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This study was done to develop a uniform measure of clinical productivity among Family Practice physicians for specific diagnoses in an outpatient treatment setting by conducting a study comparing data from selected Army Community Hospitals participating in the ACDBS study.

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A STUDY TO DEVELOP

A UNIFORM MEASURE OF CLINICAL PRODUCTIVITY
AMONG FAMILY PRACTICE PHYSICIANS
FROM SELECTED ARMY COMMUNITY HOSPITALS

A Graduate Research Project

Submitted to the Faculty of

Baylor University

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Health Administration

by

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I. INTRODUCTION

Conditions Which Prompted the Study

Medical care costs have been under scrutiny for over a decade, prompting constraints, reanalysis, and regulation, culminating in present day use of prospective payment systems to bring them under control. Along with development of Diagnostic Related Groups (DRGs) for inpatient care, there has been a desire to obtain more reliable measures of productivity in ambulatory health care. Provider productivity has become one of the issues health care administrators need to assess in order to become more effective in producing beneficial outcomes for the patient in this cost-conscious environment.

In the civilian sector, the physician plays a key role in health care for he is both the customer and the person by which revenue is produced. An economic view of health care predicts that the more patients that can be seen in a given amount of time, the greater the revenue produced, considering the resources used in the encounter. The military physician is the focal point of productivity in ambulatory care. He has direct impact on the volume of patients seen, availability of appointments, resources allocated and ultimately the satisfaction of the patient. There is, however, no increased monetary incentive to the physician with increased productivity, unlike his civilian counterpart.

The Surgeon General of the Army desires that every Army family should have a designated primary care physician. The realization of such a goal further impacts on physician availability and accessibility. This also places emphasis on the physician's ability to diagnose, treat, and manage patient care in an ambulatory setting in a timely manner. This further prompts the need to establish some measure(s) of productivity in family practice.

Collection of outpatient provider productivity-related data has not been actively pursued in the military setting until recently. An effort by the U.S. Army Health Care Studies and Clinical Investigations Activity established the Ambulatory Care Data Base Performance Measurement Study (ACDBS). Six sites in the Army were selected to participate in providing a data base for comparative studies on several levels. Bayne-Jones Army Community Hospital and Blanchfield Army Community Hospitals are two of those sites. They were chosen because there is a close comparison between these medical care facilities in regard to the scope and breadth of family practice in the ambulatory care structure. Likewise these two sites gave access to data collection on combat division personnel (soldiers) as well as large family member and retired populations.

In the military setting, Bayne-Jones Army Community Hospital (BJACH) at Fort Polk, Louisiana, is a general acute care facility with a large family practice base for both outpatient and inpatient care. The population served includes: 15,000 active duty (A/D) soldiers; 12,000 dependents of active duty; and 29,000 retirees and their dependents. Each of 13 physicians is assigned a panel size based on the units assigned to post. Each panel has approximately 2400 patients assigned for care. As such, the productivity of the hospital has been linked to overall productivity in family practice. The need to be productive is a key ingredient in the effectiveness of family practice physicians to meet the needs of the population served in what is considered a remote location at Fort Polk. The family practice concept provides primary care in a comprehensive modality with emphasis under this specialty to take into account the social, psychological, economic, cultural, and biological dimensions of patients who present for care.

This broad base approach to care also attributes to family practice a triage and referral function to ensure proper screening of the patient complaint and proper referral to other specialties. Family practice is hospital based, and requires that the physicians involved have inpatient care responsibilities and are active in taking call on a rotating schedule. This impacts on the outpatient productivity of the individual physician.

Blanchfield Army Community Hospital, Fort Campbell, Kentucky, is a large general acute care facility with additional teaching responsibilities, however these do not impact the family practice department. Physicians in family practice have inpatient responsibilities in addition to their outpatient clinics the same as Fort Polk. The population served includes 21,513 active duty soldiers; 20,779 A/D dependents, 30,101 retirees and 74,141 retired dependents. At the time of the study, the total assigned personnel under each physician was less than 600 each, as defined by the limited size of their family practice panel. Other practitioners shared in the responsibility for primary care of such a large population, to include internal medicine and pediatrics.

Family practice performs a triage and referral function as well at Fort Campbell, due to the broad spectrum of care provided. Ideally, referred patients are well screened to insure proper referrals based on need. This implies that family practitioner productivity is of key importance as a result of the multiple role played and as a referral base for other specialties in providing quality care.

The availability of ACDBS data plus the interest and support of the two hospital commanders lead this investigator to propose a study of provider productivity at BJACH compared to Blanchfield Army Community Hospital. This would allow us to investigate the possibility of setting a standard against which to compare family practice physicians. The results of this effort should yield significant information leading to ambulatory care performance measurement (Begg, 1986).

The achievement of a more precise measure of provider productivity in the military setting, it was felt, would be of significant value to military health care planners and administrators alike in allocating providers and related resources to ambulatory care areas. Those patients serviced by the primary care providers would also receive benefit by providing a reasonable standard of productivity by which providers at the same or similar Army communities could be compared in providing the same services to their patients.

Statement of the Problem

To develop a uniform measure of clinical productivity among Family Practice physicians for specific diagnoses in an outpatient treatment setting by conducting a study comparing data from selected Army Community Hospitals participating in the ACDBS study.

Objectives

1. Conduct a literature review concerning physician productivity in family practice and primary care outpatient settings.

2. Determine what will constitute physician productivity for the purposes of this study.

3. Utilize the Ambulatory Care Data Base Study (ACDBS) data to derive patient treatment and provider information.

4. Using statistical procedures, measure physician productivity based on the data gathered.

Criteria

Physician productivity is defined as the mean physician time spent (in minutes) with patients of similar diagnoses categories during the individual outpatient clinic visit or encounter. The mean encounter time will be the basis of the study. The direct encounter is a face-to-face meeting of the patient and the physician. This includes as well the time taken to write in medical records, order tests or procedures and counsel with the patient.

Assumptions

1. The quality of health care provided by all physicians under the study will be equivalent, similar and satisfactory.

2. Sufficient ancillary personnel are available to assist the physician in seeing patients, thereby not having a negative impact on physician productivity. The tasks of screening and taking vital signs will have been completed before the physician-patient face-to-face encounter begins.

3. All times recorded for the encounter will be face-to-face, and not include patient waiting time prior to or after the encounter with the physician.

4. The ACDBS data base study will continue for the duration of the study period, with no change in data base accumulation methodology or loss of the data base manager as the study progresses.

Limitations

1. The range of diagnoses discussed will be a function of the characteristics of injury or illness of the patient population under study during the data accumulation.

2. Mean encounter times will be calculated using the most frequent common diagnoses reported on the patient encounter form used in the ACDBS study. This will be determined based on the frequency of reported diagnoses for the period of the study, and of these diagnoses common to all reporting physicians.

3. The physician sample size will be limited by the number of physicians engaged in face-to-face patient encounters, and their available hours for outpatient care.

Review of the Literature

Hospital-based outpatient care is the fastest growing component of any type of health care today. In terms of expenditures, community hospital ambulatory care is expected to increase from $20 billion in 1986 to $46 billion by 1990 (Arnett, et al., 1986). Due to the demographics, advanced technology and economics in the health care industry, Medicare and private insurance companies have created incentives to encourage hospitals and physicians to treat patients in ambulatory settings. There is an increasing trend of more frequent visits to hospital outpatient departments relative to a declining number of inpatient days. In 1974, for example, there were 189 million community hospital outpatient visits across the United States, compared to 212 million in 1984--a 12% increase (American Hospital Association, 1985).

In consideration of the increases in outpatient care, many authors have turned their attention to the primary care practitioner, especially general and family practice physicians. Since physicians, not institutions dispense health care, and recent institutional changes and technology have not made health care delivery more productive in terms of requiring fewer physicians, we may assume there will be an increase in demand for physicians in the future (Jackson, 1987).

From 1970 to 1980, there has been a statistically significant decline in hours worked by all physicians of approximately 1.5 hours or 3%, and the decline for primary care specialties was even greater at 3.7% (Freiman and Marder, 1984). Add to this the findings of Cherkin, Rosenblatt and Hart (1984) that family practice physicians who are residency trained, see fewer patients per hour, but spend commensurately more time per patient visit than their counterparts without residency training. This relationship in their study persisted in spite of controlling for a variety of physician and practice characteristics, including physician age, practice organization, geographic region, and age of patients treated. Not surprisingly, many hospitals have instituted individual productivity studies, since wages and salaries routinely constitute more than one-half of the average civilian community hospital's operating budget. (Harju and Sabatino, 1985)

In the military setting the emphasis has not been entirely on cost containment. Because of recognized problems in access to military medical care, availability of resources to meet demand, and the beneficiaries perception of the medical care system, improvements in physician productivity may lead to solutions in these areas.

An interest in distribution of resources was voiced by Fetter, Averill, Lichtenstein, and Freeman (1984), who recognized the significance of ambulatory medicine in the health care economic sector. The assessment of health care provider productivity was considered to be an integral part of t.... evaluation. The possibility of a new method of reimbursing for ambulatory care (Lion, Henderson, Malbon, Wiley, Noble, 1984) using a classification system similar to diagnosis related groups (DRGs) was likewise enlightening and was examined in preparing the ACDES study.

The trend in the American health care field has been to promote cost containment and has created interest in the development of productivity standards to measure the efficiency of health care providers. With 54% of the physician visits occurring in the ambulatory health care clinic (Roemer, 1982), there is an obvious need to develop standards and performance criteria. Although some administrators express concerns over attempts to apply standards to the medical field, most might welcome the development of productivity standards as a way to improve services and allow for optimal staffing decisions. Griffith (1978), among others has called for new guidelines for decision makers in the health care field that would establish common measures of performance. Using such measures of performance, ambulatory care clinics could begin to compare themselves with clinics in other communities, states, and the nation as a whole. The same would be true of comparisons made between similar military treatment facilities.

Literature on health care productivity reveals a wide-spread consensus on the inadequacy of the outpatient clinic statistical base and reporting indices to date (Federa and Bilodeau, 1984; Herkimer, Eberhard, Pollard, Uhl and Zaretsky, 1977). More recent studies include specific areas of focus and the use of computers in productivity monitoring and modeling (Greiice, 1983). Some studies examine the use of simulation and mathematical formulas to determine manpower distribution (Burkhart and Schultz, 1979; Minch, 1983).

Other activities that may be affected by computers include: managing variability in demand (Sahney, 1982), forecasting health care services demand (MacStravic, 1982), and measuring hospital expenses on a cost per unit basis (McCormick, 1979; Suver 1981; Templin, 1984). None of these studies have dealt specifically with the problem of establishing productivity standards against which to measure the levels of staffing or professional performance in ambulatory care clinics. There is support, however, to continue such studies.

Medicare's decision in 1983 to use diagnosis related groups (DRGs) as the unit of prospective payment for inpatient care, had forced hospitals into what appears to be an industrial revolution (Arbitman, 1986). Traditional management in this area was by functional departments and process management, which has become management by case types or product line management, requiring information for planning, budgeting, utilization review, quality assurance, etc. DRGs are not the optimal patient grouping system for such activities.

Many different patient grouping systems exist and others are under development. Each has unique characteristics that make it more or less suitable for hospital management activities. Much of the study done in this area has an inpatient emphasis, but much has also been done on outpatient groups. Some efforts are even underway that would integrate the inpatient and outpatient experience into one grouping system reflective of a total episode of care. A sizeable task of classifying large numbers of discrete diagnoses into clusters (Scheeweis, et al., 1983) was performed using 1978-79 National Ambulatory Medical Care Surveys (NAMCS). These clusters represent essentially similar pathophysiologic conditions and are compatible with the International Classification of Diseases (ICD-9-CM) used in the ACDBS.

A successful patient classification system must balance precision and homogeneity in patient types with the need for administrative usefulness. Patient classification schemes should be dynamic, not static and be adaptable to the rapid changes in medical practice. No system available at this time meets all of the desired criteria for all management purposes. The characteristics, strengths and weaknesses of the most well published systems are described and evaluated in more detail at Appendix A.

Senior Department of Defense leadership recognized in 1982 that the traditional measure of health care workload, the Medical Care Composite Unit or MCCU was not adequate to define and analyze all parameters of inputs and outputs in the military health care system. Army Medical Department (AMEDD) Medical Treatment Facilities (MTF), could no longer accurately reflect resource utilization, the sophistication of ambulatory medicine nor the impact of committee, quality assurance and readiness activities on the cost of patient care (Coventry, 1984). A Tri-Service Performance Measurement Work group was appointed to conduct a Performance Measurement Study (PMS) to include an ambulatory care portion. The

Surgeon General of the Army directed the Army's Health Services Command (HSC) to conduct a study to evaluate current measures of AMEDD health care system performance and, as required, develop better measures and workload data capture systems which accurately reflect actual resource utilization. Under the direction of the Health Care Studies and Clinical Investigation Activity (HCSCIA), the Ambulatory Care Data Base Study (ACDBS) was established to capture previously non-existent diagnostic and resource use data in the outpatient setting.

Objectives of the ambulatory care portion of the PMS study are the following:

1. Develop a decentralized and automated system necessary for an ambulatory care database.
2. From data captures, develop weighted measure of outpatient workload.
3. Assure that the database has relevance for clinical practice and research.
4. Evaluate the system's feasibility for continued use and proliferation throughout the AMEDD.

Along with with these objectives, it was decided by Major General Floyd W. Baker, then Commander, HSC, that the system would allow centralized data capture to the Defense Medical Systems Support Center, Fort Detrick, Maryland, and yet allow local providers and managers a data base for management and resource utilization decisions. It was envisioned the system would become a prototype for a Department of Defense (DOD) system.

Six Medical Treatment Facilities (MTF) were chosen as study sites that would represent a cross section of AMEDD health care in various locations and with some different demographic and treatment parameters. The following six sites were chosen:

Fort Polk, Louisiana

Fort Campbell, Kentucky

Fort Bragg, North Carolina

Fort Jackson, South Carolina

Redstone Arsenal, Alabama

Brooke Army Medical Center, Fort Sam Houston, Texas

Forms used in data capture are coded using ICD-9-CM for diagnoses and the American Medical Association's Current Procedural Terminology, Fourth Edition (CPT-4) for procedures. An Outpatient Registration Form was completed by all patients upon their first encounter with the health care facility (Appendix B). This one-time document provides basic demographic data including sex, birthdate, social security number, zip code of residence, unit of assignment, branch of service, pay grade and duty MOS (Military Occupational Specialty). Each health care provider, i.e., any person who can make a decision as to the disposition of the patient, or provides significant treatments or procedures, is registered by means of a Provider Registration Form (Appendix C).

Original input for the procedures and diagnoses during an outpatient visit (encounter) are documented on a Primary Care Patient form found in Appendix D. Each encounter form is initially filled out by the patient and/or the administrative staff at the front desk before their visit. The provider section, like a billing form, is completed by the clinician/practitioner. This requires only pencil marking an appropriate bubble of the Optical Mark Sense Reader (OMR) form. Hence, the coloquial term "bubble form" or "bubbling in the patient" among the staff. The time expended by the physician is documented at the time of the visit and includes only the face-to-face encounter time by the treating physician.

Research Methodology

The ACDB study provided the groundwork and sound data collection from which to embark. Encorporating lessons learned from the AVG studies, Diagnosis Clusters and National Ambulatory Medical Care Surveys, the ACDB study was ideal for use as a data base, with a readily available automated system to draw upon. Clinical relevance of the data base was established by the project staff, a thorough development of the data collection form had been accomplished and hiring and training of support personnel had been completed. Additionally, at each site the necessary automatic data processing equipment (ADP) had been procured. Fiscal Year 87 funds were already provided, and each of the six sites were committed and supportive of the study. These facts gave the confidence necessary to suggest this proposed research into a segment of what was fast becoming a large data base. The literature review supported the fact that the study was structurally and objectively sound, plus it allowed for sufficient flexibility at the local level to design and capture data for unique management reports. Given the excellent environment in which to work, the opportunity existed to delve into sparsely documented territory, and perhaps offer an alternative or additional measure of productivity, to those already under consideration for Department of Defense medical treatment facilities.

The Problem Statement, rephrased for the purposes of this statistical comparison, may now be asked as research questions:

1. Is there a significant difference among all family practice physicians included in the study, in encounter times for selected diagnosis categories?
2. Is there a significant difference in encounter times, by diagnosis categories between Bayne-Jones Army Community Hospital, Fort Polk, Louisiana and Blanchfield Army Community Hospital, Fort Campbell, Kentucky using the ACDB study data?

All assigned staff physicians located at the two locations were participants in the research. The study was already in progress for 20 months at the time designated to collect the data, and no "Hawthorne effects" were expected. It was not announced to family practice physicians until data had been retrospectively withdrawn, that this specific research was being conducted. This investigator is convinced that practitioners did not alter their normal routines at all during this period, nor was any indication of surprise or displeasure voiced by staff members. The critical measure of encounter time was filled in on the Primary Care patient encounter form as it was completed by the physician.

Physician and patient confidentiality were maintained throughout. Physicians were identified by an I.D. code number only, preassigned at the beginning of their participation in the study. No pilot study was necessary as the forms, process and data needed were established and already part of the ongoing project. Patient Encounter forms were retrieved daily to the ADP assembly area to be electronically scanned for data and subsequently entered into a computerized data base. Optical mark sense computer technology was utilized as being the most appropriate and cost effective method of data collection.

Each site was provided the following ADP equipment for data capture and transfer:

2 IBM personal computers (PC-XT) with 250K bytes of memory each.

A Genicom 3014 printer (160 CPS)

An IBM Color (RGB) Monitor

2 Iomega (Bernoulli Box) removeable 10 MB (later 20 MB)

A Case-Rixon PC212a cartridges Internal Modem

A National Computer Systems (NCS) Optical Mark-Sense Reader/Scanner

An AST (accelerator) Board (Megaplus II)

The Iomega 10 MB cartridges were used for transmitting the data from each site to the Fort Detrick Data Processing Center, where the main frame data base was located. Data base management was accomplished through use of a fourth generation programming language and software that was virtually identical in the microcomputer and mainframe versions, (FOCUS Data Base Management System).

The Patient Registration form was to be completed at the patients first encounter for health care. Prior to the development of the form consideration had been given to using existing DOD and Army data bases for patient registration. Unfortunately the study data elements for ACDB were not identical to those found in the Defense Eligibility Enrollment System (DEERS) or in the Army Standard Installation Division Personnel System (SIDPERS). Registration elements included the minimum demographic variables necessary to allow the automated capture of Medical Summary 302 Reports (MED 302 Reports) and Uniform Chart of Accounts (UCA) Reports.

The Provider Registration forms were completed by all health care personnel authorized to render medical treatment. Enrollment was essential to determine the type of provider giving the care during the encounter.

Each Patient Encounter form essentially consisted of four sections. The first portion was completed by the patient and identified them by pertinent demographic information. The second part contained administrative information completed by the clinic receptionist or secretary. The third portion pertained to clinical management of the patient; and the last section contained a menu of clinic or specialty specific diagnoses, problems, or reasons for visit and procedures, services and evaluations. Both the third and fourth sections required completion by health care providers.

The diagnostic and procedural menus were developed for every specialty utilizing a modified Delphi technique (Polit and Hungler, 1983). It most closely resembles a collection of what the physician would place on a billing form if they were in private practice. The Primary Care form was a consolidation of diagnoses and procedures from the Emergency Room (ER), the Troop Medical Clinic (TMC), the Acute Minor Illness Clinic (AMIC) and the Battalion Aid Station (BAS). The length of the form to be filled out met with some resistance from practitioners who desired a more simplified form. This was not possible due to the variety of patients seen. Some lack of standardization in menu listings was also confusing to family practioners.

ACDB reliability of data was studied in a five month period during which all six sites were visited and on-site medical records audits performed. With randomly-generated lists of medical records, a total of 9,015 patient encounters were reviewed. Analysis showed a mean score of 10.56 (out of a maximum of 11) with a standard deviation of 1.27 and a range of 1-11, in scoring how accurately the ACDB information matched to medical records entries.

Unfortunately for this investigator, the funding for the ACDB study was discontinued in fiscal year 88 and with it, the support personnel, computer equipment and the access to local data base and management information were withdrawn. It became a long and tedious struggle to locate assistance from this rural area in Louisiana to complete the research. After two visits to the HCSCIA offices and support from Maj(P) Jeffery P. Moon for data collection and discussion with

Dr. Ken Finstuen, statistics advisor, Academy of Health Sciences, Fort Sam Houston, Texas, I was finally able to find computer support for completion of the research. Dr. Robert Breckenridge, Head of the Psychology Department, Northwestern University, in Natchitoches, Louisiana, offered support of a computer program designed to analyze and describe statistical problems, entitled CRUNCH. It is user friendly and has sufficient power to run up to 50 predictor variables for a multiple regression model. It is, however, PC driven and slow to do sorting on large amounts of data.

The data collected is unbalanced due to the difference in total family practice physicians represented (Table 1) at each site, with eight physicians at Ft. Campbell, and 13 physicians at Ft. Polk. This requires us to choose the multiple regression analysis model for it allows us to compare variables that may be unequal in size, and regress them onto the universal mean, which is represented by a line. The model chosen to address the research questions is represented by the equation:

$y = a + b_1X_{1i} + b_2X_{2i} \ldots + b_{21}X_{21i} + e_i$, where

y = the dependent variable (encounter time)

a = the y intercept, a constant

b = a Beta weight that applies to the value X_i

X = the independent variable of each observation

e = the error term

TABLE 1.

Family Practice Physicians by Provider I.D. Code for Fort Campbell and Fort Polk, and Total Patient Encounters per Physician for April 1987.

