 Code = 490 Variable Tested: # SCRIPS

	Staff	Partners
Mean =	2.7143	1.0828
Std. Dev. =	1.7995	1.4362
n =	7	145
t = 2.9027 (d.f. = 150)		p = 2.129×10^{-3}

ICD-9 Code = 490 Variable Tested: MED COST

Staff	Partners
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Mean =	25.7100	4.9008
Std. Dev. =	31.9522	11.4136
n =	7	145
t = 4.1749 (d.f. = 150)		p = 2.517x10 ⁻⁵

ICD-9 Code = 724.5 Variable Tested: GENDER

	Staff	Partners
Mean =	.4444	.1694
Std. Dev. =	.5270	.3766
n =	9	124
t = 2.0567 (d.f. = 131)		p = .0209

ICD-9 Code = 724.5 Variable Tested: AGE

	Staff	Partners
Mean =	57.7100	38.8067
Std. Dev. =	15.2015	14.1667
n =	8	121
t = 3.6400 (d.f. = 127)		p = 1.977x10 ⁻⁴

ICD-9 Code = 724.5 Variable Tested: SPONSOR

	Staff	Partners
Mean =	.0000	.5565
Std. Dev. =	.0000	.4988
n =	6	124

$t = -2.7224$ (d.f. = 128) $p = 3.692 \times 10^{-3}$

ICD-9 Code = 724.5 Variable Tested: SELF

	Staff	Partners
Mean =	.5000	.1371
Std. Dev. =	.5345	.3453
n =	8	124

$t = 2.7783$ (d.f. = 130) $p = 3.137 \times 10^{-3}$

ICD-9 Code = 724.5 Variable Tested: SPOUSE

	Staff	Partners
Mean =	.5000	.7742
Std. Dev. =	.5345	.4198
n =	8	124

$t = -1.7613$ (d.f. = 130) $p = .0403$

ICD-9 Code = 724.5 Variable Tested: VISIT

	Staff	Partners
Mean =	3.7500	6.5667
Std. Dev. =	1.8323	1.1207
n =	8	120

$t = -6.5837$ (d.f. = 126) $p = 5.586 \times 10^{-10}$

ICD-9 Code = 272 Variable Tested: AGE

	Staff	Partners
Mean =	63.5622	52.2910
Std. Dev. =	10.3111	8.0459
n =	9	117
t = 3.9683 (d.f. = 124)		p = 6.086x10 ⁻⁵

ICD-9 Code = 272 Variable Tested: VISIT

	Staff	Partners
Mean =	2.7500	6.0427
Std. Dev. =	1.6690	1.6209
n =	8	117
t = -5.5492 (d.f. = 123)		p = 8.393x10 ⁻⁶

ICD-9 Code = 789 Variable Tested: GENDER

	Staff	Partners
Mean =	.6250	.1983
Std. Dev. =	.5175	.4004
n =	8	116
t = 2.8608 (d.f. = 122)		p = 2.487x10 ⁻³

ICD-9 Code = 789 Variable Tested: AGE

	Staff	Partners
Mean =	57.8175	38.8461
Std. Dev. =	9.8733	13.5886

$n = 8$ 115
 $t = 3.8715$ (d.f. = 121) $p = 8.795 \times 10^{-5}$

ICD-9 Code = 789 Variable Tested: SPONSOR

	Staff	Partners
Mean =	.0000	.5086
Std. Dev. =	.0000	.5021
$n =$	7	116

$t = -2.6698$ (d.f. = 121) $p = 4.316 \times 10^{-3}$

ICD-9 Code = 789 Variable Tested: SELF

	Staff	Partners
Mean =	.6350	.1810
Std. Dev. =	.5175	.3867
$n =$	8	116

$t = 3.0717$ (d.f. = 122) $p = 1.312 \times 10^{-3}$

ICD-9 Code = 789 Variable Tested: SPOUSE

	Staff	Partners
Mean =	.3750	.7241
Std. Dev. =	.5175	.4489
$n =$	8	116

$t = -2.1079$ (d.f. = 122) $p = .0185$

ICD-9 Code = 789 Variable Tested: VISIT

	Staff	Partners
Mean =	3.2500	6.6348
Std. Dev. =	2.2520	1.4946
n =	8	115
t = -5.9779 (d.f. = 121)	p = 1.173x10 ⁻⁸	

ICD-9 Code = 462 Variable Tested: VISIT

	Staff	Partners
Mean =	1.6667	6.6283
Std. Dev. =	1.1547	.8984
n =	3	113
t = -9.3881 (d.f. = 114)	p = 5.000x10 ⁻¹⁴	

DESCRIPTIVE STATISTICS

ICD-9 Code = 616.1

Family Practice Staff Physician

Variable	n	Mean
GENDER	1	0
AGE	1	47.77
SPONSOR	0	
SELF	1	0
SPOUSE	1	1
CHILD	1	0

VISIT	1	5
NRL TEST	1	0
NRL COST	1	0
LAB TEST	1	0
LAB COST	1	0
CAT	1	1
# SCRIPS	1	4
MED COST	1	42.68

DESCRIPTIVE STATISTICS

ICD-9 Code = 616.1

CHAMPUS Partnership Physicians

Variable	n	Standard		
		Mean	Deviation	Range
GENDER	116	.02	.13	0 - 1
AGE	114	33.72	11.57	15.57 - 62.36
SPONSOR	116	.69	.47	0 - 1
SELF	116	.02	.13	0 - 1
SPOUSE	116	.90	.31	0 - 1
CHILD	116	.09	.28	0 - 1
VISIT	116	6.45	1.48	3 - 9
NRL TEST	116	.03	.16	0 - 1
NRL COST	116	1.08	7.23	0 - 66.04
LAB TEST	116	1.19	2.03	0 - 10

LAB COST	116	2.96	5.53	0 - 26.67
CAT	88	.94	.23	0 - 1
# SCRIPS	116	1.76	1.48	0 - 7
MED COST	116	8.18	10.05	0 - 42.56

DESCRIPTIVE STATISTICS

ICD-9 Code = 616.1

Combined Data Set

		Standard		
Variable	n	Mean	Deviation	Range
GENDER	117	.02	.13	0 - 1
AGE	115	33.85	11.60	15.57 - 62.36
SPONSOR	116	.69	.46	0 - 1
SELF	117	.02	.13	0 - 1
SPOUSE	117	.90	.30	0 - 1
CHILD	117	.09	.28	0 - 1
VISIT	117	6.44	1.48	3 - 9
NRL TEST	117	.02	.16	0 - 1
NRL COST	117	1.07	7.20	0 - 63.04
LAB TEST	117	1.18	2.02	0 - 10
LAB COST	117	2.93	5.51	0 - 26.67
CAT	89	.94	.23	0 - 1
# SCRIPS	117	1.78	1.49	0 - 7
MED COST	117	8.48	10.50	0 - 42.68

ICD-9 Code = 692.9 Variable Tested: GENDER

	Staff	Partners
Mean =	.8000	.1981
Std. Dev. =	.4472	.4005
n =	5	106
t = 3.2693 (d.f. = 109)		p = 7.215×10^{-4}

ICD-9 Code = 692.9 Variable Tested: AGE

	Staff	Partners
Mean =	59.2020	32.9292
Std. Dev. =	24.0797	15.0232
n =	5	105
t = 3.7142 (d.f. = 108)		p = 1.623×10^{-4}

ICD-9 Code = 692.9 Variable Tested: SPONSOR

	Staff	Partners
Mean =	.0000	.5566
Std. Dev. =	.0000	.4991
n =	5	106
t = -2.4826 (d.f. = 109)		p = 7.283×10^{-3}

ICD-9 Code = 692.9 Variable Tested: SELF

Staff	Partners
-------	----------

Mean =	.6000	.0952
Std. Dev. =	.5477	.2950
n =	5	105
t = 3.5799	(d.f. = 108)	p = 2.583x10 ⁻⁴

ICD-9 Code = 692.9 Variable Tested: SPOUSE

	Staff	Partners
Mean =	.2000	.6571
Std. Dev. =	.4472	.4769
n =	5	105
t = -2.0987	(d.f. = 108)	p = .0191