Site	Provider I.D.	Visit Count
Site 1 - Campbell	B2610	413
	C7463	487
	M8056	499
	S0352	153
	S5623	336
	T4804	260
	W2947	436
	W9900	699
	Total Occurrences, All Diagnoses:	3,283
Site 2 - Polk	A5538	349
	B4479	258
	D5856	304
	F1089	343
	G0831	362
	H4880	383
	H7224	288
	J8157	429
	K6929	155
	O2539	222
	S6327	452
	T8937	488
	W7032	331
	Total Occurrences, All Diagnoses:	4,364
	TOTAL, Both Sites, All Diagnoses	7,647

Assumptions:

1. Each of the observations are an independent sample of size n drawn from the population.

2. Each of the populations is normally distributed.

3. Variances of the population are equal.

4. The subpopulations of y all lie on the same straight line. This is the assumption of linearity, expressed as:

$$\mu = \alpha + BX$$

where u is the mean of the subpopulation of y values for a particular value of X and α and B are population regression coefficients. Geometrically α and B represent the y intercept and slope respectively.

Hypothesis:

1. $H_0 : \alpha_1 = \alpha_2 = \ldots \alpha_i = 0$

H_A : not all $\alpha_i = 0$

Rejection of this H_0 would mean that it may be concluded that there are differences in mean encounter times attributable to diagnosis categories.

2. $H_0 : \beta_1 = \beta_2 \ldots \beta_1 = 0$

H_A : not all $\beta_i = 0$

If H_0 is rejected, then there are differences attributable to physician encounter times due to the site at which they are employed. The test statistic is used then to evaluate the observed difference between multiple samples; the difference in encounter times between multiple diagnosis categories and the difference in encounter times between physician groups at the two sites.

II. DISCUSSION

Participation Indicators

The month of April 1987, there were 7,647 recorded visits to family practice physicians using the ACDB encounter forms, for all possible diagnoses. From Table 3 we see 3,283 of those encounters were recorded at Fort Campbell (Site 1) and 4,364 were recorded at Fort Polk (Site 2). Upon selecting the 20 most frequent diagnosis categories in common for both sites, (Table 2) this reduced n to 3,186 encounters or 41.7% of the total recorded encounters for the month. At Fort Polk, the interest level remained high due to the fact that all workload that was recorded under ACDBS was the source documentation for MED 302 and UCA reports. There was no dual logging or reporting of patients for separate workload accountability other than using the encounter "bubble form".

An internal audit report at Fort Polk by Frank Hood, CPA, cited some loss of data after a random sample of medical record entries revealed that patients were seen for which no recorded ACDB encounter form had been filled out, or was lost or had not become an entry to the data base. The simple omission of a required field of data (i.e. diagnosis or time) was discovered during the form scanning process because of a designated reject/edit routine. The form was then returned to the clinic for correction. An estimated 82% of all encounters were accounted for by use of the ACDB study for workload purposes. It may be assumed that such human error as forgetfulness, ill humor, overbooking of patients, temporary absence of support personnel, etc. would account for

TABLE 2.

Twenty Most Frequent Diagnosis Categories for Fort Campbell and Fort Polk

Diagnostic Code	Diagnostic Description
V202	Surveillance Health Development
V22	Pregnancy, Normal
V655	No Problem Noted
V700	Exam, Medical
V7231	Exam, Well Woman
000	No Diagnosis/Visit Reason Recorded by Provider
0340	Pharyngitis W/Streptococcal
250	Diabetes Mellitus
37230	Conjunctivitis
3814	Otitis Media, Serous
3820	Otitis Media, Suppurative, Acute
401	Hypertension, Essential
460	Nasopharyngitis, Acute (Common Cold)
461	Sinusitis, Acute
462	Pharyngitis, Acute
7194	Arthralgia
7245	Pain, Back, NOS
7821	Rash, (Exanthems), NOS
7840	Headache
7890	Pain, Abdominal

some loss of documentation in any instance. Commanders at both sites continued encouragement of their respective physician staffs to complete the forms at the same time medical record entries were made.

Informal discussions with family practitioners were held to determine the physicians' attitude toward the ACDB study and the management reports derived from that data base. The only negative comment received was that individual physicians should be able to see the reports concurrently with their supervisor(s). The reports they felt could be misused as "carrot and stick" for compliance with hospital goals and competition for prized continuing medical education money to take Temporary Duty (TDY) trips. No physician to this investigator's knowledge suffered any detrimental or disciplinary actions as a result of workload recorded by use of the ACDB. Participation continued in a normal fashion both before and after the April, 1987 study.

Distribution of Diagnosis Categories

A matrix was constructed from which relative frequency distribution histograms were developed for a visual comparison of diagnosis categories by encounter times. These can be seen as figures 1 - 20. Reference should be made here of the 60 and 90 minute encounters at Fort Campbell, none of which were recorded for Fort Polk. These may have had an effect on skewing the data in the comparisons.

Frequency of occurrences by diagnosis at both sites are rank ordered on Table 3 and compared in the order in which they occurred at each location. Noteable here is the high frequency at both locations of the diagnosis, No Problem Noted. Many times providers responded that with their busy case loads they did not have the time or support staff to research the encounter and selected the no problem noted option. This option (code V655) had been intended to account for illness or injuries which had resolved themselves or to indicate there was no discernable illness/injury present. Unfortunately this problem was not recognized until several months of data were recorded. To remedy this, the code of 000 was added so computer scanning personnel could designate that No Diagnosis/Reason was recorded for the provider after correction procedures failed. The No Problem Noted code accounts for 8.7% of the ACDB total data base and is highly suspected as an inaccurate measure for this ICD-9-CM condition.

Also worthy of comment is the large number of normal pregnancy exams seen at Fort Polk (470) which accounts for 21% of all exams seen, and add to that the number of well woman exams (250) and you account for 32.2% of all visits for the month. Comparisons to Fort Campbell reflect 102 normal pregnancy exams, or 10.8% of their total, plus 84 well woman exams for a total of 186 exams or 19.6% of all exams for the month.

TABLE 3.

Frequency of Occurrence by Diagnosis, Rank Ordered, Fort Campbell and Fort Polk.

Diagnosis:		Fort Campbell		Fort Polk	
Code	Description	Frequency	Rank Order	Frequency	Rank Order
V700	Exam, Medical	170	1	114	5
V655	No Problem Noted	104	2	360	2
V22	Pregnancy, Normal	102	3	470	1
V7231	Exam, Well Woman	84	4	250	3
3820	Otitis Media, Suppurative, Acute	84	5	178	4
V202	Surveillance Health Development	41	6	55	12
401	Hyptertension, Essential	41	7	108	7
460	Nasopharyngitis, Acute (Common Cold)	36	8	113	6
7821	Rash (Exanthems), NOS	32	9	66	9
000	No Diagnosis/Reason Recorded By Provider	31	10	59	11
0340	Pharyngitis with Streptococcal	26	11	51	13
7194	Arthralgia	26	12	32	20
7890	Pain, Abdominal	25	13	63	10
461	Sinusitis, Acute	24	14	36	19
37230	Conjunctivitis	23	15	46	14
462	Pharyngitis, Acute	23	16	70	8
3814	Otitis Media, Serous	20	17	45	15
250	Diabetes Mellitus	19	18	41	17
7840	Headache	19	19	39	18
7245	Pain, Back, NOS	18	20	42	16
	TOTAL:	948		2,238	

Patient Demographics

Fort Campbell and Fort Polk have a recorded total of 670 male, and 1783 female patient visits. This is however, only a partial representation due to the fact that 733 out of the 3,186 encounters lack a corresponding patient registration form, which included the patient demographic data. Twenty-three percent of the demographic data is therefore unavailable for complete description of the representative, sex and beneficiary category information. Overall, the ACDBS data still lacks 24.3% of the patient encounter demographic data and iniatives are under way to link these unknowns to data found using SIDPERS and DEERS.

The greatest number of patient encounters is represented in Table 4, among the 1 - 15 year old age group. The highest percentage of male visits are recorded in the 1 - 15 year old age group; while the highest percentage of visits for females is in the 15 - 24 year old, and the 25 - 44 year old age groups. This is primarily due to pregnancy related care.

Resource Utilization

The data reflected routine lab tests were requested by physicians 33 times at Fort Campbell and 189 times at Fort Polk, for 3.5% and 8.4% of the visits respectively. Likewise, physicians wrote one or more prescriptions for medications 84 times (8.8%) at Fort Campbell, and 360 times (16.1%) at Fort Polk. X-rays requested were 10 at Fort Campbell and 93 at Fort Polk for 1.0% and 4.1% of the visits respectively. Only five instances for both sites were on record for exams ordered out of

TABLE 4.

Number and percent distribution of visits by patient age and sex, Fort Campbell and Fort Polk Family Practice Clinics, April 1987.

	Male		Female		Not Identified
Age	n	% Visits	n	% Visits	n
Under 1 year	156	6.3%	273	11.1%	
1 - 15 years	354	14.4%	318	12.9%	
15 - 24 years	40	1.6%	534	21.8%	
25 - 44 years	40	1.6%	547	22.3%	
45 - 64 years	58	2.4%	92	3.7%	
Over 65 years	22	10.8%	19	0.7%	___
TOTAL:	670	100.0%	1,783	100.0%	733

clinic, which represented diagnostic tools such as ECG, EEG, pulmonary function tests, EMGs, adaptive appliance/equipment etc. No use could be made of this small amount of data, therefore it was not determined significant for analysis in light of the limited frequency recorded.

Research Question 1: Differences in encounter times due to diagnosis.

The first null hypothesis stated that there would be no significant differences in encounter times associated with the different diagnoses. According to the stepwise regression analysis, that is not true. We have significant differences in diagnosis categories between sites, and therefore we reject the H_0 (null hypothesis) and accept the H_A (alternate hypothesis). In the stepwise regression, the most contributing predictor variable selected was site with the calculated multiple regression results. Please see the full listing of variables in Table 5 for the stepwise multiple regression, placed at the end of the Discussion Chapter.

Null Hypothesis H_0: $\alpha_1 = \alpha_2 \ldots \alpha_i = 0$

Alternate Hypothesis: H_A: not all $\alpha_i = 0$

Level of Significance $\alpha = .05$

Critical value $F_c = F_{.05,\ 15,\ 2934} = 1.67$

Therefore the null hypothesis was rejected.

Continued stepwise entry of variables based on the predictive nature of the F-to-enter value gave the following final list of variables diagnoses that contributed to the multiple regression analysis, along with their associated Beta weights.

The last six variables did not contribute to the regression model. Due to the low F-to-enter values these variables did not enter the regression equation.

The partial correlation is between the predictor variable and the dependent variable after controlling for the variables in the equation. The F-to-enter value is the F statistic for testing whether the partial correlation is different from zero. Tolerance is a measure of how much two or more predictor variables measure the same attribute. If they do measure the same attribute we do not wish to have them in the equation. A tolerance near zero (i.e. .001) allows two variables to be almost perfectly correlated, yet both be included in the equation. Conversely, a tolerance of near one (i.e. .999) almost never allows a second variable into the equation. The Tolerance must be between zero and one.

Research Question 2: Differences in encounter times by diagnosis categories between Fort Campbell, Kentucky and Fort Polk, Louisiana.

Referring again to our regression analysis, the number of variables that were significantly different reflect the fact that the site had major impact (contribution) to the model. Further studies in a correlation matrix shown at Appendix F reflect that the highest correlation figure calculated was Time and Site, again indicating the impact on the model for entering another variable into the equation.

In the stepwise regression, variables are added and removed from model one at a time according to how they reduce error variance. At each step, the CRUNCH program first looks to see if a variable entered stepwise in the model has become a "weak" predictor because of the addition of other variables. After site was entered, 14 more diagnostic variables contributed to the regression in the above order given, and with the final Multiple Regression result after 15 entries into the equation.

The mean encounter times for each diagnosis at each site are displayed in Table 4. The mean encounter time for all Fort Campbell visits is 21.5 minutes, and the mean encounter time for all Fort Polk visits is 15.9 minutes. Grand Mean for all 3,186 encounters is 18.7 minutes. Further comparison of the data involved multiple t-tests of mean encounter times for each site. All, except for two diagnoses (46 and 7890) produced significant differences in mean encounter times, at the = .05 level of significance. See Appendix E for a complete listing.

TABLE 6.

Mean Encounter Times per Diagnosis (to the nearest whole number)
Fort Campbell and Fort Polk.

Diagnostic Code	Mean Provider Time (minutes) Fort Campbell	Mean Provider Time (minutes) Fort Polk
V202	24	17
V22	20	16
V655	20	16
V700	20	20
V7231	29	24
000	23	16
0340	18	12
250	21	16
37230	18	12
3814	18	12
3820	38	12
401	17	16
460	24	12
461	16	19
462	18	19
7194	18	16
7245	21	12
7821	18	16
7840	17	19
7890	31	16

It was expected that significant differences would be observed and the null hypothesis rejected. The t-tests served to indicate where some of these specific differences were. Analysis showed 18 of the 20 diagnoses or 90% of the data were significantly different.

The CRUNCH regression output includes a number of statistics which relate to the model as a whole and several statistics which pertain to individual variables. The overall success of the regression is summarized in the multiple R and R-square statistics. R can be interpreted as the Pearson correlation between the observed values of the dependent variable and the predicted values based on the equation. R-square is then the proportion of the variance in the dependnet variable which is "explained" or attributed to variables in the model.

The adjusted R-square is a transformation of R-square which is an unbiased estimate of the population R-square.

The analysis of variance section of the output shows the partitioning of the variance in the dependent variable into variance which is attributed to the regression model and error variance. The F statistic and its associated P-value test the hypothesis that the population multiple R is zero. It is a test of the entire model. Finally, the standard error shown is the square root of the residual mean sum of the squares.

For each variable in the equation, five columns are shown. The first, B is the estimated coefficient of this variable in the regression equation. The second value Beta (β) is a standardized regression coefficient. Beta is simply the B value multiplied by the ratio of the standard deviations of the dependent and predictor variables. Unlike the B values, the Beta values of all predictors have the same units and therefore can be compared to each other. The standard error column contains the standard error of the B value. The square of the ratio of B to its standard error, generates the F-to-remove value. This can then be used to test the hypothesis that the true coefficient for a particular variable is zero.

On the basis of the analysis, we must therefore reject H_0 and accept H_A that not all encounter times for physicians at the two sites were equal. There were significant differences mainly due to the site involved.

Other Considerations on Encounter Times

A higher patient volume afforded by visits of a shorter duration can only be accomplished if all elements work in concert to give the greatest efficiency. Physicians must establish and maintain their clinic protocols and schedules in cooperation with a patient appointing system that can be responsive to fill the needs of both patient and physician. Patients likewise must respect and properly utilize the appointment time allotted to them, for they have a duty to arrive timely and cooperate in their care. Space must be adequate to allow the physician and his ancillary staff to screen, prepare and examine the patient as the encounter procedes. Sufficient waiting, examination and treatment rooms must be at hand to accommodate patients and reduce queing as much as possible. The staff who assists and prepares the patient, the paperwork and the rooms must likewise be competent to insure a smooth flow and timely intervention for each encounter that takes place. The proper tools, equipment and diagnostic means must be available to each physician to complete his evaluation during the encounter. All of these are ideals for which to strive, and each has an impact on the total encounter time. This study only addressed provider encounter time.

Patient satisfaction is tied to quality of care and physician productivity (Rosenblat, et al., 1982). The patient's satisfaction was not an element of this analysis, but properly, should be considered in any future such studies. It is not unusual that the patient presents with not just one, but more than one complaint which he/she needs addressed. This obviously impacts on encounter time and reflects the more demanding and better informed patient population that our progressive country has produced. This study only took into consideration primary diagnoses and the time associated with that singular episode of care.

Fort Campbell was the only site to record 60 and 90 minute visits. If these are reflective of an uncomplicated visit, these could be considered outlier values and have possibly skewed the findings.

There were also no reliable records available to study that described physician-staff interactions. Both sites reported fully authorized Table of Distribution and Allowances staffing to complete their health care mission. If any interpersonal or parochial bad feelings or lack of cooperation existed, it was not evident to this investigator.

Finally, sufficient funding was provided by Health Services Command to each facility for patient care. No lack of equipment or space to accommodate patient flow was reported. These were not then considered contributory to the differences in encounter times observed.

TABLE 5.

Steps in the Multiple Regression Analysis.

Dependent variable: TIME

Step 1. Variable entered: SITE

Multiple R	0.3157	Analysis of variance					
R-Square	0.0997	Source	DF	SS	MSS	F	P
Adjusted R-Square	0.0994	Regression	1	14147.102	14147.102	326.378	0.0000
Standard Error	6.5838	Residual	2948	127783.403	43.326		

Variables in the model:

Variable	B	Beta	Std. Error	F-to-Remove	P-Value
SITE	-4.46884	-0.31572	0.24736	326.378	0.0000
Constant	19.15158				

Step 2. Variable entered: Diagnosis Code V655

Multiple R	0.3789	Analysis of variance					
R-Square	0.1435	Source	DF	SS	MSS	F	P
Adjusted R-Square	0.1430	Regression	2	20373.550	10186.775	246.966	0.0000
Standard Error	6.4224	Residual	2947	121556.956	41.248		

Variables in the model:

Variable	B	Beta	Std. Error	F-to-Remove	P-Value
SITE	-5.34346	-0.37751	0.25158	451.109	0.0000
V655	-4.54724	-0.21838	0.37011	150.953	0.0000
Constant	20.08006				

TABLE 5 (Continued)

Dependent variable: TIME

Step 3. Variable entered: Diagnosis Code 000

		Analysis of variance					
Multiple R	0.4067	Source	DF	SS	MSS	F	P
R-Square	0.1654	Regression	3	23471.252	7823.751	194.571	0.0000
Adjusted R-Square	0.1645	Residual	2946	118459.253	40.210		
Standard Error	6.3412						

Variables in the model:

Variable	B	Beta	Std. Error	F-to-Remove	P-Value
SITE	-5.00692	-0.35373	0.25134	326.839	0.0000
V655	-4.20843	-0.20210	0.36746	131.168	0.0000
000	6.39649	0.14979	0.72877	77.038	0.0000
Constant	19.72869				

Step 4: Variable entered: Diagnosis Code 7821

		Analysis of variance					
Multiple R	0.4174	Source	DF	SS	MSS	F	P
R-Square	0.1743	Regression	4	24732.813	6183.203	155.375	0.0000
Adjusted R Square	0.1731	Residual	2945	117197.693	39.795		
Standard Error	6.3084						

Variables in the model:

Variable	B	Beta	Std. Error	F-to-Remove	P-Value
SITE	-4.98287	-0.35203	0.25008	397.016	0.0000
V655	-4.25407	-0.20430	0.36565	135.359	0.0000
000	6.35114	0.14873	0.72505	76.731	0.0000
7821	-1.07439	-0.09434	0.19082	31.701	0.0000
Constant	19.77343				

TABLE 5 (Continued)

Step 5. Variable entered: 37230

Multiple R	0.4248	Analysis of variance					
R-Square	0.1804	Source	DF	SS	MSS	F	P
Adjusted R-Square	0.1790	Regression	5	25607.420	5121.484	129.619	0.0000
Standard Error	6.2859	Residual	2944	116323.086	39.512		

Variables in the model:

Variable	B	Beta	Std. Error	F-to-Remove	P-Value
SITE	-4.76419	-0.33658	0.25348	353.248	0.0000
V655	-4.26540	-0.20484	0.36435	137.052	0.0000
000	6.34251	0.14852	0.72246	77.072	0.0000
7821	-1.08968	-0.09568	0.19017	32.834	0.0000
37230	-3.57405	-0.08005	0.75966	22.135	0.0000
Constant	19.77660				

Step 7. Variable entered: 7231

Multiple R	0.4318	Analysis of variance					
R-Square	0.1864	Source	DF	SS	MSS	F	P
Adjusted R-Square	0.1845	Regression	7	26462.142	3780.306	96.318	0.0000
Standard Error	6.2648	Residual	2942	115468.364	39.248		

Variables in the model:

Variable	B	Beta	Std. Error	F-to-Remove	P-Value
SITE	-4.46702	-0.31559	0.26209	290.495	0.0000
V655	-4.04185	-0.19410	0.36986	119.424	0.0000
000	6.56973	0.15385	0.72354	82.446	0.0000
7821	-1.08221	-0.09502	0.18959	32.584	0.0000
37230	-3.63657	-0.08145	0.75762	23.040	0.0000
7194	-4.59874	-0.05574	1.38033	11.100	0.0009
7231	1.44304	0.05633	0.44420	10.554	0.0012
Constant	19.54195				

TABLE 5 (Continued)

Step 8. Variable entered: 3820

Multiple R		0.4345
R-Square		0.1888
Adjusted R-Square		0.1866
Standard Error		6.2568

Analysis of variance

Source	DF	SS	MSS	F	P
Regression	8	26797.952	3349.774	85.567	0.0000
Residual	2941	115132.554	39.147		

Variables in the model:

Variable	B	Beta	Std. Error	F-to-Remove	P-Value
SITE	-4.17099	-0.29467	0.28059	220.974	0.0000
V655	-4.06204	-0.19507	0.36945	120.889	0.0000
000	6.55318	0.15346	0.72263	82.238	0.0000
7821	-1.10347	-0.09689	0.18948	33.915	0.0000
37230	-3.94174	-0.08828	0.76378	26.634	0.0000
7194	-4.90391	-0.05944	1.38248	12.582	0.0004
7231	1.41374	0.05519	0.44374	10.150	0.0015
3820	-1.32387	-0.05306	0.45201	8.578	0.0034
Constant	19.55109				
Constant	19.15158				

TABLE 5 (Continued)

Step 9. Variable entered: 401

Multiple R	0.4368	Analysis of variance					
R-Square	0.1908	Source	DF	SS	MSS	F	P
Adjusted R-Square	0.1883	Regression	9	27081.548	3009.061	77.028	0.0000
Standard Error	6.2501	Residual	2940	114848.957	39.064		