ICD-9 Code = 692.9 Variable Tested: VISIT

	Staff	Partners
Mean =	2.0000	6.2970
Std. Dev. =	1.6733	1.1794
n =	6	101
t = -8.4691	(d.f. = 105)	p = 0.000

DESCRIPTIVE STATISTICS

ICD-9 Code = 599

Family Practice Staff Physicians

		Standard
VARIABLE	N	Mean Deviation

GENDER	1	0	0
AGE	1	46.08	0
SPONSOR	1	1	0
SELF	1	0	0
SPOUSE	1	0	0
CHILD	1	0	0
VISIT	1	3	0
NRL TEST	1	0	0
NRL COST	1	0	0
LAB TEST	1	1	0
LAB COST	1	3.7	0
CAT	1	1	0
# SCRIPS	1	1	0
MED COST	1	3.2	0

 DESCRIPTIVE STATISTICS

ICD-9 Code = 599

CHAMPUS Partnership Physicians

Variable	n	Mean	Standard	
			Deviation	Range
GENDER	103	.01	.10	0 - 1
AGE	99	30.94	11.16	15.39 - 64.90
SPONSOR	103	.72	.45	0 - 1
SELF	103	.01	.10	0 - 1

SPOUSE	103	.85	.36	0 - 1
CHILD	103	.14	.34	0 - 1
VISIT	100	6.76	.97	4 - 9
NRL TEST	103	0	0	
NRL COST	103	0	0	
LAB TEST	103	1.12	1.63	0 - 10
LAB COST	103	2.45	3.87	0 - 23.07
CAT	65	.97	.17	0 - 1
# SCRIPS	103	1.42	1.30	0 - 5
MED COST	103	5.68	10.45	0 - 47

DESCRIPTIVE STATISTICS

ICD-9 Code = 599

Combined Data Set

Variable	n	Standard		
		Mean	Deviation	Range
Partners	104	.99	.10	0 - 1
GENDER	104	.01	.10	0 - 1
AGE	100	31.09	11.21	15.39 - 64.90
SPONSOR	104	.72	.45	0 - 1
SELF	104	.01	.10	0 - 1
SPOUSE	104	.86	.35	0 - 1
CHILD	104	.13	.34	0 - 1
VISIT	101	6.72	1.03	3 - 9

NRL TEST	104	0		
NRL COST	104	0		
LAB TEST	104	1.12	1.62	0 - 10
LAB COST	104	2.46	3.85	0 - 23.07
CAT	66	.97	.17	0 - 1
# SCRIPS	104	1.41	1.29	0 - 5
MED COST	104	5.66	10.41	0 - 47

ICD-9 Code = 784 Variable Tested: AGE

	Staff	Partners
Mean =	67.9067	37.5723
Std. Dev. =	10.2715	13.2618
n =	3	78
t = 3.9076 (d.f. = 79)		p = 9.779×10^{-5}

ICD-9 Code = 784 Variable Tested: SPONSOR

	Staff	Partners
Mean =	.0000	.5679
Std. Dev. =	.0000	.4985
n =	3	81
t = -1.9619 (d.f. = 82)		p = .0266

ICD-9 Code = 250 Variable Tested: AGE

Staff	Partners
-------	----------

Mean =	62.0276	51.6904
Std. Dev. =	4.7345	8.6299
n =	17	51
t = 4.6933 (d.f. = 66)		p = 7.007×10^{-6}

ICD-9 Code = 250 Variable Tested: VISIT

	Staff	Partners
Mean =	4.1000	6.4906
Std. Dev. =	1.8890	1.6713
n =	20	53
t = -5.2588 (d.f. = 71)		p = 7.316×10^{-7}

ICD-9 Code = 250 Variable Tested: NRL TEST

	Staff	Partners
Mean =	.1500	.0377
Std. Dev. =	.3663	.1924
n =	20	53
t = 1.7041 (d.f. = 71)		p = .0464

ICD-9 Code = 250 Variable Tested: NRL COST

	Staff	Partners
Mean =	1.9920	.5011
Std. Dev. =	4.8651	2.5548
n =	20	53

t = 1.7041 (d.f. = 71) p = .0464

ICD-9 Code = 250 Variable Tested: # SCRIPS

	Staff	Partners
Mean =	2.2000	1.2830
Std. Dev. =	2.7261	1.4984
n =	20	53

t = 1.8332 (d.f. = 71) p = .0355

ICD-9 Code = 995.3 Variable Tested: GENDER

	Staff	Partners
Mean =	.6667	.1111
Std. Dev. =	.5774	.3172
n =	3	54

t = 2.8357 (d.f. = 55) p = 3.194×10^{-3}

ICD-9 Code = 995.3 Variable Tested: AGE

	Staff	Partners
Mean =	59.1467	38.3858
Std. Dev. =	5.9169	13.2921
n =	3	53

t = 2.6718 (d.f. = 54) p = 4.976×10^{-3}

ICD-9 Code = 995.3 Variable Tested: SELF

	Staff	Partners
Mean =	.6667	.0926
Std. Dev. =	.5774	.2926
n =	3	54
t = 3.1464 (d.f. = 55)		p = 1.334×10^{-3}

ICD-9 Code = 995.3 Variable Tested: SPOUSE

	Staff	Partners
Mean =	.3333	.8519
Std. Dev. =	.5774	.3586
n =	3	54
t = -2.3701 (d.f. = 55)		p = .0107

ICD-9 Code = 995.3 Variable Tested: VISIT

	Staff	Partners
Mean =	3.3333	6.7885
Std. Dev. =	2.0817	1.1937
n =	3	52
t = -4.6971 (d.f. = 53)		p = 9.546×10^{-6}

DESCRIPTIVE STATISTICS

ICD-9 Code = 463

CHAMPUS Partnership Physicians

Standard

Variable	n	Mean	Deviation	Range
GENDER	51	.22	.42	0 - 1
AGE	51	25.12	9.38	14.55 - 49.42
SPONSOR	51	.69	.47	0 - 1
SELF	51	.06	.24	0 - 1
SPOUSE	51	.49	.50	0 - 1
CHILD	51	.45	.50	0 - 1
VISIT	51	6.82	.74	5 - 9
NRL TEST	51	0		
NRL COST	51	0		
LAB TEST	51	.06	.31	0 - 2
LAB COST	51	.07	.36	0 - 2.30
CAT	14	1	0	
# SCRIPS	51	.43	.78	0 - 3
MED COST	51	1.34	4.00	0 - 24.24

ICD-9 Code = 716.9 Variable Tested: AGE

	Staff	Partners
Mean =	61.8525	47.4273
Std. Dev. =	8.6069	12.0312
n =	16	33
t = 4.2836 (d.f. = 47)	p = 4.509×10^{-3}	

ICD-9 Code = 716.9 Variable Tested: SPONSOR

	Staff	Partners
Mean =	.0000	.1818
Std. Dev. =	.0000	.3917
n =	17	33
t = -1.9044 (d.f. = 48)		p = .0314

ICD-9 Code = 716.9 Variable Tested: VISIT

	Staff	Partners
Mean =	3.4706	6.7500
Std. Dev. =	1.9403	1.2952
n =	17	32
t = -7.0710 (d.f. = 47)		p = 3.189×10^{-9}

ICD-9 Code = 716.9 Variable Tested: NRL TEST

	Staff	Partners
Mean =	.1176	.0000
Std. Dev. =	.3321	.0000
n =	17	33
t = 2.0552 (d.f. = 48)		p = .0227