Variables in the model:

Variable	B	Beta	Std. Error	F-to-Remove	P-Value
SITE	-4.00865	-0.28320	0.28669	195.508	0.0000
V655	-3.89883	-0.18724	0.37399	108.679	0.0000
000	6.71840	0.15733	0.72446	86.000	0.0000
7821	-1.09453	-0.09611	0.18931	33.428	0.0000
37230	-3.93481	-0.08813	0.76298	26.597	0.0000
7194	-4.89697	-0.05935	1.38102	12.574	0.0004
7231	1.57196	0.06136	0.44714	12.359	0.0005
3820	-1.31694	-0.05278	0.45154	8.506	0.0036
401	1.64382	0.04625	0.61009	7.260	0.0071
Constant	19.38182				

TABLE 5 (Continued)

Step 10. Variable entered: 3814

Multiple R	0.4388	Analysis of variance					
R-Square	0.1926	Source	DF	SS	MSS	F	P
Adjusted R-Square	0.1898	Regression	10	27333.008	2733.301	70.099	0.0000
Standard Error	6.2444	Residual	2939	114597.497	38.992		

Variables in the model:

Variable	B	Beta	Std. Error	F-to-Remove	P-Value
SITE	-3.86188	-0.27283	0.29220	174.677	0.0000
V655	-3.90991	-0.18777	0.37367	109.485	0.0000
000	6.70913	0.15711	0.72380	85.920	0.0000
7821	-1.07689	-0.09456	0.18926	32.375	0.0000
37230	-4.08718	-0.09154	0.76463	28.573	0.0000
7194	-5.04935	-0.06120	1.38104	13.368	0.0003
7231	1.55637	0.06076	0.44677	12.136	0.0005
3820	-1.46931	-0.05889	0.45510	10.424	0.0013
401	1.63823	0.04609	0.60953	7.224	0.0072
3814	-2.07647	-0.04328	0.81767	6.449	0.0111
Constant	19.38742				

TABLE 5 (Continued)

Step 11. Variable entered:

Multiple R	0.4402
R-Square	0.1938
Adjusted R-Square	0.1908
Standard Error	6.2407

Analysis of variance

Source	DF	SS	MSS	F	P
Regression	11	27504.845	2500.440	64.201	0.0000
Residual	2938	114425.661	38.947		

Variables in the model:

Variable	B	Beta	Std. Error	F-to-Remove	P-Value
SITE	-3.77181	-0.26647	0.29516	163.297	0.0000
V655	-3.81902	-0.18340	0.37595	103.190	0.0000
000	6.80113	0.15926	0.72471	88.072	0.0000
7821	-1.07195	-0.09412	0.18917	32.111	0.0000
37230	-4.08300	-0.09145	0.76419	28.547	0.0000
7194	-5.04516	-0.06115	1.38024	13.361	0.0003
7231	1.64449	0.06420	0.44848	13.446	0.0003
3820	-1.46513	-0.05872	0.45484	10.376	0.0013
401	1.73248	0.04875	0.61083	8.044	0.0046
3814	-2.07203	-0.04319	0.81720	6.429	0.0013
250	1.88331	0.03539	0.89660	4.412	0.0358
Constant	19.29316				

TABLE 5 (Continued)

Step 12. Variable entered: 462

Multiple R	0.4413	Analysis of variance					
R-Square	0.1947	Source	DF	SS	MSS	F	P
Adjusted R-Square	0.1914	Regression	12	27638.530	2303.211	59.186	0.0000
Standard Error	6.2382	Residual	2937	114291.975	38.915		

Variables in the model:

Variable	B	Beta	Std. Error	F-to-Remove	P-Value
SITE	-3.86942	-0.27337	0.29970	166.690	0.0000
V655	-3.91752	-0.18813	0.37954	106.541	0.0000
000	6.70143	0.15693	0.72640	85.110	0.0000
7821	-1.07730	-0.09459	0.18911	32.452	0.0000
37230	-4.08753	-0.09155	0.76387	28.634	0.0000
7194	-5.04970	-0.06120	1.37967	13.396	0.0003
7231	1.54899	0.05047	0.45124	11.784	0.0006
3820	-1.46966	-0.05890	0.45465	10.449	0.0013
401	1.63033	0.04587	0.61306	7.072	0.0079
3814	-2.07684	-0.04329	0.81686	6.464	0.0110
250	1.78116	0.03347	0.89792	3.935	0.0474
462	-1.45413	-0.03146	0.78454	3.435	0.0639
Constant	19.39531				

TABLE 5 (Continued)

Step 13. Variable entered: 7840

Multiple R	0.4422	Analysis of variance					
R-Square	0.1956	Source	DF	SS	MSS	F	P
Adjusted R-Square	0.1920	Regression	13	27755.294	2135.023	54.902	0.0000
Standard Error	6.2360	Residual	2936	114175.211	38.888		

Variables in the model:

Variable	B	Beta	Std. Error	F-to-Remove	P-Value
SITE	-3.94705	-0.27885	0.30293	269.768	0.0000
V655	-3.91104	-0.18782	0.37943	106.251	0.0000
000	6.70694	0.15706	0.72616	85.307	0.0000
7821	-1.15956	-0.10182	0.19492	35.391	0.0000
37230	-4.00632	-0.08973	0.76505	27.423	0.0000
7194	-4.96849	-0.06022	1.38000	12.963	0.0003
7231	1.55785	0.06081	0.45112	11.925	0.0006
3820	-1.38846	-0.05565	0.45692	9.234	0.0024
401	1.63391	0.04597	0.61285	7.108	0.0077
3814	-2.00490	-0.04179	0.81764	6.013	0.0142
250	1.78474	0.03354	0.89762	3.953	0.0469
462	-1.45056	-0.03138	0.78428	3.421	0.0645
7840	1.73997	0.03006	1.00414	3.003	0.0832
Constant	19.39173				

TABLE 5 (Continued)

Step 14. Variable entered: V22

Multiple R	0.4427	Analysis of variance					
R-Square	0.1959	Source	DF	SS	MSS	F	P
Adjusted R-Square	0.1921	Regression	14	27811.002	1986.500	51.090	0.0000
Standard Error	6.2356	Residual	2935	114119.504	38.882		

Variables in the model:

Variable	B	Beta	Std. Error	F-to-Remove	P-Value
SITE	-4.33339	-0.30615	0.44264	95.841	0.0000
V655	-3.87517	-0.18610	0.38058	103.679	0.0000
000	6.73805	0.15779	0.72657	86.003	0.0000
7821	-1.15432	-0.10136	0.19495	35.059	0.0000
37230	-3.59854	-0.08060	0.83742	18.466	0.0000
7194	-4.56070	-0.05528	1.42133	10.296	0.0014
7231	1.60560	0.06268	0.45284	12.571	0.0004
3820	-0.98067	-0.03930	0.56991	2.961	0.0854
401	1.65535	0.04658	0.61307	7.291	0.0070
3814	-1.61028	-0.03356	0.88155	3.337	0.0679
250	1.80618	0.03394	0.89773	4.048	0.0443
462	-1.42911	-0.03092	0.78443	3.319	0.0686
7840	2.10491	0.03637	1.04934	4.024	0.0449
V22	0.58288	0.03217	0.48696	1.433	0.2314
Constant	19.37029				

TABLE 5 (Continued)

Step 15. Variable entered: V202

Multiple R	0.4432	Analysis of variance						
R-Square	0.1964	Source	DF	SS	MSS	F	P
Adjusted R-Square	0.1923	Regression	15	27873.717	1858.248	47.802	0.0000
Standard Error	6.2349	Residual	2934	114056.789	38.874		

Variables in the model:

Variable	B	Beta	Std. Error	F-to-Remove	P-Value
SITE	-4.29042	-0.30311	0.44389	93.423	0.0000
V655	-3.79560	-0.18228	0.38566	96.861	0.0000
000	6.81815	0.15966	0.72923	87.419	0.0000
7821	-1.14990	-0.10097	0.19496	34.787	0.0000
37230	-3.56034	-0.07974	0.83788	18.056	0.0000
7194	-4.52251	-0.05482	1.42150	10.122	0.0015
7231	1.68385	0.06573	0.45697	13.578	0.0002
3820	-0.94247	-0.03777	0.57064	2.728	0.0987
401	1.73653	0.04886	0.61633	7.939	0.0049
3814	-1.57301	-0.03279	0.88194	3.181	0.0746
250	1.88736	0.03547	0.89991	4.399	0.0360
462	-1.34794	-0.02916	0.78694	2.934	0.0869
7840	2.13958	0.03697	1.04958	4.156	0.0416
V22	0.62181	0.03431	0.48787	1.624	0.2026
V202	0.89394	0.02168	0.70381	1.613	0.2041
Constant	19.28911				

Variables not in the model:

SITE	CODE	Partial Correlation	Tolerance	F-to-enter
VAR4	V700	0.00930	0.410	0.253
VAR9	340	0.01375	0.932	0.554
VAR11	460	-0.01665	0.912	0.813
VAR12	461	-0.01638	0.940	0.787
VAR22	7245	-0.01417	0.923	0.589
VAR25	7890	0.01432	0.661	0.602

III. CONCLUSION AND RECOMMENDATIONS

Use of the computer for the large number of data entries was essential to this study. There was a great deal of time lost to complete this analysis due to removal of the computer support and associated personnel with the discontinuance of ACDBS. The continued success of such studies is dependent in large part upon computer access. ACDBS project managers will continue to edit and correct deficiencies in the data base and in time, more reliable and meaningful data will emerge.

For the purpose of this study it was proposed that the data would assist in establishing a measure of clinical productivity among family practice physicians for specific diagnoses in outpatient treatment settings. This remains a valid and important objective in continued research on a wider scale and with proper data and access. Due to the wide disparity in data sets, the significant differences in mean encounter times by diagnosis categories and the impact of site upon the analysis, it must be submitted the best result of this study would be to propose individual standards. Individual standards by site would not answer the overshadowing concern that this would not be tolerated by AMEDD leadership. Certainly, some standards would apply universally in reporting encounter times for comparison purposes.

The reduction of n to include only the twenty most frequently observed diagnosis categories at only two sites may have preculded a more revealing study. Given several month's worth of data, a greater diversity of sites and a dedicated computer operator/programmer, this could have eliminated the discrepancies of such a focused study. A large part of the problem may be due to the differing case loads at each site. Fort Polk had four times the patient load assigned to each of their family practice physician panels as did Fort Campbell. When demand is not otherwise discouraged, often the provider pushes him or herself to see all patients who present each day. Even the most reliable controls on access in a limited resources clinic environment do not preclude patients seeking care from walking into the clinic unannounced.

Questions yet unanswered include what environmental factors impact on provider productivity that were not captured in the model. Are there other historical or traditional values that were not apparent in the study, yet held by providers, that the data comparison was not successful? Newer, more comprehensive approaches to provider productivity studies may be able to take these effects into account through a provider survey, done before, during and after the data collection. The rapid increase in computer programs that can capture, analyze and predict on an on-line basis appears to be just over the horizon for many in the civilian sector. Most recently, relative value scales have become a means to focus on productivity and the resources utilized per episode of care. The narrow concentration in this study did not include other specialties which are primary care providers. Case mix analysis and cross comparison with internal medicine and pediatrics would have also proven revealing on a productivity level for the same diagnosis. It may yet have an impact on productivity monitoring in the ambulatory care setting, but for the purposes of this study, there remains too much unanswered variation and too much variation attributable to individual site. To attempt to state an acceptable standard on the basis of this study is not possible.

APPENDIX A

CHARACTERISTICS, STRENGTHS AND WEAKNESSES OF PUBLISHED PATIENT CLASSIFICATION SYSTEMS

PATIENT CLASSIFICATION AND DATA COLLECTION SYSTEMS

1. System: Diagnosis Related Groups

Developed at Yale University in New Haven, Connecticut, and under direction of Robert Feter, PhD, with a grant from the Health Care Financing Administration (HCFA), they have been revised using International Classification of Diseases 9-Coding Manual (ICD-9-CM). The use of ICD-9-CM codes as the basis of most systems is due to their proven ability and understandability by clinicians, and general wide use and applicability in health care. The ICD-9-CM DRG's start with 23 major diagnostic categories (MDCs) groupings based on organ systems, then each MDC is divided into several diagnosis related groups (DRGs). Originally intended as a tool for utilization review, DRGs were designed to be medically homogeneous patient groups in terms of length of inpatient stay. (Fetter, Shin, Freeman, Averill & Thompson, 1980)

DRGs present the following strengths:

-- MDCs based on organ systems parallel medical practice specialties.

-- DRGs are readily available and now widely used and tested.

Weaknesses of DRGs include:

-- The ability of Length of Stay and charge data used in development of DRGs to reflect accurate hospital costs is questioned by hospitals.

-- Severity or stage of illness is not explicitly considered.

-- DRGs are based on historical data, i.e., a resource consumption pattern that did occur may not be indicative of what is occurring or what should occur.

-- A DRG assigned at discharge of the patient, after treatment has been provided limits its usefulness as a tool for concurrent management.

-- It is most useful in an inpatient setting.

2. System: Disease Staging

Developed by Dr. Joseph Gonella, Dean, Jefferson Medical College, Philadelphia, Pennsylvania, in conjunction with SysteMetrics, Inc., Santa Barbara, California, used 23 physician consultants assisting in specification of the medical staging criteria. It was designed as a tool to evaluate quality of patient care by grouping patients in accordance with similar disease-specific severity.

Disease Staging begins with 418 disease categories to describe hospitalized patients, and separates each disease category into four stages of increasing severity from no complications through death. Specific parameters apply to each stage of the disease category, and each substage. (Gonnella, 1983)

Disease Staging presents the following strengths:

-- Pre-existing data from medical record abstracts can be used for computerized staging, or more detailed clinical data can be used for manual staging.

-- Disease Staging groups are medically meaningful, organized in a fashion familiar to physicians.

-- Disease-specific, severity-adjusted groups are homogenous in terms of clinical characteristics and may be useful in defining expected treatment patterns.

Weaknesses of Disease Staging Systems include:

-- A disease specific measure of severity is more difficult to integrate with other systems than a generic severity system.

-- The computerized version had to trade off some accuracy due to ICD-9-CM limitations which result in occasional understatement of staging.

-- The system relates again to inpatient rather than outpatient care.

3. System: Severity of Illness Index

Research was conducted by Susan D. Horn, PhD, Associate Professor, Center for Hospital Finance and Management, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Maryland, funded in part by HCFA and Pew Memorial Trust and the John A. Hartford Foundation. The Severity of Illness Index is a generic (not disease specific) measure of patient severity based on assessment of the total burden of illness of a patient presenting to the hospital. The index is useful in predicting patient resource use as defined by length of stay and charges. The system may be integrated into DRGs and other disease-specific patient grouping systems, but is assigned manually. It has been used to explain variances in physician practice patterns by examining the severity level of patients treated. (Horn, Chachich and Clapton, 1983)

The Severity of Illness Index is noted for these strengths:

-- The system is independent of pre-existing abstract data based on diagnosis.

-- As a diagnosis-independent system, it may be easily integrated with other pre-existing case mix systems such as DRGs.

Major weakness include:

-- Its methodology makes it a tool specifically applicable to inpatient studies, and unsuitable for us in the ambulatory area.

-- Scoring may be too subjective, relying on a rater assessing all seven available variances and also determining an overall score.

-- The variable of "dependency on hospital staff" and "extent of non-operating room procedures" may be criticized as circular logic.

-- Completion of a separate analysis and work sheet on each patient adds a function to chart completion and may make it expensive and time consuming.

4. System: Medical Illness Severity Grouping System (MEDISGRPS)

Dr. Alan C. Brewster, St. Vincent Hospital, Worcester, Massachusetts originated the concept of MEDISGRPS with MediQual Systems, Inc., a software company in Westborough, Massachusetts, and Chicago, Illinois. MEDISGRPS are diagnosis-independent severity groupings, based on evaluation of objective clinical findings and are designed to facilitate measurement of the effectiveness of hospital and physician services by controlling for initial severity. The system groups patients according to severity of admitting clinical findings or injury (Review 1) and may also be used to evaluate severity again as the hospital stay proceeds (Review 2).

MediQual asserts that the system assists the health care consumers in identifying effective and efficient providers. It may also serve as a medical abstract system when used concurrently. Each clinical finding has a predetermined weight on its expected relationship to increasing or advanced illness. (Brewster, Jacobs & Bradbury, 1984)

Relative strengths of MEDISGRPS include:

-- Objectivity is based on actual test results rather than on a scorer's assessment of the medical record.

-- The severity score determined at admission measures severity of condition, not adequacy or inadequacy of hospital treatment.

-- Data entered at specific points during stay can be compared with admission data. Practice patterns can be analyzed preliminarily without returning to the medical record.

-- MEDISGRPS can be used to evaluate the clinical need for medical treatment provided, given the objective findings incorporated in the system.

-- MEDISGRPS may be integrated with DRGs.

Some weaknesses noted in MEDISGRPS are:

-- Positive results of tests prior to admission may not be entered into the system.

-- Required entry of data not routinely collected may be time consuming and expensive.

5. System: Patient Management Categories (PMCs)

The system was originally initiated by Blue Cross of western Pennsylvania, Pittsburgh, under the direction of Alanda Young, ScD, Vice President of Health Care Research, under a grant from HCFA. Panels of physician advisors were used to define patient categories and specify management strategies for each category. Cost data were collected from six western Pennsylvania hospitals and analyzed to develop relative cost weights for each Patient Management Category (PMC).

PMC's were developed to define patient types, or products, treated by hospitals and to identify the relative costs of producing those products. The system was designed for cost analysis and for use in hospital reimbursement.

PMC systems are computerized to be used with currently available hospital discharge abstract data. Work is in progress to extend the

PMC's to include ambulatory cases. Currently, 800 PMCs include specified typical management strategies for each category. (Young, 1984)

PMCs exhibit the following strengths:

-- The PMC system is based on effective management strategies developed by a physician panel, not just on an average of actual treatment experience.

-- Severity of illness distinctions are incorporated in the design and definitions of categories. Diagnosis sequencing (principle versus secondary) is irrelevant.

-- Specific comorbid disease combinations are identified and cost-weight adjustments are made for increased resource use of patients with comorbid conditions.

-- Cost, not charge, data are used to determine costs of care.

-- Categorization software can be applied to any database compatible with Uniform Hospital Discharge Data Set (UHDDS).

Weakness of PMC:

-- Only one PMC assignment is permitted within a disease or disorder group. Thus, the number of PMC assignments made is dependent on the definition of disease and disorder groups.

-- The approximately 125 physicians from one geographical area (western Pennsylvania) who were involved in the development of the system may be considered too small a group for establishing care components for diagnosis and treatment. This does not, however, affect the categorization, which may be used as a framework for subsequent analyses.

-- The large number of groups (800) may be cumbersome for management use. Many cells may be empty for smaller hospitals.

6. System: Diagnosis Clusters

Diagnosis clusters were developed at the University of Washington, Seattle, under the direction of Ronald Schneeweiss, MB. Research was funded by the Robert Wood Johnson Foundation.

Clusters were developed as a tool to facilitate comparison of ambulatory practice patterns across differing providers. They are intended to reduce the large number of individual diagnosis codes to a more manageable system of diagnosis clusters.

Diagnosis Clusters begin with diagnosis codes from any of a variety of coding schemes (International Classification of Diseases, ICDA-8, ICDA-9, ICD-9-CM, and also International Classification of Health Problems in Primary Care [ICHPPC, ICHPPC-2]. Related diagnosis codes are then aggregated into clusters. Clusters are determined with the purpose in mind of maintaining clinical consistency with clusters. Clusters were submitted to a panel of 15 physicians for review and modification. Data from a key study, the National Ambulatory Medical Care Survey (NAMCS) 1977 to 1978 and the University of Southern California Medical and Manpower study (USC/MAMP) 1977, were used in the development process, to verify the frequency of occurrence of various diagnoses. Ninety-two clusters were formed, representing 86% of all diagnoses recorded in the NAMCS file. Fifteen clusters represented 50% of all diagnoses recorded. They provide an excellent framework for classification of ambulatory cases, although they are too broad for detailed comparative analysis. They are being used as the basis for revising the Ambulatory Patient Related Groups developed at Yale University and are likely to be used in the development of other similar systems. (Schneeweiss, et al., 1983)

Diagnosis clusters strengths:

-- Diagnosis clusters provide a framework for additional analyses of ambulatory practice patterns.

-- This sytem aggregates available codes, thereby creating a manageable number of groups.

-- The impact of individual providers coding idiosyncracies reduces the aggregation of codes.

-- Consumer groups could use the system to compare the cost and efficiency of ambulatory care across providers.

-- The system can be used with a variety of diagnosis coding schemes.

Weaknesses of Diagnosis Clusters.

-- Only diagnosis is taken into account, disregarding differences in patient demographics or required treatment (e.g., medical vs. surgical cases).

-- Severity of illness is not accounted for.

-- The group clusters may be too broad for accurate comparison of treatment patterns.

-- Clusters are based on one diagnosis only. Multiple diagnoses are not accounted for.

-- Clusters are not all-inclusive; the 92 clusters developed account for 86% of diagnoses recorded in the development database.

7. System: Ambulatory Patient Related Groups (APGs) [New in their second generation, known as Ambulatory Visit Groups (AVGs).]

APGs were developed at Yale University under Robert B. Fetter, PhD, under a project funded by HCFA, the second HCFA grant is funding their revision. (Fetter, et al., 1984)

APGs were designed to classify ambulatory patients into homogeneous groups in terms of the patterns of services required for care, to facilitate comparative analysis of practice patterns across different providers. Revision is going to involve the use of Ambulatory Diagnosis Clusters, developed at the University of Washington, Seattle, as a base structure.