ICD-9 Code = 716.9 Variable Tested: # SCRIPS

	Staff	Partners
Mean =	3.0588	1.6061
Std. Dev. =	3.0098	.9981

$n = 17$ 33
 $t = 2.5354$ (d.f. = 48) $p = 7.272 \times 10^{-3}$

DESCRIPTIVE STATISTICS

ICD-9 Code = 311

CHAMPUS Partnership Physicians

Variable	n	Standard		
		Mean	Deviation	Range
GENDER	40	.13	.33	0 - 1
AGE	39	44.56	12.95	16.73 - 64.72
SPONSOR	40	.43	.50	0 - 1
SELF	40	.13	.33	0 - 1
SPOUSE	40	.85	.36	0 - 1
CHILD	40	.03	.16	0 - 1
VISIT	40	6.80	1.09	5 - 9
NRL TEST	40	.03	.16	0 - 1
NRL COST	40	1.11	7.02	0 - 44.42
LAB TEST	40	.80	2.02	0 - 9
LAB COST	40	2.27	5.81	0 - 26.97
CAT	27	.85	.36	0 - 1
# SCRIPS	40	1.60	1.50	0 - 6
MED COST	40	8.93	15.29	0 - 73.80

DESCRIPTIVE STATISTICS

ICD-9 Code = 252

Family Practice Staff Physicians

Variable	n	Mean
GENDER	1	0
AGE	1	70.33
SPONSOR	1	1
SELF	1	0
SPOUSE	1	1
CHILD	1	0
VISIT	1	1
NRL TEST	1	0
NRL COST	1	0
LAB TEST	1	0
LAB COST	1	0
CAT	1	1
# SCRIPS	1	3
MED COST	1	34.80

DESCRIPTIVE STATISTICS

ICD-9 Code = 252

CHAMPUS Partnership Physicians

Standard

Variable	n	Mean	Deviation	Range
GENDER	39	.15	.37	0 - 1

AGE	38	44.95	13.97	14.24 - 71.23
SPONSOR	39	.41	.50	0 - 1
SELF	39	.18	.39	0 - 1
SPOUSE	39	.79	.41	0 - 1
CHILD	39	.03	.16	0 - 1
VISIT	39	6.33	1.46	3 - 9
NRL TEST	39	0	0	
NRL COST	39	0	0	
LAB TEST	39	1.41	2.11	0 - 6
LAB COST	39	3.99	5.75	0 - 17.46
CAT	29	.72	.45	0 - 1
# SCRIPS	39	1.77	1.88	0 - 8
MED COST	39	8.10	16.52	0 - 78.90

 DESCRIPTIVE STATISTICS

ICD-9 Code = 252

Combined Data Set

Variable	n	Standard		Range
		Mean	Deviation	
GENDER	40	.15	.36	0 - 1
AGE	39	45.60	14.37	14.24 - 71.23
SPONSOR	40	.43	.50	0 - 1
SELF	40	.18	.38	0 - 1
SPOUSE	40	.80	.41	0 - 1

CHILD	40	.03	.16	0 - 1
VISIT	40	6.20	1.67	1 - 9
NRL TEST	40	0	0	
NRL COST	40	0	0	
LAB TEST	40	1.38	2.10	0 - 6
LAB COST	40	3.90	5.71	0 - 17.46
CAT	30	.73	.45	0 - 1
# SCRIPS	40	1.80	1.87	0 - 8
MED COST	40	8.76	16.84	0 - 78.90

ICD-9 Code = 723.1 Variable Tested: CHILD

	Staff	Partners
Mean =	.5000	.0541
Std. Dev. =	.7071	.2292
n =	2	37
t = 2.4160 (d.f. = 37)		p = .0104

ICD-9 Code = 723.1 Variable Tested: VISIT

	Staff	Partners
Mean =	2.0000	6.0278
Std. Dev. =	1.4142	1.2980
n =	2	36
t = -4.2602 (d.f. = 36)		p = 7.007×10^{-5}

DESCRIPTIVE STATISTICS

ICD-9 Code = 719.46

Family Practice Staff Physicians

Variable	n	Mean
GENDER	1	0
AGE	1	65.33
SPONSOR	1	0
SELF	1	0
SPOUSE	1	1
CHILD	1	0
VISIT	1	5
NRL TEST	1	0
NRL COST	1	0
LAB TEST	1	0
LAB COST	1	0
CAT	0	
# SCRIPS	1	0
MED COST	1	0

DESCRIPTIVE STATISTICS

ICD-9 Code = 719.46

CHAMPUS Partnership Physicians

Standard

Variable	n	Mean	Deviation	Range
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GENDER	36	.28	.45	0 - 1
AGE	36	37.39	15.66	16.16 - 64.93
SPONSOR	36	.39	.49	0 - 1
SELF	36	.14	.35	0 - 1
SPOUSE	36	.61	.49	0 - 1
CHILD	36	.25	.44	0 - 1
VISIT	35	6.83	1.18	3 - 9
NRL TEST	36	0		
NRL COST	36	0		
LAB TEST	36	.56	1.66	0 - 7
LAB COST	36	1.37	4.08	0 - 17.12
CAT	17	.82	.39	0 - 1
# SCRIPS	36	.78	1.07	0 - 4
MED COST	36	12.53	21.20	0 - 93.80

 DESCRIPTIVE STATISTICS

ICD-9 Code = 719.46

Combined Data Set

Standard

Variable	n	Mean	Deviation	Range
GENDER	37	.27	.45	0 - 1
AGE	37	38.14	16.11	16.16 - 65.33
SPONSOR	37	.38	.49	0 - 1
SELF	37	.14	.35	0 - 1

SPOUSE	37	.62	.49	0 - 1
CHILD	37	.24	.44	0 - 1
VISIT	36	6.78	1.20	3 - 9
NRL TEST	37	0		
NRL COST	37	0		
LAB TEST	37	.54	1.64	0 - 7
LAB COST	37	1.33	4.03	0 - 17.12
CAT	17	.82	.39	0 - 1
# SCRIPS	37	.76	1.07	0 - 4
MED COST	37	12.19	21.01	0 - 93.80

ICD-9 Code = 558.9 Variable Tested: AGE

	Staff	Partners
Mean =	71.8300	33.5311
Std. Dev. =	2.1213	12.9406
n =	2	35
t = 4.1286 (d.f. = 35)	p = 1.074×10^{-4}	

ICD-9 Code = 558.9 Variable Tested: SPONSOR

	Staff	Partners
Mean =	.0000	.7143
Std. Dev. =	.0000	.4583
n =	2	35
t = -2.1748 (d.f. = 35)	p = .0182	

ICD-9 Code = 558.9 Variable Tested: VISIT

	Staff	Partners
Mean =	1.0000	7.0571
Std. Dev. =	.0000	.9983
n =	2	35
t = -8.4672 (d.f. = 35)		p = 2.725×10^{-10}

ICD-9 Code = 558.9 Variable Tested: # SCRIPS

	Staff	Partners
Mean =	2.5000	.9714
Std. Dev. =	2.1213	1.1242
n =	2	35
t = 1.8053 (d.f. = 35)		p = .0398

ICD-9 Code = 558.9 Variable Tested: MED COST

	Staff	Partners
Mean =	20.3750	4.5620
Std. Dev. =	27.1175	7.6744
n =	2	35
t = 2.4592 (d.f. = 35)		p = 9.506×10^{-3}

DESCRIPTIVE STATISTICS

ICD-9 Code = 278

CHAMPUS Partnership Physicians

Variable	n	Standard		
		Mean	Deviation	Range
GENDER	33	.09	.29	0 - 1
AGE	31	31.47	13.18	14.24 - 64.95
SPONSOR	33	.67	.48	0 - 1
SELF	33	.06	.24	0 - 1
SPOUSE	33	.79	.42	0 - 1
CHILD	33	.15	.36	0 - 1
VISIT	32	6.66	1.10	4 - 9
NRL TEST	33	0	0	
NRL COST	33	0	0	
LAB TEST	33	1.18	2.19	0 - 8
LAB COST	33	2.90	5.34	0 - 17.75
CAT	17	1	0	
# SCRIPS	33	1.06	1.34	0 - 6
MED COST	33	9.72	15.81	0 - 49.89

DESCRIPTIVE STATISTICS

ICD-9 Code = 477.9

Family Practice Staff Physicians

Variable	n	Mean
GENDER	1	1
AGE	1	61.81

SPONSOR	1	0
SELF	1	1
SPOUSE	1	0
CHILD	1	0
VISIT	1	5
NRL TEST	1	0
NRL COST	1	0
LAB TEST	1	0
LAE COST	1	0
CAT	1	1
# SCRIPS	1	1
MED COST	1	.60