APGs are based on the DRG concept developed at Yale, and the revisions, when complete are likely to seriously interest government and third-party (private) payers as a method for ambulatory care payment. The second generation of APGs titled Ambulatory Visit Groups (AVGs) uses data collected from the 1979 NAMCS. AVGs meet most criteria for being a successful classification and data collection system.

Strengths of the APGs/AVGs:

-- The system contains a manageable number of medically meaningful groups (19 major diagnostic categories similar to the format of DRGs and 571 groups) and encompasses ambulatory surgery and tertiary high technology specialties as well as ambulatory care are being evaluated now under the new AVG concept (Lion, et al., 1987).

-- Designed with major physician input, AVGs seem to have clinical relevance and face validity.

-- Clinically forward-looking, the AVGs have also allowed for groups for acquired immune deficiency syndrome (AIDS) and for certain high technology procedures, or continuous I.V. therapy among other areas which are shifting away from inpatient to outpatient settings.

-- Although initially designed to measure resource costs in terms of physician time, they actually work much more comprehensively from a clinic point of view using total provider time or, optimally, total direct resource use associated with the visit.

Weaknesses noted for APGs/AVGs:

-- Groupings have not yet been statistically examined for physician time as a management tool.

-- There is a remaining difficulty in determining who is a new patient as opposed to a newly referred patient or an established patient.

-- AVGs do not as yet allow for the more complicated patient, especially one with a secondary diagnosis (i.e., both hypertension and diabetes).

8. System: Ambulatory Care Data Base System (ACDBS)

The ACDB study was performed under the ambulatory portion of the Tri-Service Performance Measurement Study (PMS). The purpose of the PMS is to develop an alternative measure for military medical work units. Outpatient data was collected in over 70 clinical specialties at six medical facilities during a two-year period using optical mark sense technology and is stored in a central data base at Ft. Detrick, Maryland. A total of 3,108,741 patient encounters were captured. Forty-four clinic encounter variables include: diagnoses, procedures performed, time spent with patient, type of provider, place of visit. Fourteen patient demographic variables and seven health care provider variables were also captured. Reliability of data was verified by a manual review of data collected against the medical record entries for 9,015 patient encounters at six sites. Analysis of data will be covered in subsequent reports.

ACDBS System Strengths:

-- Designed after review of previous efforts to examine ambulatory care data by civilian sources, and with maximum physician input so as to have utmost clinical relevance.

-- Using pencil-coded forms and automated scanning equipment, over three million total encounters were recorded for a substantial data base.

-- Separate clinical specialties can be examined by extracting only data recorded for their patient recording form. Physicians can have a personal report by requesting a printout for their individual use.

-- Provides valuable input for development of a military Management Information System (MIS) designated as the Composite Health Care System (CHCS).

-- Major resources utilized in the individual encounter can be traced and a better resource allocation scheme composed of case mix and human resources management may be developed.

-- Utilizes established ICD-9-CM and CPT-4 coding as a basis of comparison for accurate epidemological data.

ACDBS System Weaknesses:

-- Health care providers were asked to complete responses on diagnosis, procedures and time associated with the patient encounter. Frequently a provider failed for whatever reason to enter a pencil entry in the field for diagnosis or time. When the form was sent back for correction, often the NO PROBLEM NOTED option was marked, negating the value of this diagnosis. Some forms likewise lacked coding for the time spent with patient.

-- The primary care optical mark sense data collection form was a consolidation of diagnoses and procedures from the Emergency Room (ER), Troop Medical Clinic (TMC), the Acute Minor Illness Clinic (AMIC) and the Battalion Aid Station (BAS) making it a long, two page form, and somewhat cumbersome to fill out.

APPENDIX B

OUTPATIENT REGISTRATION FORM

OUTPATIENT REGISTRATION FORM

WELCOME!

The Army has started a system to automatically count patient visits and services. Please assist us by completing this form carefully - A SEPARATE FORM WILL BE FILLED OUT FOR EACH ELIGIBLE FAMILY MEMBER THE FIRST TIME THEY COME IN FOR TREATMENT. Use #2 pencil only and fill bubbles completely. Please write in both the appropriate number or letter and fill in the corresponding bubble (as shown in example below). The machine that reads this form only reads the bubbles. However, it is possible to make an error in marking bubbles. If this happens we can cross check and make corrections from your written entries. Carefully look at the example and then follow the arrows to each block and fill out both sides of the form completely.

EXAMPLE

WRITE →

If the date is Feb. 2, 1985, fill in the box as illustrated.

BUBBLE →

DATE				
DAY		MONTH	YEAR	
0	2	Jan	8	5
	0	Feb	0	0
1	1	Mar	1	1
2		Apr	2	2
3	3	May	3	3
	4	Jun	4	4
	5	Jul	5	
	6	Aug	6	6
	7	Sep	7	7
	8	Oct		8
	9	Nov	9	9
		Dec		

TODAY'S DATE

DAY		MONTH	YEAR	
		Jan		
		Feb		
0	0	Mar		0
1	1	Apr		1
2	2	May		2
3	3	Jun		3
	4	Jul		4
	5	Aug		5
	6	Sep		6
	7	Oct		7
	8	Nov	8	8
	9	Dec	9	9

PATIENT'S BIRTHDATE

DAY		MONTH	YEAR	
		Jan		
		Feb		
0	0	Mar	0	0
1	1	Apr	1	1
2	2	May	2	2
3	3	Jun	3	3
	4	Jul	4	4
	5	Aug	5	5
	6	Sep	6	6
	7	Oct	7	7
	8	Nov	8	8
	9	Dec	9	9

GENDER

Male Female

RACE

- Am. Indian/Alaskan Native
- Asian/Pacific Islander
- Black/Not Hispanic Origin
- Black/Hispanic Origin
- White/Not Hispanic Origin
- White/Hispanic Origin
- Unknown

PRIVACY ACT STATEMENT - AMBULATORY CARE DATABASE

THIS FORM IS NOT A CONSENT FORM TO RELEASE OR USE HEALTH CARE INFORMATION PERTAINING TO YOU.

1. AUTHORITY FOR COLLECTION OF INFORMATION INCLUDING SOCIAL SECURITY NUMBER (SSN)

Sections 133,1071-87, 3012, 5031 and 8012, title 10, United States Code, title 5, United States Code, and Executive Order 9397

2. PRINCIPAL PURPOSES FOR WHICH INFORMATION IS INTENDED TO BE USED

This form provides you the advice required by The Privacy Act of 1974. The personal information will facilitate and document your health care. The Social Security Number (SSN) of member or sponsor is required to identify and retrieve health care records.

3. ROUTINE USES

The primary use of this information is to provide, plan and coordinate health care. As prior to enactment of the Privacy Act, other possible uses are to: Aid in preventive health and communicable disease control programs and report medical conditions required by law to federal, state and local agencies; compile statistical data; conduct research; teach; determine suitability of persons for service or assignments; adjudicate claims and determine benefits; other lawful purposes, including law enforcement and litigation; conduct authorized investigations; evaluate care rendered determine professional certification and hospital accreditation; provide physical qualifications of patients to agencies of federal, state, or local government upon request in the pursuit of their official duties.

4. WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION

In the case of military personnel, the requested information is mandatory because of the need to document all active duty medical incidents in view of future rights and benefits. In the case of all other personnel/beneficiaries, the requested information is voluntary. If the requested information is not furnished, comprehensive health care may not be possible, but CARE WILL NOT BE DENIED. Disclosure of Social Security Number (SSN) is mandatory

This all inclusive Privacy Act Statement will apply to all requests for personal information made by health care treatment personnel or for medical/dental treatment purposes and will become a permanent part of your health care record

Your signature merely acknowledges that you have been advised of the foregoing. If requested, a copy of this form will be furnished to you

SIGNATURE OF PATIENT OR SPONSOR:	DATE:
X ______________________	______________

PLEASE ANSWER QUESTIONS 1, 2, AND 3

1. Are you currently eligible for health care from the Veteran's Administration? — Yes / No / Don't know
2. Do you currently have private health care insurance? — Yes / No
3. Are you currently a basic trainee or on TDY for less than 60 days? — Yes / No / Not applicable

ZIP CODE

Write in your 5 digit zip code number and fill in the corresponding bubble of your current residence. If you live in BOQ, BEQ or barracks write in your unit zip code.

0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

PLEASE TURN FORM OVER AND COMPLETE THE APPROPRIATE SECTIONS ON THE BACK

723005

DO NOT MARK IN THIS AREA

NCS Trans-Optic EP01-21077.3 A6300

CAREFULLY READ THE INSTRUCTIONS FOR EACH OF THE THREE SECTIONS TO DETERMINE WHICH SECTIONS YOU ARE TO COMPLETE
REMEMBER: Write in the number or letter and fill in the corresponding bubble

SECTION 1: EVERYONE MUST COMPLETE THIS SECTION

STATUS

MARK EACH STATUS BUBBLE THAT APPLIES TO YOU

1 Active Duty
2 Reserve-Initial Entry Tng
3 Reserve IDT/AT/ADT
4 NG Initial Entry Tng
5 NG IDT/AT/ADT
6 USMA Cadet
7 ROTC Cadet/Applicant

8 Depn Active Duty
9 Retired Service member
10 Depn Retired/Deceased

11 Civilian Employee
12 Civilian Employee in preemployment status

OR

13 None of the above (Ask clinic staff for help)

MARK ONE

SPONSOR'S BRANCH OF SERVICE

- Army
- USAF
- Navy
- Marines
- Coast Guard
- USPHS
- Other (Ask clinic staff for help)

SERVICE PERSON OR SPONSOR'S SSN

WRITE →

BUBBLE →

0 1 2 3 4 5 6 7 8 9 (9 columns)

SECTION 2: ONLY ARMY personnel currently on AD or in training. (Includes USAR and ARNG)

PAY GRADE

OFF O
WO WO
ENL E

1 2 3 4 5 6 7 8 9 10

UNIT ID CODE (UIC)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 0 1 2 3 4 5 6 7 8 9 (6 columns)

DEPENDENTS AND RETIREES DO NOT USE

DO YOU HAVE AN MOS/SSI?
YES NO
(IF YES WRITE IT IN AND BUBBLE IN BELOW)

CAREFUL!!! Warrant Officers require 3 numbers for MOS/SSI. . . . Others place a zero (0) before the 2 numbers of your MOS/SSI.

DUTY MOS/SSI

0 1 2 3 4 5 6 7 8 9 (3 columns)
A B C D E F G H I / J K L M N O P Q R / S T U V W X Y Z

SECTION 3: To be filled out by CIVILIAN employees and PREEMPLOYMENT CIVILIANS ONLY. This includes CIVILIAN employees who are also DEPENDENTS or RETIREES.

YOUR OWN SSN

WRITE →

BUBBLE →

0 1 2 3 4 5 6 7 8 9 (9 columns)

YOUR RATING

- GS
- GM
- WG
- WL
- WS
- NAF
- Contract
- Other

PAY GRADE

0 1 2 3 4 5 6 7 8 9 (2 columns)

CIVILIAN OCC. SERIES

0 1 2 3 4 5 6 7 8 9 (4 columns)

BUILDING NUMBER

0 1 2 3 4 5 6 7 8 9 (4 columns)

FOR STAFF USE ONLY

FMP

0 1 2 3 4 5 6 7 8 9 (2 columns)

PATIENT CATEGORY

0 1 2 3 4 5 6 7 8 9 (2 columns)

FOREIGN NATIONAL COUNTRY CODE

0 1 2 3 4 5 6 7 8 9 (3 columns)

APPENDIX C

PROVIDER REGISTRATION FORM

PROVIDER REGISTRATION FORM

- [illegible]
- cleanly erase any marks you wish to change.
- make dark marks that fill the ovals completely.

CORRECT MARK ● INCORRECT MARKS ✓ ✗ ⊙ ⊖

TYPE REPORT

Initial
Change
PCS/Closeout

WRITE →
BUBBLE →

TODAY'S DATE

DAY		MONTH	YEAR	
		Jan		
		Feb		
0	0	Mar		0
1	1	Apr		1
2	2	May		2
3	3	Jun		3
	4	Jul		4
	5	Aug		5
	6	Sep		6
	7	Oct		7
	8	Nov	8	8
	9	Dec	9	9

CATEGORY

Officer
Warrant Officer
Enlisted
Civilian (DAC)
Contract
Consultant
Other

MILITARY

BRANCH OF SERVICE

Army
Air Force
Navy
Marines
Coast Guard
PHS
Other

PAY GRADE

E 1 2
O 3 4
W 5 6 7 8 9

DA CIVILIAN

PAY GRADE		CIVILIAN OCC. SERIES			
0	0	0	0	0	0
1	1	1	1	1	1
	2	2	2	2	2
	3	3	3	3	3
	4	4	4	4	4
	5	5	5	5	5
	6	6	6	6	6
	7	7	7	7	7
	8	8	8	8	8
	9	9	9	9	9

LAST NAME | FIRST NAME | MI

(Each column: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z)

SOCIAL SECURITY NO.

(Each column: 0 1 2 3 4 5 6 7 8 9)

STATUS

Permanent staff this MTF
All others

PROVIDER POSITION

CDR/DCCS
Chief Dept./Svc
Fellow
Resident
Intern
Nurse Pract.
Nurse Clin.
NCOIC
Student
All others

MILITARY SPECIALTY DESIGNATOR

ARMY DUTY MOS

SSI
ASI
OFF
ENL

(Number columns: 0 1 2 3 4 5 6 7 8 9; letter columns: A J S, B K T, C L U, D M V, E N W, F O X, G P Y, H Q Z, I R)

AIR FORCE AFSC

(Number columns: 0 1 2 3 4 5 6 7 8 9; letter columns: A J S, B K T, C L U, D M V, E N W, F O X, G P Y, H Q Z, I R)

NAVY NOBC/NEC

(Number columns: 0 1 2 3 4 5 6 7 8 9; letter columns: A J S, B K T, C L U, D M V, E N W, F O X, G P Y, H Q Z, I R)

COMPLETE REVERSE SIDE →

DO NOT MARK IN THIS AREA 21934

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PRIVACY ACT STATEMENT
AMBULATORY CARE DATA BASE

THIS FORM IS NOT A GENERAL CONSENT FOR RELEASE OF PERSONAL INFORMATION.

1. AUTHORITY FOR COLLECTION OF INFORMATION INCLUDING SOCIAL SECURITY NUMBER (SSN).

Sections 133, 1071-87, 3012, 5031, and 8012, title 10, United States Code, title 5, United States Code, and Executive Order 9397.

2. PRINCIPAL PURPOSES FOR WHICH THIS INFORMATION IS INTENDED TO BE USED.

The personal information will facilitate and document your health care accomplishments. The social security number (SSN) of each provider is required in order to interpret the provider codes on encounter forms. The other information is required for demographic and/or administrative purposes.

The data collected for this study will support a number of provider benefits: periodic summary reports to each provider, data for peer review, certification and retrospective chart audits, opportunities to document uncaptured workload, documentation of multi-provider encounters, and collection of UCA and MED 302 input from a single, common, and reliable source.

3. ROUTINE USES.

The primary use of this information is to provide, plan, and coordinate health care delivery. Possible uses of these ambulatory care data are in: conducting preventive health and communicable disease control programs, compiling statistical data, conducting research, teaching, conducting authorized clinical investigations, and determining eligibility for individual professional certification and hospital accreditation.

4. WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY.

In the case of military and civilian health care providers, the requested information, including SSN, is mandatory in order to document all ambulatory care encounters in this facility, as directed by OTSG.

Your signature merely acknowledges that you have been advised of the foregoing. If requested, a copy of this form will be furnished to you.

SIGNATURE: ______________________ DATE: ____________

APPENDIX D

PRIMARY CARE PATIENT FORM

PRIMARY CARE PATIENT

PATIENT

TODAY'S DATE

DAY	MONTH	YEAR

SPONSOR'S SSN

PATIENT INFORMATION

FMP | BIRTHDATE (DAY, MONTH)

ADMINISTRATION

UCA DATA

CLINIC CODE | INPATIENT OR REFERRAL CODE

PLACE OF VISIT

Clinic/Office
Ward
Telephone
Home
Other

MARK ONLY ONE

APPOINTMENT STATUS

Scheduled
Unscheduled
Emergency

MARK ONLY ONE

STATUS OF VISIT

1. Patient seen this clinic last 12 months?

Yes
No

2. Patient being seen for new problem?

Yes
No

REFERRALS AND SUPPLEMENTAL DISPOSITION

Referred to other clinic
Referred to VA
Referred to other Fed. Fac.
Referred to civilian provider
Referred to civ. Health Dept.

MARK ONLY ONE

INSTRUCTIONS

- DO NOT use ink or ballpoint pen
- Make each mark heavy and black
- Fill ovals completely
- Erase cleanly any mark you wish to change
- Make no stray marks.

ONLY ACCEPTABLE MARK

DO NOT MARK IN THIS AREA

081024

MARK ONE PRIMARY DIAGNOSIS [illegible] VISIT AND ONE SECONDARY IF APPLICABLE

INFECTIOUS & PARASITIC

GU SYSTEM

RESPIRATORY

EENT

FEMALE/GYN

DIGESTIVE

MARK ONE PRIMARY DIAGNOSIS OR REASON FOR VISIT AND ONE SECONDARY (IF APPLICABLE)

Dx 1°	Dx 2°	

[illegible]

SKIN & SUBCUTANEOUS

[illegible]

P&N

[illegible]

CV & LYMPH SYSTEM

[illegible] BLOOD PRESSURE CHECK*

[illegible] LYMPH NODES ENLARG, NOT INF

4439 PERIPHERAL VASCULAR DISEASE

[illegible]

BLOOD

[illegible] ANEMIA, IRON DEFICIENCY

[illegible] ANEMIA, SICKLE CELL

[illegible] ANEMIA, UNSPECIFIED

[illegible] OTHER HEMATOLOGICAL ABNORMALITY

MS-CONNECTIVE

ARTHRITIS & ARTHRITIS

[illegible] INFECTIOUS ARTHRITIS

[illegible] JOINT EFFUSION

[illegible] OSTEOARTHRITIS

7194 PAIN IN JOINT, ARTHRALGIA

7195 STIFFNESS IN JOINT

ARTHRITIS

NONARTICULAR RHEUMATISM

7260 ADHESIVE CAPSULITIS, SHOULDER

7273 BURSITIS

7270 TENOSYNOVITIS, SYNOVITIS

VERTEBRAL COLUMN SYNDROMES

7245 BACK PAIN W/O RADIAT SYMPT*

7244 BACK PAIN W/ RADIATING SYMPT

7231 NECK PAIN* (CERVICAL)

7295 EXTREMITY PAIN (LE 7)

7298 EXTREM PAIN NOT JOINT (LE 9)*

72741 GANGLION OF JOINT

72742 GANGLION OF TENDON SHEATH

717 INTERNAL DERANGEMENT KNEE

7291 MUSCLE ACHES*

SPRAIN/STRAIN

8450 ANKLE

8470 CERVICAL

8479 BACK

84891 JOINT LIGAMENTS

84892 MUSCLES & TENDONS

[illegible] OTHER

72889 MUSCULOSKELETAL PROBLEM, OTHER

DISLOCATION, SUBLUXATION

[illegible] ARM

[illegible] ELBOW

[illegible] FINGER

[illegible] METACARPAL

[illegible] PATELLA

[illegible] SHOULDER

[illegible] TOE

[illegible] WRIST

[illegible] OTHER

FRACTURES (CLOSED)

[illegible]

82525 TARSAL

[illegible]

GENERAL SIGNS & SYMPTOMS

796 ABNORMAL CLINICAL FINDINGS

7809 CHILLS*

7808 EXCESSIVE SWEAT (HYPERHIDROSIS)

7806 FEVER OF UNDETERMINED CAUSE*

7807 MALAISE, FATIGUE, TIREDNESS*

7822 MASS & LOCAL SWELLING

7832 WEIGHT LOSS, ABNORMAL

79983 WEAKNESS*

ADVERSE EFFECTS

9952 ADVERSE EFFECT MED PROPER DOSE

30500 ALCOHOL ABUSE, UNSPEC

9953 ALLERGIC REACTION, NOS

9950 ANAPHYLAXIS

1995 CANCER COMPLICATION ALL SITES

9919 COLD INJURY, NOS

29101 DELIRIUM TREMENS

9913 FROSTBITE*

9929 HEAT INJURY*

9914 IMMERSION FOOT*

TOXICOLOGIC PROBLEMS

9882 BERRIES/PLANTS

989 CHEMICALS

9879 FUMES INHALATION

977 OVERDOSE, ACCIDENTAL

9776 OVERDOSE, SUICIDE ATTEMPT

OTHER TRAUMAS

919 ABRASION, SCRATCHES*

AMPUTATION

8879 ARM

886 FINGER

8960 FOOT

8974 LEG

8878 HAND

8950 TOE

87995 BITE, ANIMAL

87595 BITE, HUMAN

9160 BITE, NON-VENOMOUS SNAKE

9895 BITE, VENOMOUS SNAKE

BURN, THERMAL

94971 < 5% BODY SURFACE AREA

94972 6-15% BODY SURFACE AREA

94973 > 16% BODY SURFACE AREA

9496 BURNS, CHEMICAL (ALL SITES)

949 BURNS, UNSPECIFIED *

850 CONCUSSION

9249 CONTUSION, ALL SITES

9299 CRUSHING INJURY

7296 FOREIGN BODY IN TISSUE

98954 INSECT BITES*

LACERATION

8799 COMPLEX

87991 SIMPLE (< 2 inch)

87992 SIMPLE (> 2 inch)

8798 LACERATION (UNSPEC)*

9598 MULTIPLE TRAUMA

869 MULTIPLE TRAUMA, EXTREME INTERNAL

95990 SEXUAL ASSAULT

95991 SUICIDE ATTEMPT

WOUND

87987 PUNCTURE

87968 STAB

87989 GUNSHOT

SUPPLEMENTARY CLASSIFICATION

V610 FAMILY DISRUPTION

V6110 MARITAL PROBLEM

V700 MEDICAL EXAM

V6120 PARENT/CHILD PROBLEM

V7051 POR QUALIFICATIONS*

V681 PRESCRIPTION REFILL*

V05 PROPHYLACTIC IMMUNIZATION*

V6811 REQ FOR NON PRESCRIP MED*

V624 SOCIAL MALADJUSTMENT

V583 SUTURE REMOVAL*

V655 NO PROBLEM NOTED

JOB RELATED ILL/INJ (NOT LOD DET)

( ) Yes ( ) No

UNLISTED DX
(If not listed in columns above)

PRIMARY DX						SECONDARY DX					
V	0	0	0	0	0	V	0	0	0	0	0
	1	1	1	1	1		1	1	1	1	1
5	2	2	2	2	2	5	2	2	2	2	2
	3	3	3	3	3		3	3	3	3	3
	4	4	4	4	4		4	4	4	4	4
	5	5	5	5	5		5	5	5	5	5
	6	6	6	6	6		6	6	6	6	6
	7	7	7	7	7		7	7	7	7	7
	8	8	8	8	8		8	8	8	8	8
	9	9	9	9	9		9	9	9	9	9

EVALUATION/SERVICES/PROCEDURES (MARK AS MANY AS APPLICABLE)

- [illegible] ANESTHESIA [illegible]
- [illegible]
- [illegible] ARTERIAL PUNCTURE
- [illegible] ARTHROCENTESIS [illegible] JOINT
- 20610 ARTHROCENTESIS LARGE JOINT
- 20600 ARTHROCENTESIS SMALL JOINT
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible] CAST APPLICATION
- 17250 CHEMICAL CAUTERIZATION
- [illegible] CERVICAL STAIN
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible] EAR IRRIGATION
- [illegible]
- [illegible] ELECTROCAUTERIZATION
- [illegible] ELECTRODESICCATION
- [illegible] ENDOTRACHEAL INTUBATION (NASAL)
- [illegible]
- [illegible] NAIL & MATRIX
- [illegible] EYE IRRIGATION
  FOREIGN BODY REMOVAL
- [illegible] CORNEAL
- [illegible] EXTERNAL EAR W/O GEN ANESTHESIA
- [illegible] INTRANASAL
  [illegible]
- [illegible]
- [illegible]
- [illegible] GASTRIC LAVAGE
- 90014 HEARING SCREENING
- 85014 HEMATOCRIT (DRAW/SPIN READ)
- 46320 HEMORRHOID [illegible]
- 10060 I&D ABSCESS
- 10020 I&D BOIL CARBUNCLE
- 10081 I&D CYST
- 10062 I&D FELON
- 10140 I&D HEMATOMA
- 10060 I&D SEBACEOUS CYST
- 90745 INJEC/OBSERV (ALLERGY/IMM)
- 90798 INJECTION ANTIBIOTIC
- 99091 INPROCESS MED REC SCREEN
- 36000 IV START
- 87220 KOH PREP
- 31515 LARYNGOSCOPY
- 62270 LUMBAR PUNCTURE
- 27199 MANIPULATION (NOT SPINE/PELVIS)
- 27195 MANIPULATION PELVIS
- 22197 MANIPULATION SPINE
- 99163 MULT TRAUMA RESUSC (TEAM LEADER)
- 11740 NAIL TREPHINATION
- 30901 NASAL PACKING/CAUTERY
- 99157 NURSE/PATIENT COUNSELING
- 92100 OCULAR TONOMETRY
- 49080 PARACENTESIS
- 33010 PERICARDIOCENTESIS
- 33020 PERICARDIOTOMY
- 49420 PERITONEAL DIALYSIS
- 99068 PERITONEAL LAVAGE
- 82995 PREGNANCY DETERMINATION
- 94656 RESPIRATORS
- 92960 RESUSCITATION CARDIOVERSION
- 92950 RESUSCITATION CPR
- 92970 RESUSCITATION PACEMAKER TEMPORARY
- 99094 SECURITY CLEARANCE SCREEN
- 99700 SHOT RECORD REVIEW
- 45300 SIGMOIDOSCOPY/PROCTO
- 15040 SKIN GRAFTING
- 61154 SKULL TREPHINATION
- 22315 SPINAL IMMOBILIZATION
- 94010 SPIROMETRY
- 29100 SPLINT APPLICATION
- 99160 SUPERVISED INTENSIVE CARE CONDITION
- 11000 SURGICAL DEBRIDEMENT
- 67961 SURGICAL REPAIR OF EYELID
- 99602 SUTURE REMOVAL
- 13100 SUTURE, COMPLEX
- 12001 SUTURE, SUPERFICIAL
- 86580 TB SKIN TEST INTRAD (ADMIN)
- 86582 TB TEST (READ)
- 86585 TB TINE TEST (ADMIN)
- 99526 TEACHING (BREAST SELF EXAM)
- 99077 TEACHING (TESTICULAR SELF EXAM)
- 32000 THORACENTESIS
- 32020 THORACOSTOMY W/WATER SEAL
- 32160 THORACOTOMY W/CARDIAC MASSAGE
- 31605 TRACHEOSTOMY/CRICOTHYROID
- 81000 UA (DIP & SPIN)
- 36810 VENOUS/ARTERIAL CANNULATION
- 12003 WOUND REPAIR/DRESSING

TREATMENT DISLOCATION

- 26700 FINGER
- 28660 TOE
- 27560 PATELLA
- 23650 SHOULDER
- 24600 ELBOW

TREATMENT FRACTURES CLOSED

- 25635 CARPAL
- 23505 CLAVICLE
- 25605 COLLES
- 27232 FEMUR, PROX. NECK W/MANIP & TRACTION
- 27502 FEMUR, SHAFT & SUPRACOND
- 27781 FIBULA
- 26725 FINGER
- 24505 HUMERUS
- 26605 METACARPAL
- 28475 METATARSAL
- 21320 NOSE
- 25505 RADIUS
- 25565 RADIUS/ULNA (SHAFT)
- 21800 RIB
- 28450 TARSAL
- 27752 TIBIA W/MANIPULATION
- 27802 TIBIA & FIBULA W/MANIP
- 28517 TOES
- 25530 ULNA

EXAMS

- 90024 GENERAL MEDICINE
- 90085 PHYS. MIL. INCL. RET
- 92003 VISUAL [illegible] TY
  FLIGHT PHYSICALS
- 90081 1/1A
- 90083 CLASS 2&3 TYPE B
- 90084 INTERIM CLASS 2&[illegible] FAA3

IMMUNIZATIONS

- 90723 ADENOVIRUS
- 90725 CHOLERA
- 90701 DPT
- 90702 DT
- 90731 HEPATITIS B
- 90742 HYPERIMMUNE SERUM GLOBULIN
- 90741 IMMUNOGLOBULIN
- 90724 INFLUENZA
- 90705 MEASLES
- 90733 MENINGOCOCCAL (POL[illegible])
- 90707 MMR
- 90704 MUMPS VIRUS
- 90727 PLAGUE
- 90732 PNEUMOCOCCAL (POLY[illegible])
- 90712 POLIOMYELITIS, ORAL
- 90713 POLIOMYELITIS (SALK)
- 90726 RABIES
- 90710 SMALLPOX
- 90703 TENANUS TOXOID
- 90714 TYPHOID
- 90717 YELLOW FEVER

MAKE NO MARKS IN THIS AREA

MAKE NO MARKS IN THIS AREA

ADDITIONAL PROCEDURES

1					2				
0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9

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APPENDIX E

T-TESTS OF MEAN ENCOUNTER TIMES PER DIAGNOSES

SUMMARY OF DESCRIPTIVE STATISTICS
AND t-Test

Dependent Variable: Time
Site: 0=Campbell
1=Polk

Diagnosis	Site	N	X	SD	Min	Max
V22	Campbell	95	20.947	8.761	5	45
	Polk	448	15.379	5.069	5	30
	t(541) = 8.386, p .001					
V202	Campbell	37	20.541	8.481	10	45
	Polk	85	15.059	0.542	15	20
	t(120) = 19.035, p .001					
V655	Campbell	98	15.459	6.385	5	45
	Polk	319	13.793	4.366	5	30
	t(415) = 2.938, p .01					
V700	Campbell	156	19.135	4.723	5	45
	Polk	71	17.113	5.323	5	45
	t(225) = 2.872, p .01					
V7231	Campbell	80	20.875	8.743	5	60
	Polk	214	18.341	3.649	15	45
	t(292) = 3.510, p .001					
000	Campbell	27	25.741	11.986	5	45
	Polk	54	12.870	6.340	5	30
	t(79) = 6.337, p .001					
250	Campbell	17	21.176	6.257	15	30
	Polk	39	15.641	5.279	5	30
	t(54) = 3.408, p .01					
340	Campbell	25	19.800	6.843	10	30
	Polk	49	14.796	5.099	5	30
	t(72) = 3.546, p .001					

Diagnosis	Site	N	X	SD	Min	Max
401	Campbell	39	21.026	6.706	5	30
	Polk	99	15.657	3.823	5	20
	t(136) = 5.906, p .001					
460	Campbell	32	18.750	7.931	10	45
	Polk	104	12.308	4.670	5	20
	t(134) = 5.696, p .001					
461	Campbell	22	18.636	5.602	10	30
	Polk	34	15.735	6.412	5	45
	t(54) = 1.735, p .10 not significant					
462	Campbell	22	18.636	5.602	10	30
	Polk	64	13.047	5.951	5	45
	t(84) = 3.854, p .001					
3814	Campbell	19	21.053	6.786	10	30
	Polk	42	13.690	3.503	5	20
	t(59) = 5.604, p .001					
3820	Campbell	78	22.308	11.697	10	90
	Polk	164	13.811	3.626	5	20
	t(240) = 8.497, p .001					
7104	Campbell	25	20.400	6.602	10	30
	Polk	31	13.710	5.769	5	30
	t(54) = 4.280, p .001					
7245	Campbell	17	17.647	5.037	15	30
	Polk	39	15.256	3.234	5	20
	t(54) = 2.133, p .05					
7821	Campbell	30	19.000	6.618	10	30
	Polk	60	13.750	4.838	5	30
	t(88) = 4.279, p .001					

Diagnosis	Site	N	X	SD	Min	Max
7840	Campbell	17	20.294	7.998	5	30
	Polk	38	15.921	6.457	5	45
	t(53) = 2.154, p .05					
7890	Campbell	24	18.333	9.168	15	60
	Polk	56	15.536	6.229	5	30
	t(78) = 1.587, p .20 not significant					
37230	Campbell	21	16.667	5.323	10	30
	Polk	42	12.381	4.585	5	20
	t(61) = 3.315, p .01					

APPENDIX F

CORRELATION MATRIX

The P-values shown are 2 tailed values.

	VAR1	VAR2	VAR3	VAR4	VAR6	VAR7	VAR8	VAR9	VAR10	V
VAR1	1.0000 0.0000 (%2950)	-0.0987 0.0000 (%2950)	-0.1927 0.0000 (%2950)	-0.1371 0.0000 (%2950)	-0.1580 0.0000 (%2950)	-0.0798 0.0000 (%2950)	-0.0661 0.0003 (%2950)	-0.0762 0.0000 (%2950)	-0.1052 0.0000 (%2950)	-0. 0
VAR2	-0.0987 0.0000 (%2950)	1.0000 0.0000 (%2950)	-0.0843 0.0000 (%2950)	-0.0600 0.0011 (%2950)	-0.0691 0.0002 (%2950)	-0.0349 0.0581 (%2950)	-0.0289 0.1167 (%2950)	-0.0333 0.0704 (%2950)	-0.0460 0.0124 (%2950)	-0. 0.
VAR3	-0.1927 0.0000 (%2950)	-0.0843 0.0000 (%2950)	1.0000 0.0000 (%2950)	-0.1171 0.0000 (%2950)	-0.1350 0.0000 (%2950)	-0.0682 0.0002 (%2950)	-0.0564 0.0022 (%2950)	-0.0651 0.0004 (%2950)	-0.0899 0.0000 (%2950)	-0. 0.
VAR4	-0.1371 0.0000 (%2950)	-0.0600 0.0011 (%2950)	-0.1171 0.0000 (%2950)	1.0000 0.0000 (%2950)	-0.0961 0.0000 (%2950)	-0.0485 0.0084 (%2950)	-0.0402 0.0291 (%2950)	-0.0463 0.0119 (%2950)	-0.0640 0.0005 (%2950)	-0. 0.
VAR6	-0.1580 0.0000 (%2950)	-0.0691 0.0002 (%2950)	-0.1350 0.0000 (%2950)	-0.0961 0.0000 (%2950)	1.0000 0.0000 (%2950)	-0.0559 0.0024 (%2950)	-0.0463 0.0119 (%2950)	-0.0534 0.0037 (%2950)	-0.0737 0.0001 (%2950)	-0. 0.
VAR7	-0.0798 0.0000 (%2950)	-0.0349 0.0581 (%2950)	-0.0682 0.0002 (%2950)	-0.0485 0.0084 (%2950)	-0.0559 0.0024 (%2950)	1.0000 0.0000 (%2950)	-0.0234 0.2044 (%2950)	-0.0270 0.1433 (%2950)	-0.0372 0.0432 (%2950)	-0. 0.
VAR8	-0.0661 0.0003 (%2950)	-0.0289 0.1167 (%2950)	-0.0564 0.0022 (%2950)	-0.0402 0.0291 (%2950)	-0.0463 0.0119 (%2950)	-0.0234 0.2044 (%2950)	1.0000 0.0000 (%2950)	-0.0223 0.2257 (%2950)	-0.0308 0.0942 (%2950)	-0. 0.
VAR9	-0.0762 0.0000 (%2950)	-0.0333 0.0704 (%2950)	-0.0651 0.0004 (%2950)	-0.0463 0.0119 (%2950)	-0.0534 0.0037 (%2950)	-0.0270 0.1433 (%2950)	-0.0223 0.2257 (%2950)	1.0000 0.0000 (%2950)	-0.0355 0.0536 (%2950)	-0. 0.
VAR10	-0.1052 0.0000 (%2950)	-0.0460 0.0124 (%2950)	-0.0899 0.0000 (%2950)	-0.0640 0.0005 (%2950)	-0.0737 0.0001 (%2950)	-0.0372 0.0432 (%2950)	-0.0308 0.0942 (%2950)	-0.0355 0.0536 (%2950)	1.0000 0.0000 (%2950)	-0. 0.
VAR11	-0.1044 0.0000 (%2950)	-0.0457 0.0131 (%2950)	-0.0892 0.0000 (%2950)	-0.0635 0.0006 (%2950)	-0.0731 0.0001 (%2950)	-0.0369 0.0448 (%2950)	-0.0306 0.0968 (%2950)	-0.0353 0.0555 (%2950)	-0.0487 0.0081 (%2950)	1. 0.
VAR12	-0.0661 0.0003 (%2950)	-0.0289 0.1167 (%2950)	-0.0564 0.0022 (%2950)	-0.0402 0.0291 (%2950)	-0.0463 0.0119 (%2950)	-0.0234 0.2044 (%2950)	-0.0194 0.2934 (%2950)	-0.0223 0.2257 (%2950)	-0.0308 0.0942 (%2950)	-0. 0.
VAR13	-0.0813 0.0000 (%2950)	-0.0356 0.0535 (%2950)	-0.0695 0.0002 (%2950)	-0.0494 0.0072 (%2950)	-0.0570 0.0020 (%2950)	-0.0288 0.1183 (%2950)	-0.0238 0.1960 (%2950)	-0.0275 0.1359 (%2950)	-0.0379 0.0394 (%2950)	-0. 0.
VAR19	-0.0690 0.0002 (%2950)	-0.0302 0.1012 (%2950)	-0.0590 0.0014 (%2950)	-0.0420 0.0227 (%2950)	-0.0483 0.0086 (%2950)	-0.0244 0.1849 (%2950)	-0.0202 0.2724 (%2950)	-0.0233 0.2057 (%2950)	-0.0322 0.0805 (%2950)	-0 0
VAR20	-0.1420 0.0000 (%2950)	-0.0621 0.0008 (%2950)	-0.1213 0.0000 (%2950)	-0.0863 0.0000 (%2950)	-0.0995 0.0000 (%2950)	-0.0502 0.0064 (%2950)	-0.0416 0.0239 (%2950)	-0.0480 0.0092 (%2950)	-0.0662 0.0003 (%2950)	-0 0
VAR21	-0.0661 0.0003 (%2950)	-0.0289 0.1167 (%2950)	-0.0564 0.0022 (%2950)	-0.0402 0.0291 (%2950)	-0.0463 0.0119 (%2950)	-0.0234 0.2044 (%2950)	-0.0194 0.2934 (%2950)	-0.0223 0.2257 (%2950)	-0.0308 0.0942 (%2950)	-
VAR22	-0.0661 0.0003 (%2950)	-0.0289 0.1167 (%2950)	-0.0564 0.0022 (%2950)	-0.0402 0.0291 (%2950)	-0.0463 0.0119 (%2950)	-0.0234 0.2044 (%2950)	-0.0194 0.2934 (%2950)	-0.0223 0.2257 (%2950)	-0.0308 0.0942 (%2950)	-
VAR23	-0.0843 0.0000 (%2950)	-0.0368 0.0454 (%2950)	-0.0720 0.0001 (%2950)	-0.0512 0.0054 (%2950)	-0.0590 0.0014 (%2950)	-0.0295 0.1055 (%2950)	-0.0247 0.1803 (%2950)	-0.0285 0.1223 (%2950)	-0.0393 0.0328 (%2950)	-
VAR24	-0.0655 0.0004 (%2950)	-0.0286 0.1201 (%2950)	-0.0559 0.0024 (%2950)	-0.0398 0.0306 (%2950)	-0.0459 0.0127 (%2950)	-0.0232 0.2086 (%2950)	-0.0192 0.2975 (%2950)	-0.0221 0.2299 (%2950)	-0.0305 0.0973 (%2950)	-
VAR25	-0.0793 0.0000 (%2950)	-0.0347 0.0597 (%2950)	-0.0677 0.0002 (%2950)	-0.0482 0.0088 (%2950)	-0.0555 0.0026 (%2950)	-0.0281 0.1277 (%2950)	-0.0232 0.2077 (%2950)	-0.0268 0.1459 (%2950)	-0.0370 0.0446 (%2950)	-
VAR26	-0.0702 0.0001 (%2950)	-0.0307 0.0957 (%2950)	-0.0599 0.0011 (%2950)	-0.0427 0.0205 (%2950)	-0.0491 0.0075 (%2950)	-0.0248 0.1778 (%2950)	-0.0205 0.2645 (%2950)	-0.0237 0.1982 (%2950)	-0.0327 0.0756 (%2950)	-
SITE	0.1277 0.0000 (%2950)	-0.0024 0.8956 (%2950)	0.0558 0.0024 (%2950)	-0.2457 0.0000 (%2950)	0.0186 0.3071 (%2950)	-0.0136 0.4606 (%2950)	-0.0017 0.9268 (%2950)	-0.0140 0.4477 (%2950)	0.0074 0.6864 (%2950)	
TIME	0.0025 0.8925 (%2950)	0.0131 0.4778 (%2950)	-0.1360 0.0000 (%2950)	0.0929 0.0000 (%2950)	0.1415 0.0000 (%2950)	0.0222 0.2239 (%2950)	0.0219 0.2357 (%2950)	0.0042 0.8202 (%2950)	0.0297 0.1079 (%2950)	-