 DESCRIPTIVE STATISTICS

ICD-9 Code = 477.9

CHAMPUS Partnership Physicians

Variable	n	Standard		
		Mean	Deviation	Range
GENDER	32	.22	.42	0 - 1
AGE	31	34.16	13.62	14.20 - 64.14
SPONSOR	32	.53	.51	0 - 1
SELF	31	.10	.30	0 - 1
SPOUSE	31	.68	.48	0 - 1
CHILD	31	.23	.43	0 - 1

VISIT	32	6.97	.18	6 - 7
NRL TEST	32	0		
NRL COST	32	0		
LAB TEST	32	.06	.25	0 - 1
LAB COST	32	.08	.30	0 - 1.25
CAT	11	1	0	
# SCRIPS	32	.78	1.34	0 - 5
MED COST	32	2.55	5.83	0 - 30.31

DESCRIPTIVE STATISTICS

ICD-9 Code = 477.9

Combined Data Set

Standard

Variable	n	Mean	Deviation	Range
GENDER	33	.24	.44	0 - 1
AGE	32	35.03	14.26	14.20 - 64.14
SPONSOR	33	.52	.51	0 - 1
SELF	32	.13	.34	0 - 1
SPOUSE	32	.66	.48	0 - 1
CHILD	32	.22	.42	0 - 1
VISIT	33	6.91	.38	5 - 7
NRL TEST	33	0		
NRL COST	33	0		
LAB TEST	33	.06	.24	0 - 1

LAB COST	33	.07	.29	0 - 1.25
CAT	12	1	0	
# SCRIPS	33	.79	1.32	0 - 5
MED COST	33	2.49	5.75	0 - 30.31

ICD-9 Code = 493 Variable Tested: AGE

	Staff	Partners
Mean =	50.3200	33.6262
Std. Dev. =	1.4142	12.9637
n =	2	29
t = 1.7922 (d.f. = 29)		p = .0418

ICD-9 Code = 493 Variable Tested: SPONSOR

	Staff	Partners
Mean =	.0000	.7241
Std. Dev. =	.0000	.4549
n =	2	29
t = -2.2161 (d.f. = 29)		p = .0173

ICD-9 Code = 493 Variable Tested: SELF

	Staff	Partners
Mean =	.5000	.0000
Std. Dev. =	.7071	.0000
n =	2	29

$t = 5.2086$ (d.f. = 29) $p = 7.103 \times 10^{-6}$

ICD-9 Code = 493 Variable Tested: VISIT

	Staff	Partners
Mean =	2.0000	6.7586
Std. Dev. =	1.4142	.9508
n =	2	29

$t = -6.7073$ (d.f. = 29) $p = 1.168 \times 10^{-7}$

ICD-9 Code = 493 Variable Tested: MED COST

	Staff	Partners
Mean =	44.9300	14.0548
Std. Dev. =	23.1790	21.5481
n =	2	29

$t = 1.9546$ (d.f. = 29) $p = .0302$

Appendix G

T Tests for CHAMPUS Pediatric Partners

1. Variable Tested: Category

	Provider 1	Other Partners
Mean =	.9957	.9744
Standard Deviation =	.0652	.1583
n =	470	351
t =	2.6447 (D.F. = 819)	p = 4.167×10^{-3}

2. Variable Tested: Med Cost

	Provider 1	Other Partners
Mean =	5.3017	7.4895
Standard Deviation =	7.0228	9.3167
n =	472	351
t =	-3.8413 (D.F. = 821)	p = 6.590×10^{-5}

3. Variable Tested: Visit

	Provider 1	Other Partners
Mean =	5.0047	5.3219
Standard Deviation =	.1187	1.2855
n =	851	1662
t =	-7.1819 (D.F. = 2511)	p = 3.200×10^{-13}

4. Variable Tested: # Scripts

	Provider 2	Other Partners
Mean =	1.1930	1.9243
Standard Deviation =	.5154	1.0300