VAR12	VAR13	VAR19	VAR20	VAR21	VAR22	VAR23	VAR24	VAR25	VAR26	SITE	TIME
-0.0661 0.0003 (%2950)	-0.0813 0.0000 (%2950)	-0.0690 0.0002 (%2950)	-0.1420 0.0000 (%2950)	-0.0661 0.0003 (%2950)	-0.0661 0.0003 (%2950)	-0.0843 0.0000 (%2950)	-0.0655 0.0004 (%2950)	-0.0793 0.0000 (%2950)	-0.0702 0.0001 (%2950)	0.1277 0.0000 (%2950)	0.0025 0.3925 (%2950)
-0.0289 0.1167 (%2950)	-0.0355 0.0535 (%2950)	-0.0302 0.1012 (%2950)	-0.0621 0.0008 (%2950)	-0.0289 0.1167 (%2950)	-0.0289 0.1167 (%2950)	-0.0368 0.0454 (%2950)	-0.0286 0.1201 (%2950)	-0.0347 0.0597 (%2950)	-0.0307 0.0957 (%2950)	-0.0024 0.8955 (%2950)	0.0131 0.4778 (%2950)
-0.0564 0.0022 (%2950)	-0.0695 0.0002 (%2950)	-0.0590 0.0014 (%2950)	-0.1213 0.0000 (%2950)	-0.0564 0.0022 (%2950)	-0.0564 0.0022 (%2950)	-0.0720 0.0001 (%2950)	-0.0559 0.0024 (%2950)	-0.0677 0.0002 (%2950)	-0.0599 0.0011 (%2950)	0.0559 0.0024 (%2950)	-0.1360 0.0000 (%2950)
-0.0402 0.0291 (%2950)	-0.0494 0.0072 (%2950)	-0.0420 0.0227 (%2950)	-0.0863 0.0000 (%2950)	-0.0402 0.0291 (%2950)	-0.0402 0.0291 (%2950)	-0.0512 0.0054 (%2950)	-0.0398 0.0306 (%2950)	-0.0482 0.0088 (%2950)	-0.0427 0.0205 (%2950)	-0.2457 0.0000 (%2950)	0.0989 0.0000 (%2950)
-0.0463 0.0119 (%2950)	-0.0570 0.0020 (%2950)	-0.0483 0.0086 (%2950)	-0.0995 0.0000 (%2950)	-0.0463 0.0119 (%2950)	-0.0463 0.0119 (%2950)	-0.0590 0.0014 (%2950)	-0.0459 0.0127 (%2950)	-0.0555 0.0026 (%2950)	-0.0491 0.0076 (%2950)	0.0188 0.3071 (%2950)	0.1415 0.0000 (%2950)
-0.0234 0.2044 (%2950)	-0.0283 0.1183 (%2950)	-0.0244 0.1849 (%2950)	-0.0502 0.0064 (%2950)	-0.0234 0.2044 (%2950)	-0.0234 0.2044 (%2950)	-0.0295 0.1053 (%2950)	-0.0232 0.2086 (%2950)	-0.0281 0.1277 (%2950)	-0.0248 0.1778 (%2950)	-0.0130 0.4806 (%2950)	0.0222 0.2289 (%2950)
-0.0194 0.2934 (%2950)	-0.0238 0.1960 (%2950)	-0.0202 0.2724 (%2950)	-0.0416 0.0239 (%2950)	-0.0194 0.2934 (%2950)	-0.0194 0.2934 (%2950)	-0.0247 0.1803 (%2950)	-0.0192 0.2978 (%2950)	-0.0232 0.2073 (%2950)	-0.0205 0.2645 (%2950)	-0.0017 0.9268 (%2950)	0.0219 0.2353 (%2950)
-0.0223 0.2257 (%2950)	-0.0275 0.1359 (%2950)	-0.0233 0.2057 (%2950)	-0.0480 0.0092 (%2950)	-0.0223 0.2257 (%2950)	-0.0223 0.2257 (%2950)	-0.0285 0.1223 (%2950)	-0.0221 0.2299 (%2950)	-0.0268 0.1459 (%2950)	-0.0237 0.1982 (%2950)	-0.0140 0.4477 (%2950)	0.0042 0.8202 (%2950)
-0.0308 0.0942 (%2950)	-0.0379 0.0394 (%2950)	-0.0322 0.0805 (%2950)	-0.0662 0.0003 (%2950)	-0.0308 0.0942 (%2950)	-0.0308 0.0942 (%2950)	-0.0393 0.0328 (%2950)	-0.0305 0.0973 (%2950)	-0.0370 0.0446 (%2950)	-0.0327 0.0756 (%2950)	0.0074 0.6864 (%2950)	0.0297 0.1070 (%2950)
-0.0306 0.0968 (%2950)	-0.0376 0.0409 (%2950)	-0.0319 0.0828 (%2950)	-0.0657 0.0004 (%2950)	-0.0306 0.0968 (%2950)	-0.0306 0.0968 (%2950)	-0.0390 0.0342 (%2950)	-0.0184 0.3190 (%2950)	-0.0367 0.0462 (%2950)	-0.0325 0.0778 (%2950)	0.0301 0.1019 (%2950)	-0.0862 0.0000 (%2950)
1.0000 0.0000 (%2950)	-0.0238 0.1960 (%2950)	-0.0202 0.2724 (%2950)	-0.0416 0.0239 (%2950)	-0.0194 0.2934 (%2950)	-0.0194 0.2934 (%2950)	-0.0247 0.1803 (%2950)	-0.0192 0.2978 (%2950)	-0.0232 0.2073 (%2950)	-0.0205 0.2645 (%2950)	-0.0289 0.1171 (%2950)	0.0121 0.5108 (%2950)
-0.0238 0.1960 (%2950)	1.0000 0.0000 (%2950)	-0.0249 0.1768 (%2950)	-0.0512 0.0054 (%2950)	-0.0238 0.1960 (%2950)	-0.0238 0.1960 (%2950)	-0.0304 0.0991 (%2950)	-0.0236 0.2001 (%2950)	-0.0286 0.1207 (%2950)	-0.0253 0.1697 (%2950)	0.0224 0.2237 (%2950)	-0.0579 0.0017 (%2950)
-0.0202 0.2724 (%2950)	-0.0249 0.1768 (%2950)	1.0000 0.0000 (%2950)	-0.0434 0.0183 (%2950)	-0.0202 0.2724 (%2950)	-0.0202 0.2724 (%2950)	-0.0258 0.1616 (%2950)	-0.0200 0.2768 (%2950)	-0.0243 0.1878 (%2950)	-0.0215 0.2438 (%2950)	-0.0043 0.8155 (%2950)	-0.0077 0.6757 (%2950)
-0.0416 0.0239 (%2950)	-0.0512 0.0054 (%2950)	-0.0434 0.0183 (%2950)	1.0000 0.0000 (%2950)	-0.0416 0.0239 (%2950)	-0.0416 0.0239 (%2950)	-0.0530 0.0040 (%2950)	-0.0412 0.0252 (%2950)	-0.0499 0.0067 (%2950)	-0.0442 0.0164 (%2950)	-0.0159 0.3875 (%2950)	0.0108 0.5592 (%2950)
-0.0194 0.2934 (%2950)	-0.0238 0.1960 (%2950)	-0.0202 0.2724 (%2950)	-0.0416 0.0239 (%2950)	1.0000 0.0000 (%2950)	-0.0194 0.2934 (%2950)	-0.0247 0.1803 (%2950)	-0.0192 0.2978 (%2950)	-0.0232 0.2073 (%2950)	-0.0205 0.2645 (%2950)	-0.0452 0.0142 (%2950)	0.0082 0.6557 (%2950)
-0.0194 0.2934 (%2950)	-0.0238 0.1960 (%2950)	-0.0202 0.2724 (%2950)	-0.0416 0.0239 (%2950)	-0.0194 0.2934 (%2950)	1.0000 0.0000 (%2950)	-0.0247 0.1803 (%2950)	-0.0192 0.2978 (%2950)	-0.0232 0.2073 (%2950)	-0.0205 0.2645 (%2950)	-0.0017 0.9268 (%2950)	-0.0074 0.6886 (%2950)
-0.0247 0.1803 (%2950)	-0.0304 0.0991 (%2950)	-0.0258 0.1616 (%2950)	-0.0530 0.0040 (%2950)	-0.0247 0.1803 (%2950)	-0.0247 0.1803 (%2950)	1.0000 0.0000 (%2950)	-0.0245 0.1843 (%2950)	-0.0296 0.1078 (%2950)	-0.0262 0.1547 (%2950)	-0.0137 0.4564 (%2950)	-0.0228 0.2149 (%2950)
-0.0192 0.2978 (%2950)	-0.0236 0.2001 (%2950)	-0.0200 0.2768 (%2950)	-0.0412 0.0252 (%2950)	-0.0192 0.2978 (%2950)	-0.0192 0.2978 (%2950)	-0.0245 0.1543 (%2950)	1.0000 0.0000 (%2950)	-0.0230 0.2115 (%2950)	-0.0204 0.2689 (%2950)	-0.0034 0.8558 (%2950)	0.0206 0.2632 (%2950)
-0.0232 0.2073 (%2950)	-0.0286 0.1207 (%2950)	-0.0243 0.1878 (%2950)	-0.0499 0.0067 (%2950)	-0.0232 0.2073 (%2950)	-0.0232 0.2073 (%2950)	-0.0296 0.1078 (%2950)	-0.0230 0.2115 (%2950)	1.0000 0.0000 (%2950)	-0.0247 0.1805 (%2950)	-0.0007 0.9666 (%2950)	0.0014 0.9384 (%2950)
-0.0205 0.2645 (%2950)	-0.0253 0.1697 (%2950)	-0.0215 0.2438 (%2950)	-0.0442 0.0164 (%2950)	-0.0205 0.2645 (%2950)	-0.0205 0.2645 (%2950)	-0.0262 0.1547 (%2950)	-0.0204 0.2689 (%2950)	-0.0247 0.1805 (%2950)	1.0000 0.0000 (%2950)	-0.0114 0.5351 (%2950)	-0.0582 0.0016 (%2950)
-0.0289 0.1171 (%2950)	0.0224 0.2237 (%2950)	-0.0043 0.8155 (%2950)	-0.0159 0.3875 (%2950)	-0.0452 0.0142 (%2950)	-0.0017 0.9268 (%2950)	-0.0137 0.4564 (%2950)	-0.0034 0.8558 (%2950)	-0.0007 0.9666 (%2950)	-0.0114 0.5351 (%2950)	1.0000 0.0000 (%2950)	-0.3449 0.0000 (%2950) ★
0.0121 0.5108 (%2950)	-0.0579 0.0017 (%2950)	-0.0077 0.6757 (%2750)	0.0108 0.5592 (%2950)	0.0082 0.6557 (%2950)	-0.0074 0.6886 (%2950)	-0.0228 0.2149 (%2950)	0.0206 0.2632 (%2950)	0.0014 0.9384 (%2950)	-0.0582 0.0016 (%2950)	-0.3449 0.0000 (%2950)	1.0000 0.0000 (%2950)

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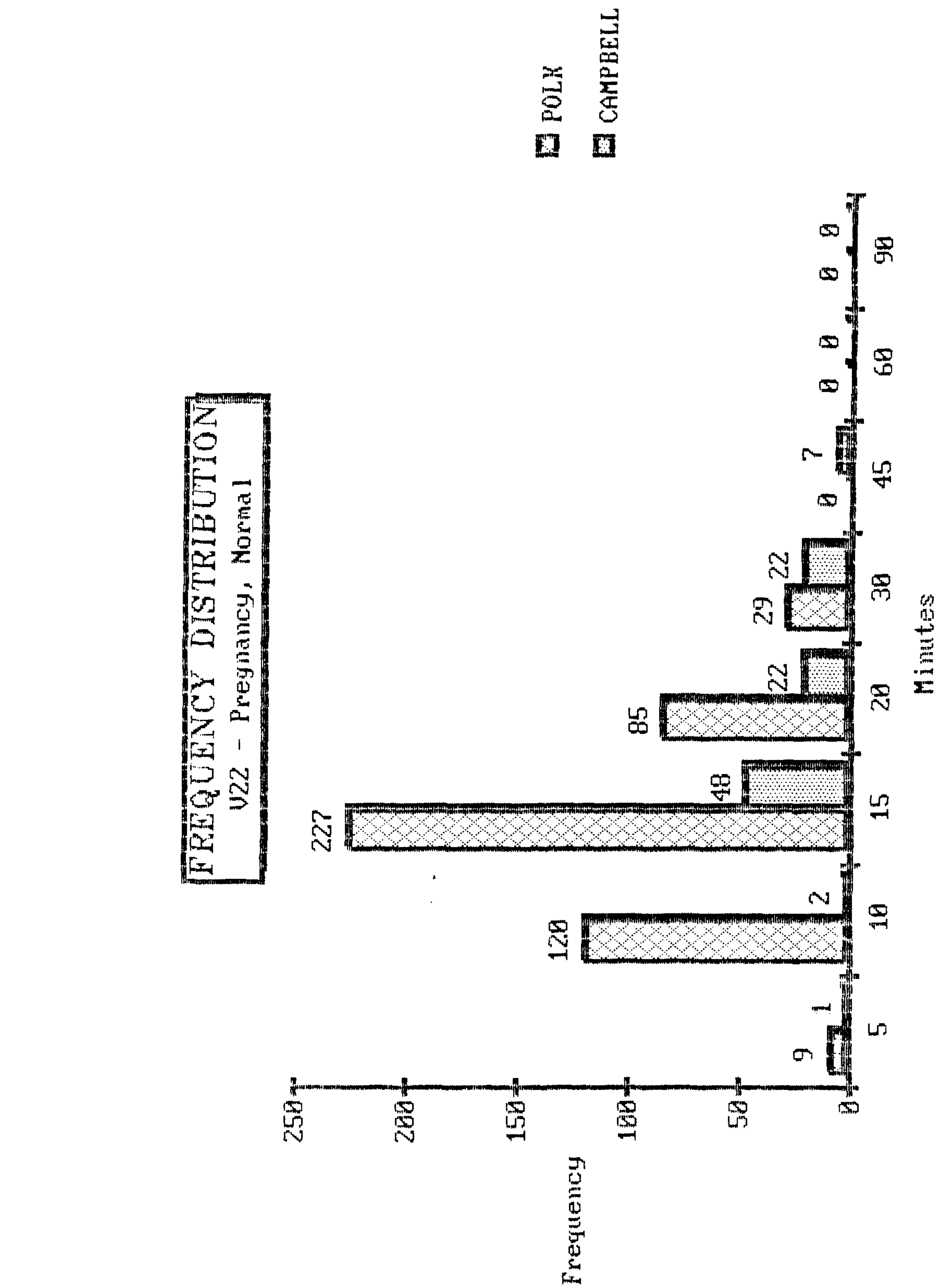
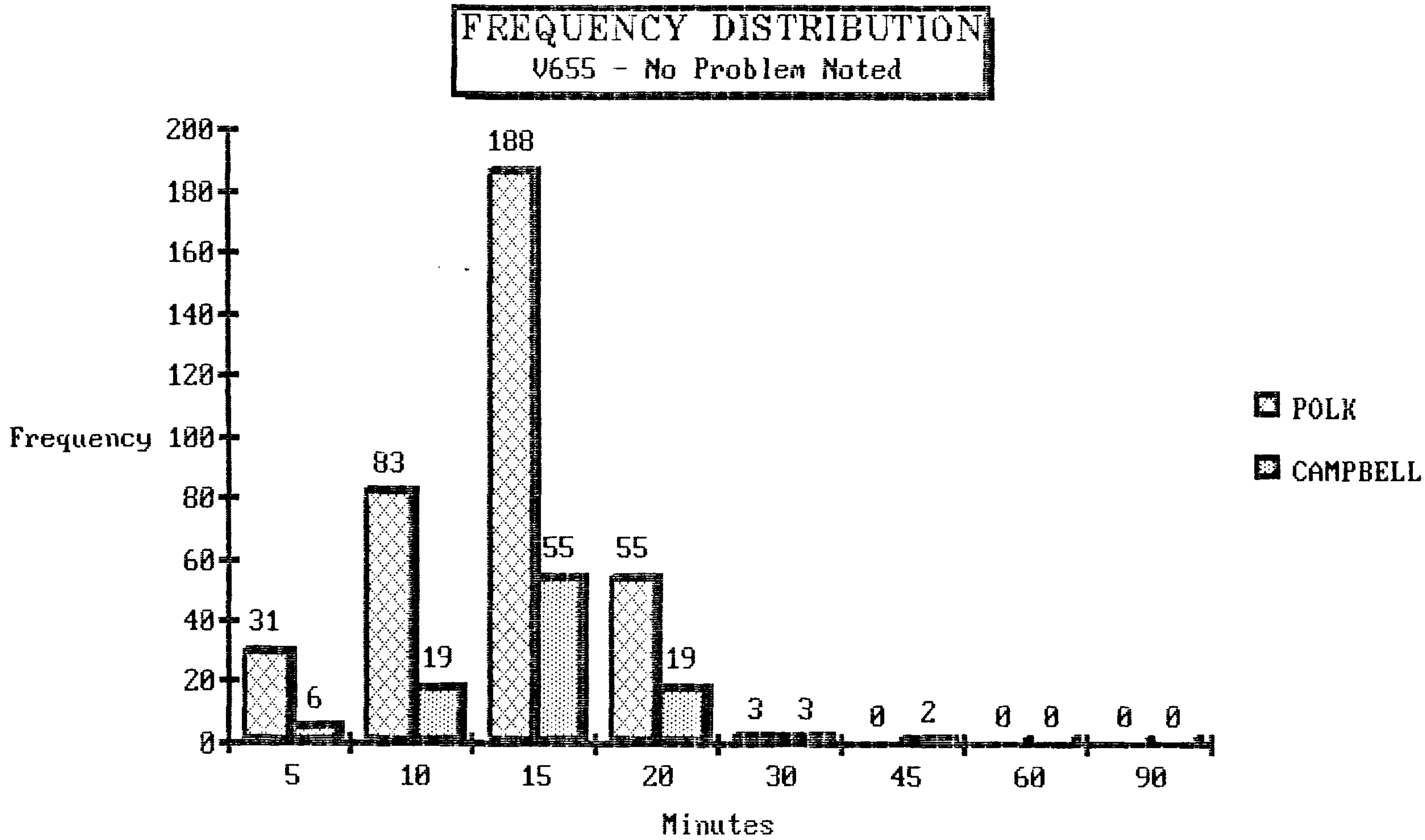
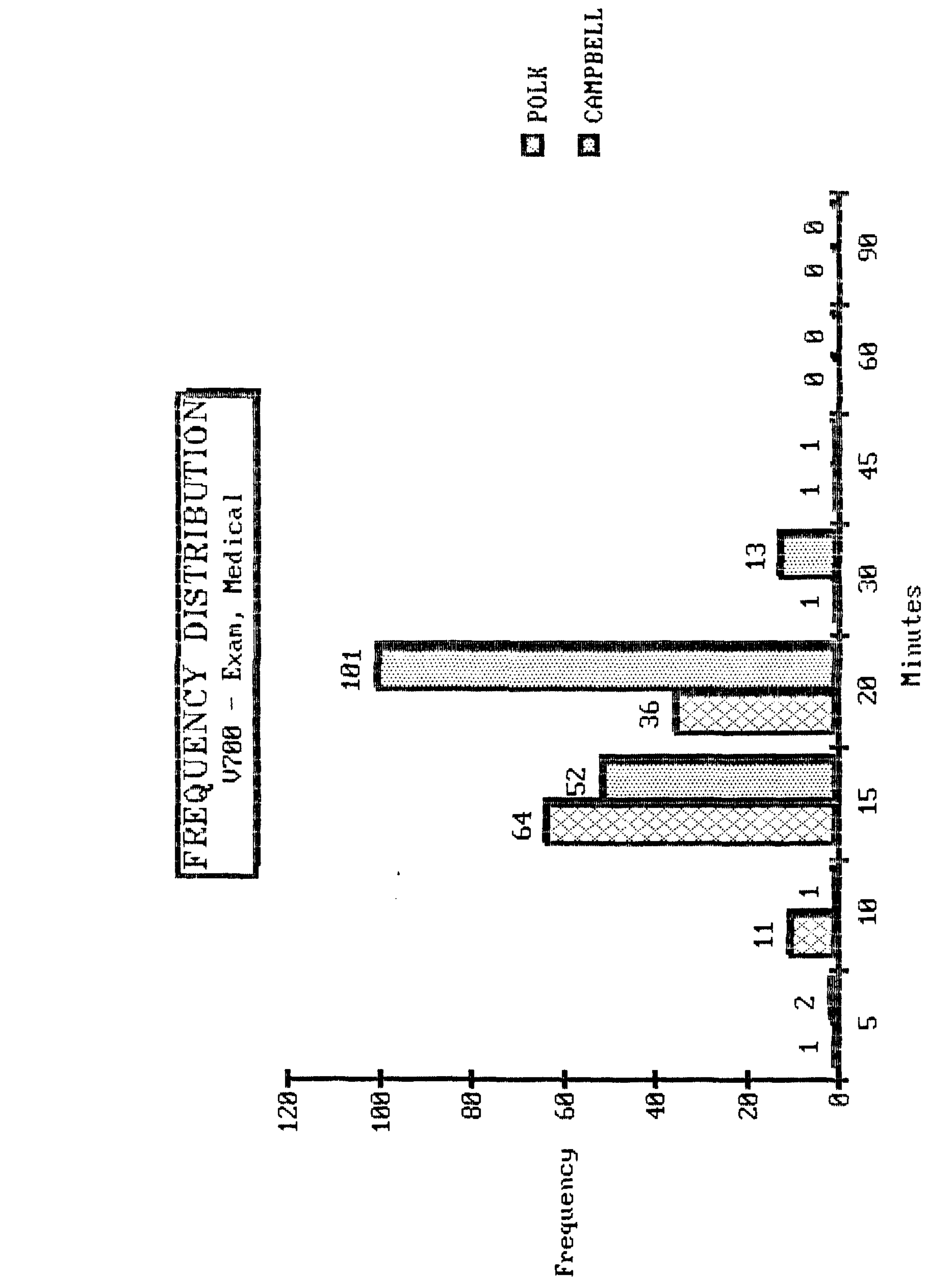
APPENDIX G

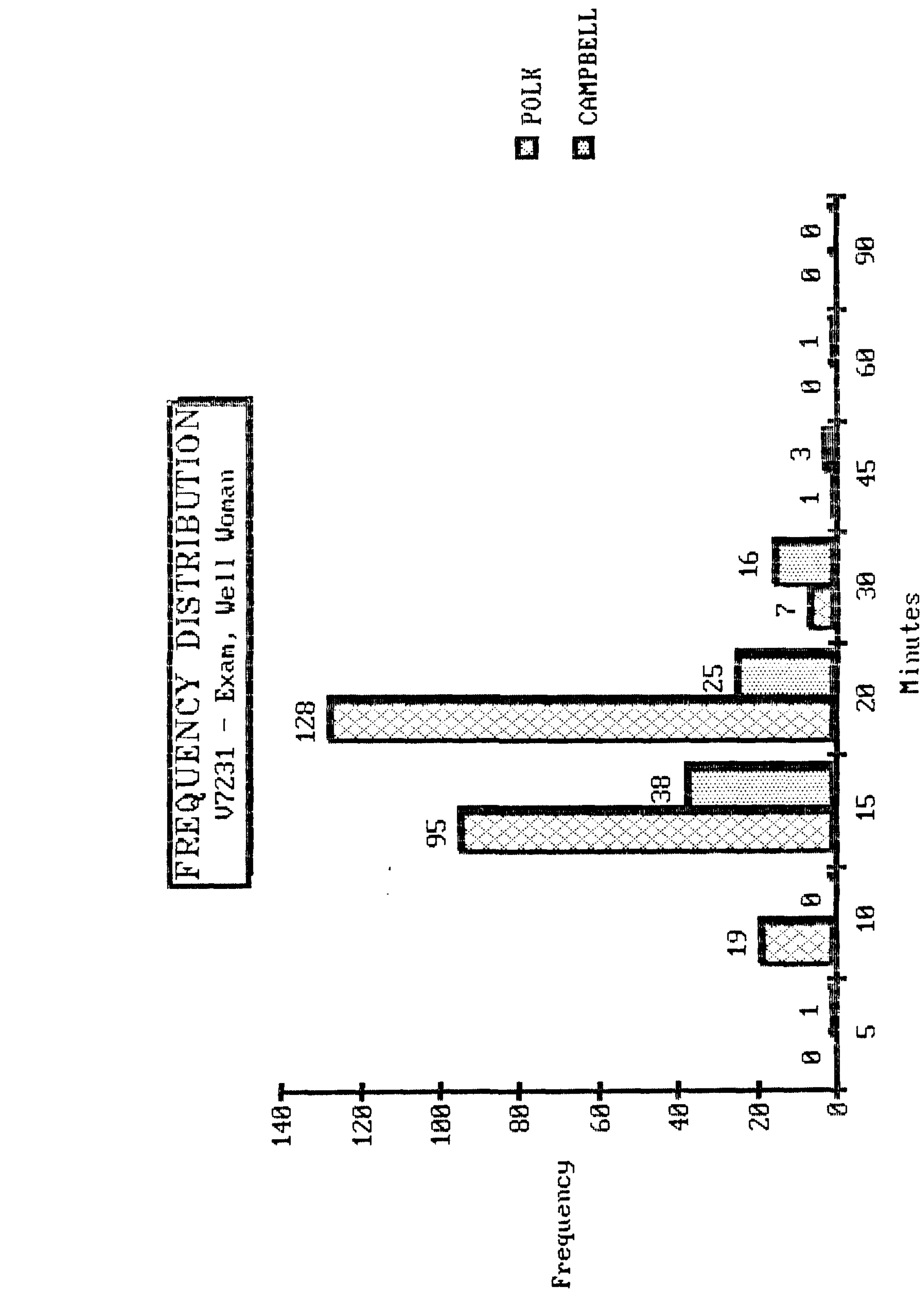
FIGURES OF FREQUENCY DISTRIBUTION

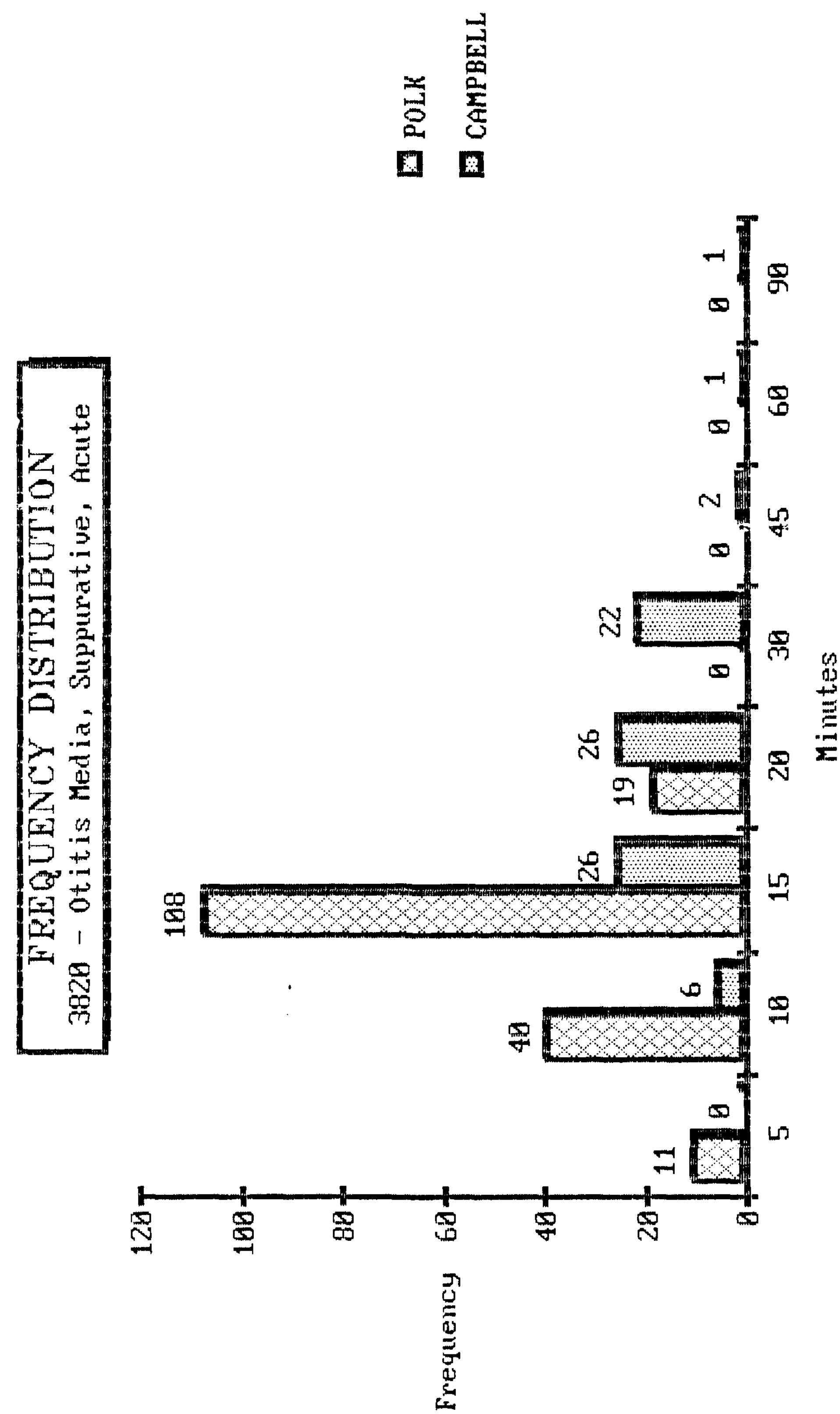


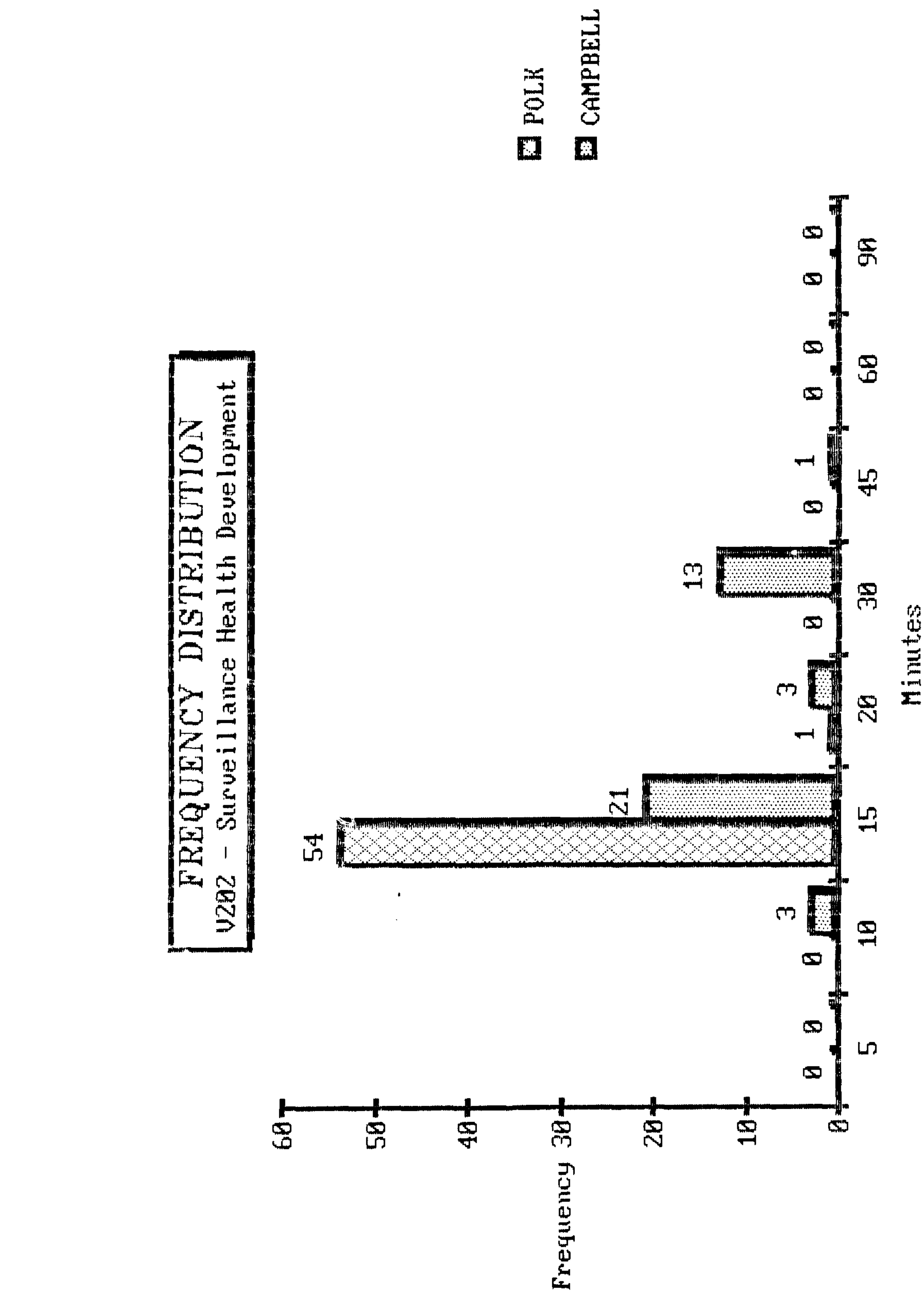
FREQUENCY DISTRIBUTION
V22 - Pregnancy, Normal
POLK
CAMPBELL
Frequency
0
50
100
150
200
250
Minutes
5
10
15
20
30
45
60
90
9
1
120
2
227
48
85
22
29
22
0
7
0
0
0
0
0
0

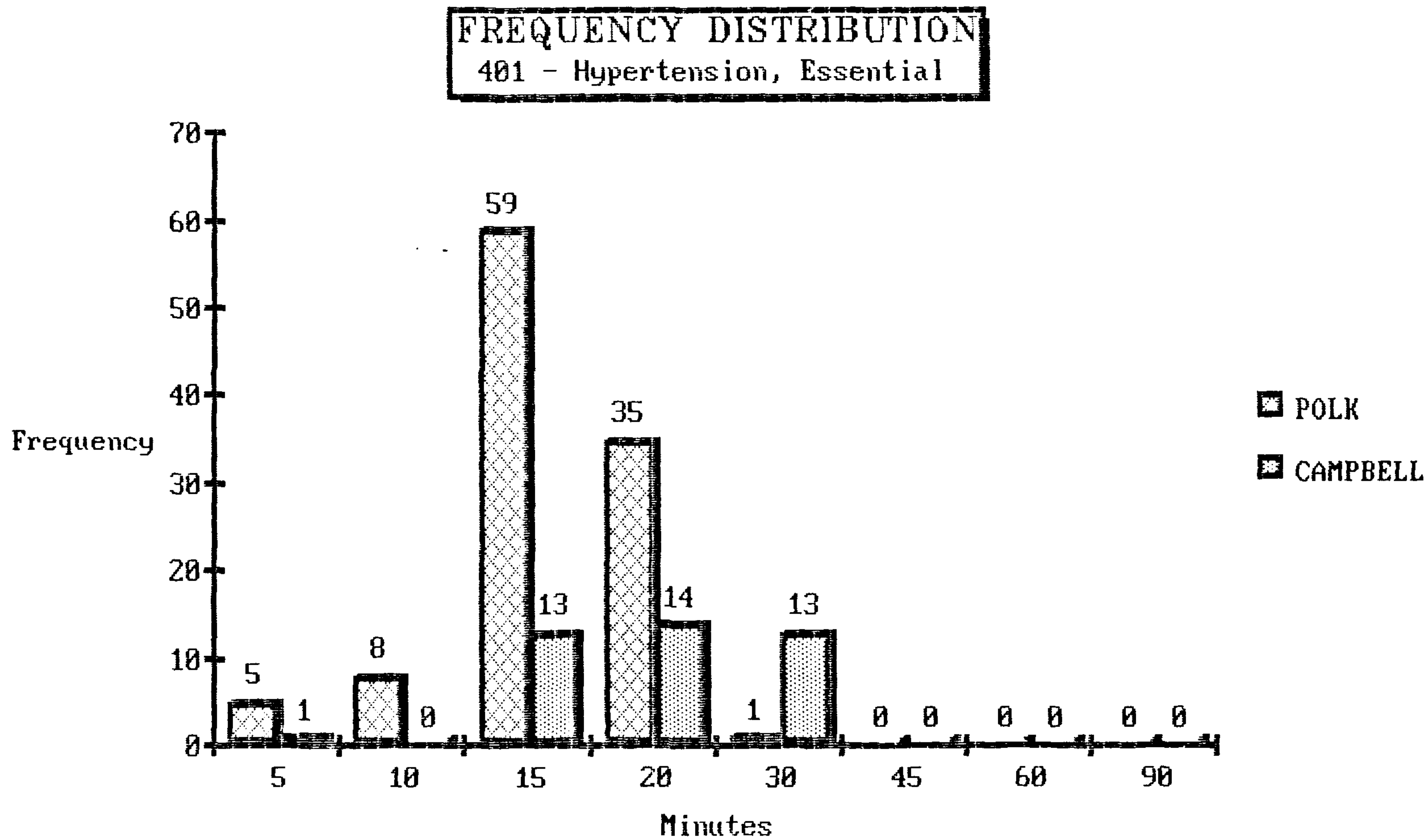

FREQUENCY DISTRIBUTION
V655 - No Problem Noted
Frequency
200
180
160
140
120
100
80
60
40
20
0
31
6
83
19
188
55
55
19
3
3
0
2
0
0
0
0
5
10
15
20
30
45
60
90
Minutes
POLK
CAMPBELL

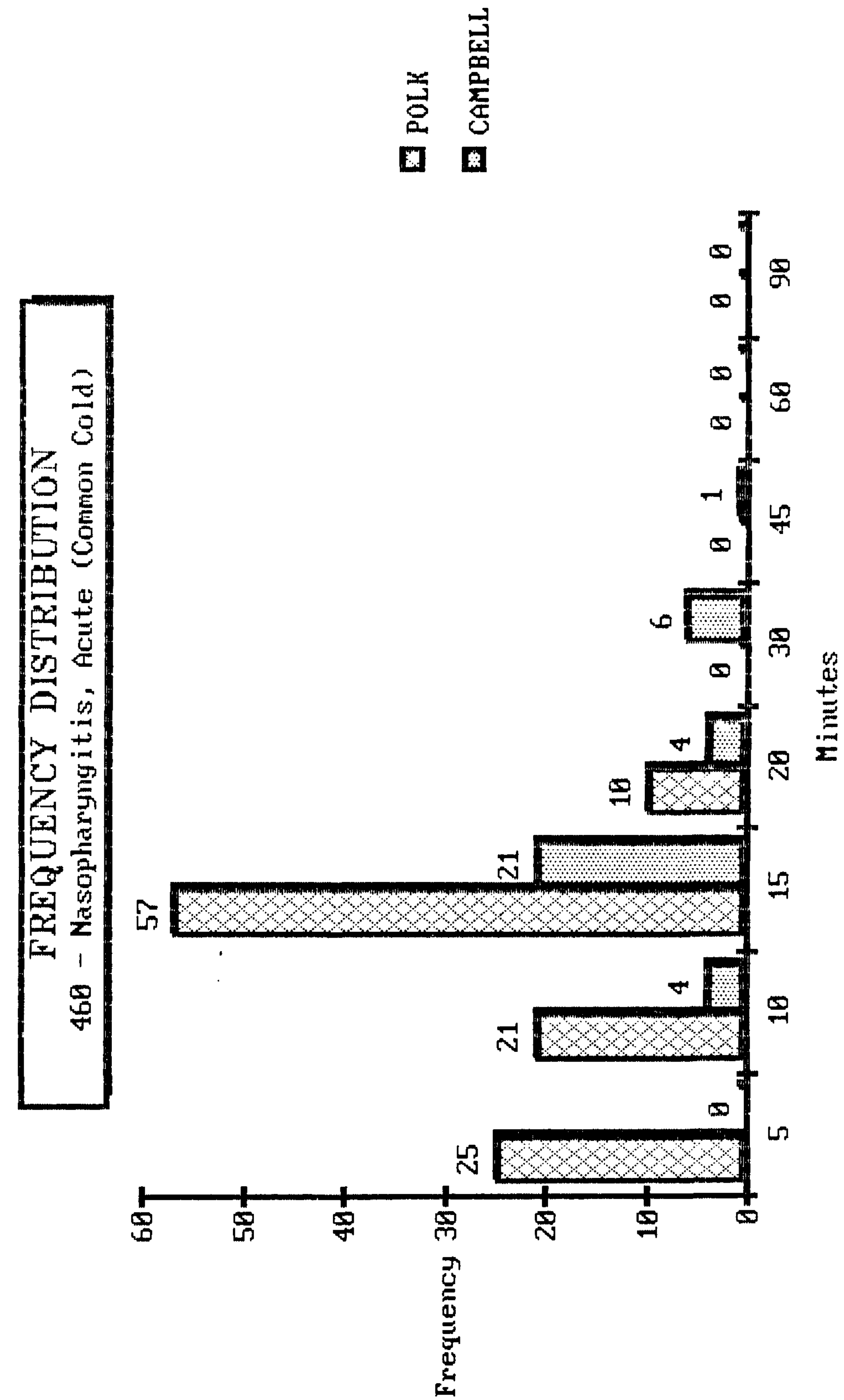

FREQUENCY DISTRIBUTION
V700 - Exam, Medical
Frequency
120
100
80
60
40
20
0
1
2
11
1
64
52
36
101
1
13
1
1
0
0
0
0
0
5
10
15
20
30
45
60
90
Minutes
POLK
CAMPBELL

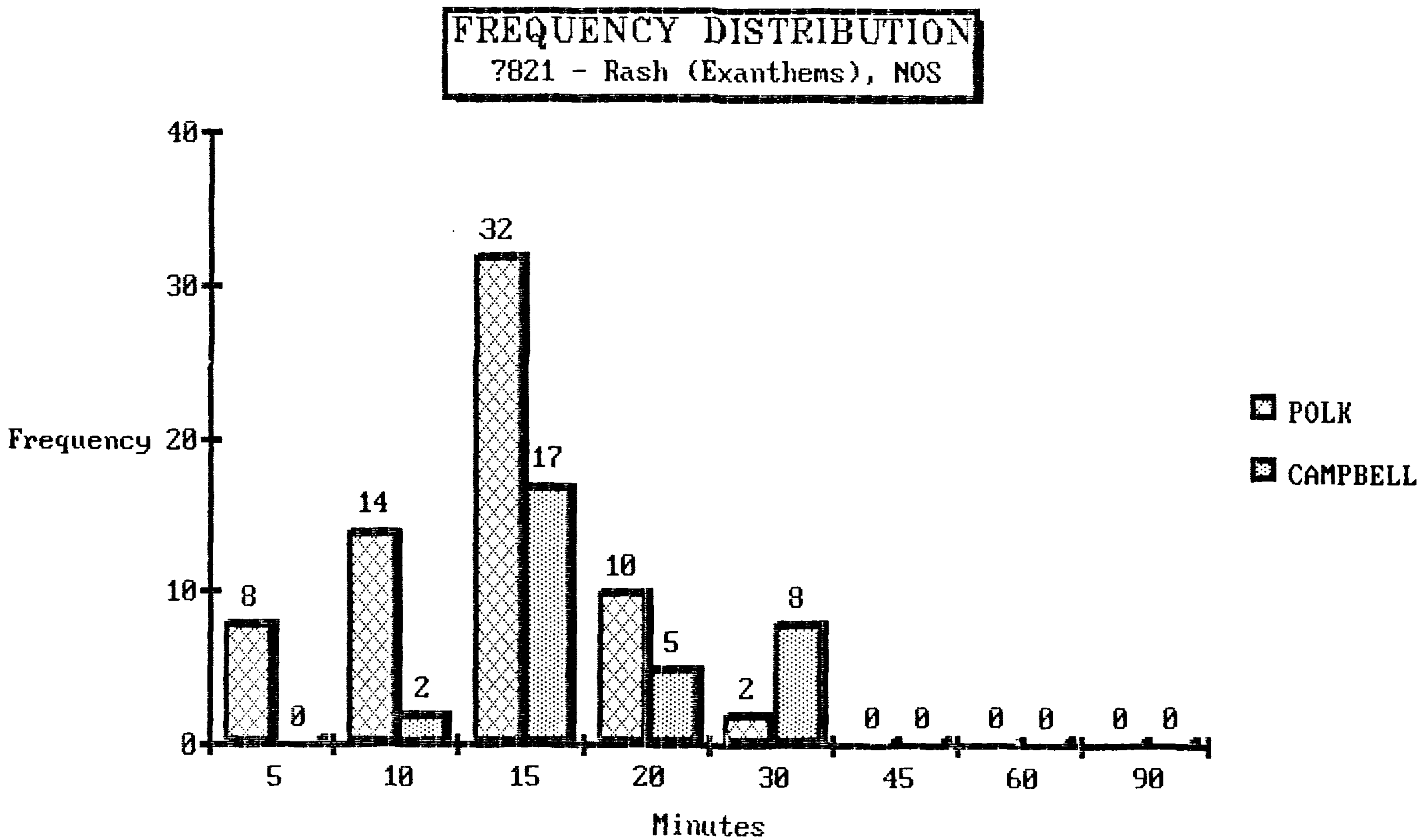

FREQUENCY DISTRIBUTION
V7231 - Exam, Well Woman
POLK
CAMPBELL
Frequency
Minutes
0
20
40
60
80
100
120
140
5
10
15
20
30
45
60
90
0
1
19
0
95
38
128
25
7
16
1
3
0
1
0
0

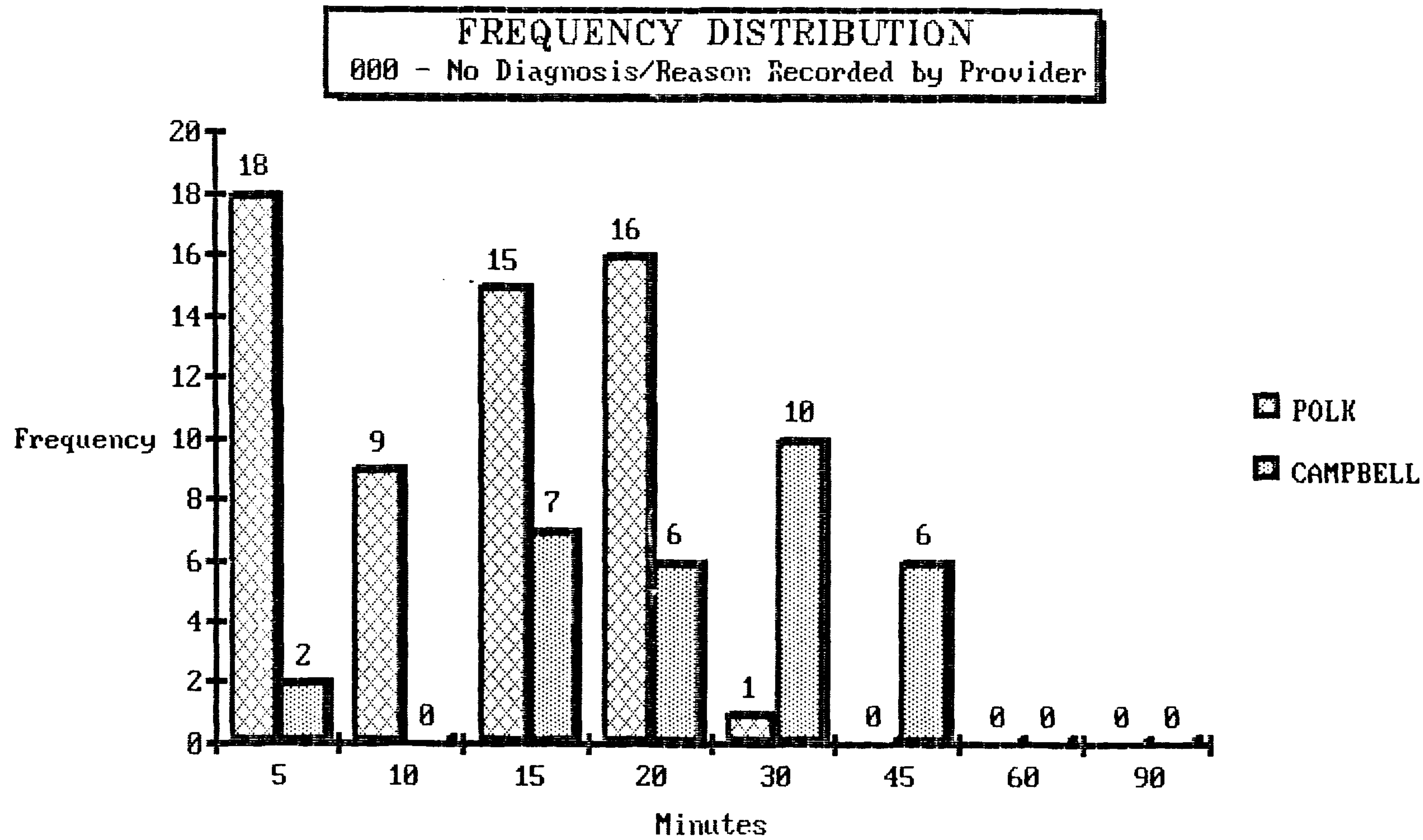

FREQUENCY DISTRIBUTION
3820 - Otitis Media, Suppurative, Acute
POLK
CAMPBELL
Frequency
120
100
80
60
40
20
0
Minutes
5
10
15
20
30
45
60
90
11
0
40
6
108
26
19
26
0
22
0
2
0
1
0
1


FREQUENCY DISTRIBUTION
V202 - Surveillance Health Development
POLK
CAMPBELL
Frequency
Minutes
0
10
20
30
40
50
60
5
10
15
20
30
45
60
90
0 0 0 3 54 21 1 3 0 13 0 1 0 0 0 0 0


FREQUENCY DISTRIBUTION
401 - Hypertension, Essential
Frequency
70
60
50
40
30
20
10
0
5
1
8
0
59
13
35
14
1
13
0
0
0
0
0
0
5
10
15
20
30
45
60
90
Minutes
POLK
CAMPBELL


FREQUENCY DISTRIBUTION
460 - Nasopharyngitis, Acute (Common Cold)
POLK
CAMPBELL
Frequency
0
10
20
30
40
50
60
Minutes
5
10
15
20
30
45
60
90
25
0
21
4
57
21
10
4
0
6
0
1
0
0
0
0
0
0


FREQUENCY DISTRIBUTION
7821 - Rash (Exanthems), NOS
Frequency
40
30
20
10
0
8
0
14
2
32
17
10
5
2
8
0 0 0 0 0 0
5
10
15
20
30
45
60
90
Minutes
POLK
CAMPBELL



FREQUENCY DISTRIBUTION
000 - No Diagnosis/Reason Recorded by Provider
Frequency
Minutes
POLK
CAMPBELL
20
18
16
14
12
10
8
6
4
2
0
5
10
15
20
30
45
60
90
18
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7
16
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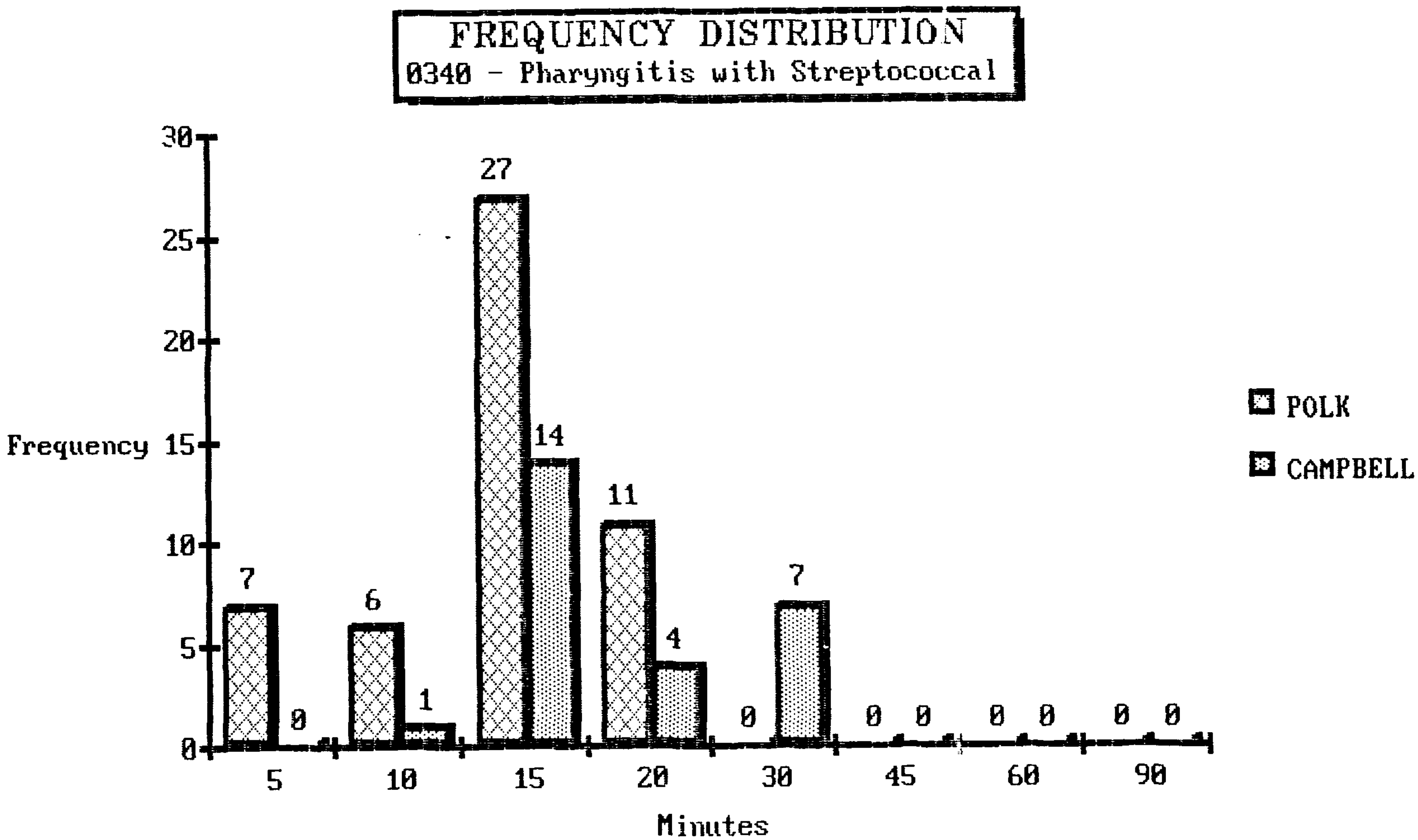
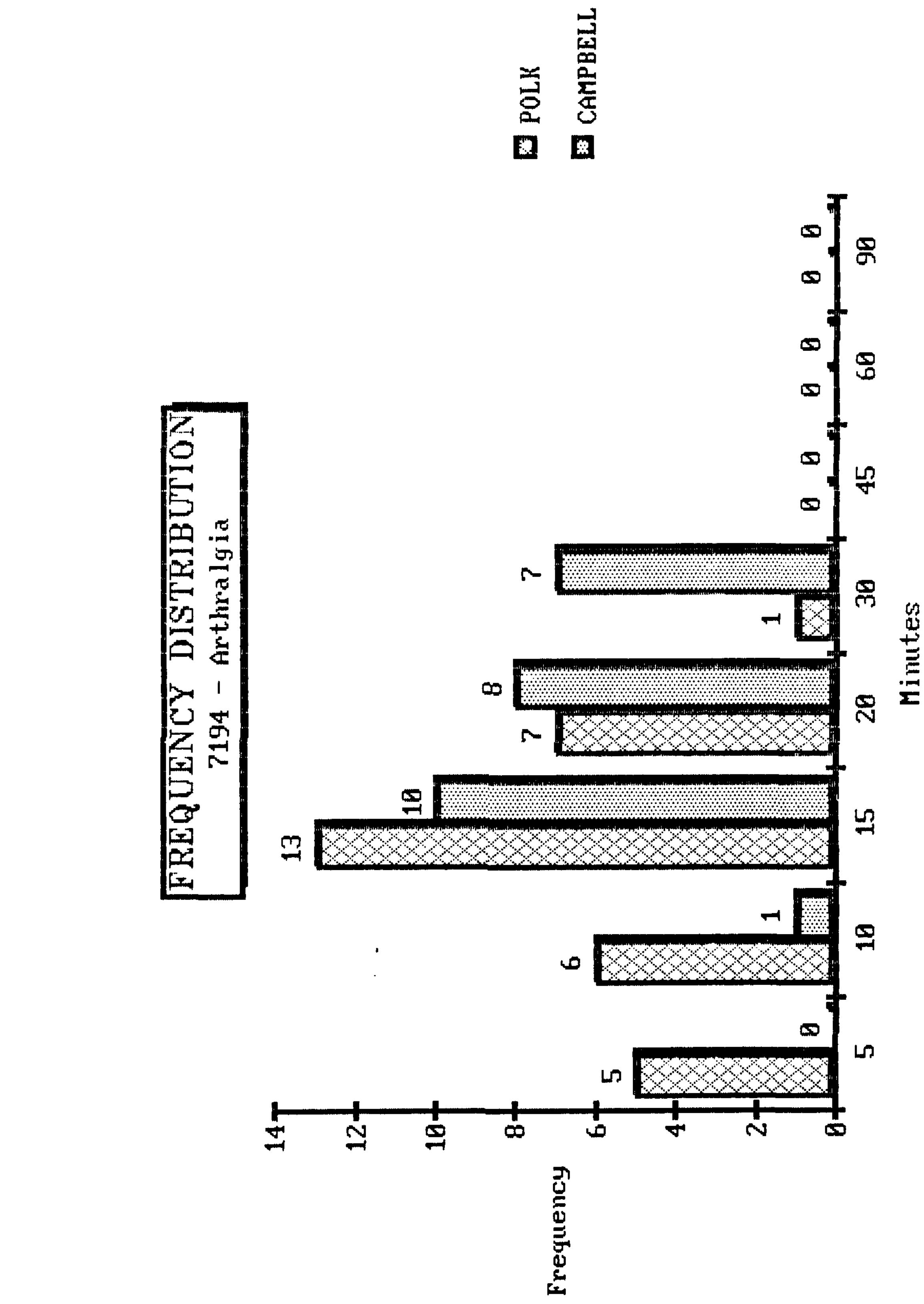
6
0
0
0
0



FREQUENCY DISTRIBUTION
0340 - Pharyngitis with Streptococcal
Frequency
30
25
20
15
10
5
0
7
0
6
1
27
14
11
4
0
7
0
0
0
0
0
0
5
10
15
20
30
45
60
90
Minutes
POLK
CAMPBELL



FREQUENCY DISTRIBUTION
7194 - Arthralgia
POLK
CAMPBELL
Frequency
Minutes
0
2
4
6
8
10
12
14
5
10
15
20
30
45
60
90
5
0
6
1
13
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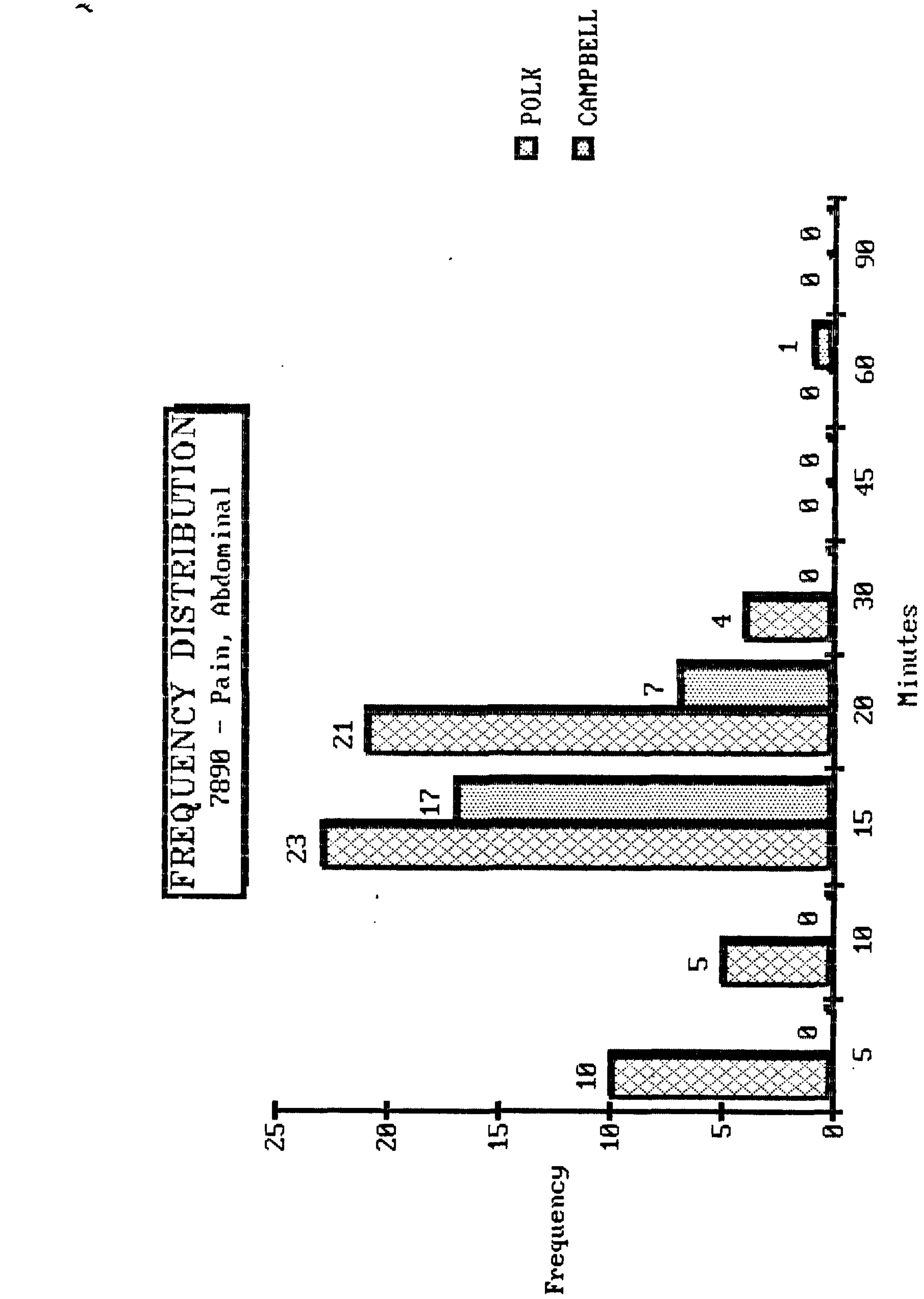
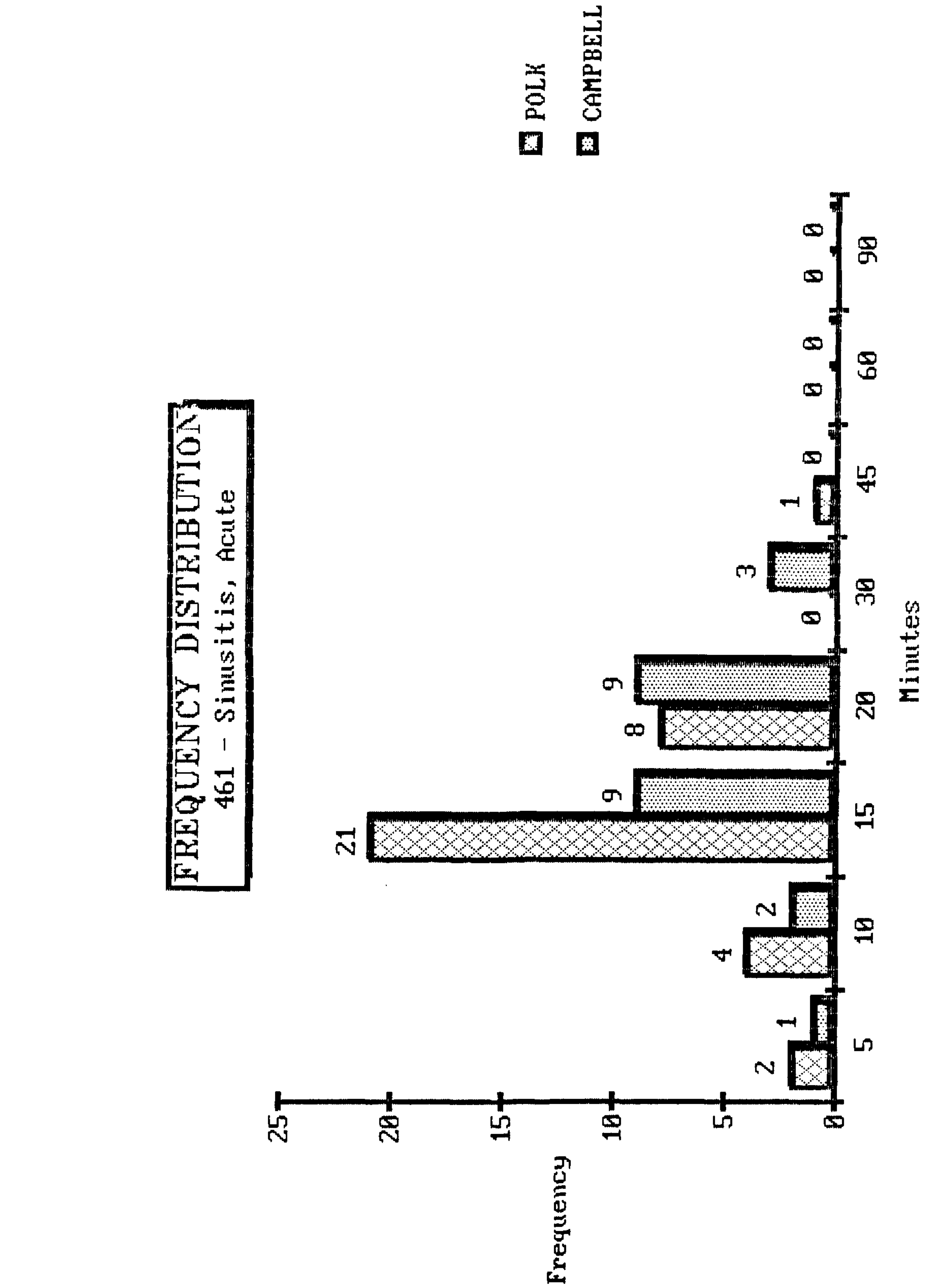
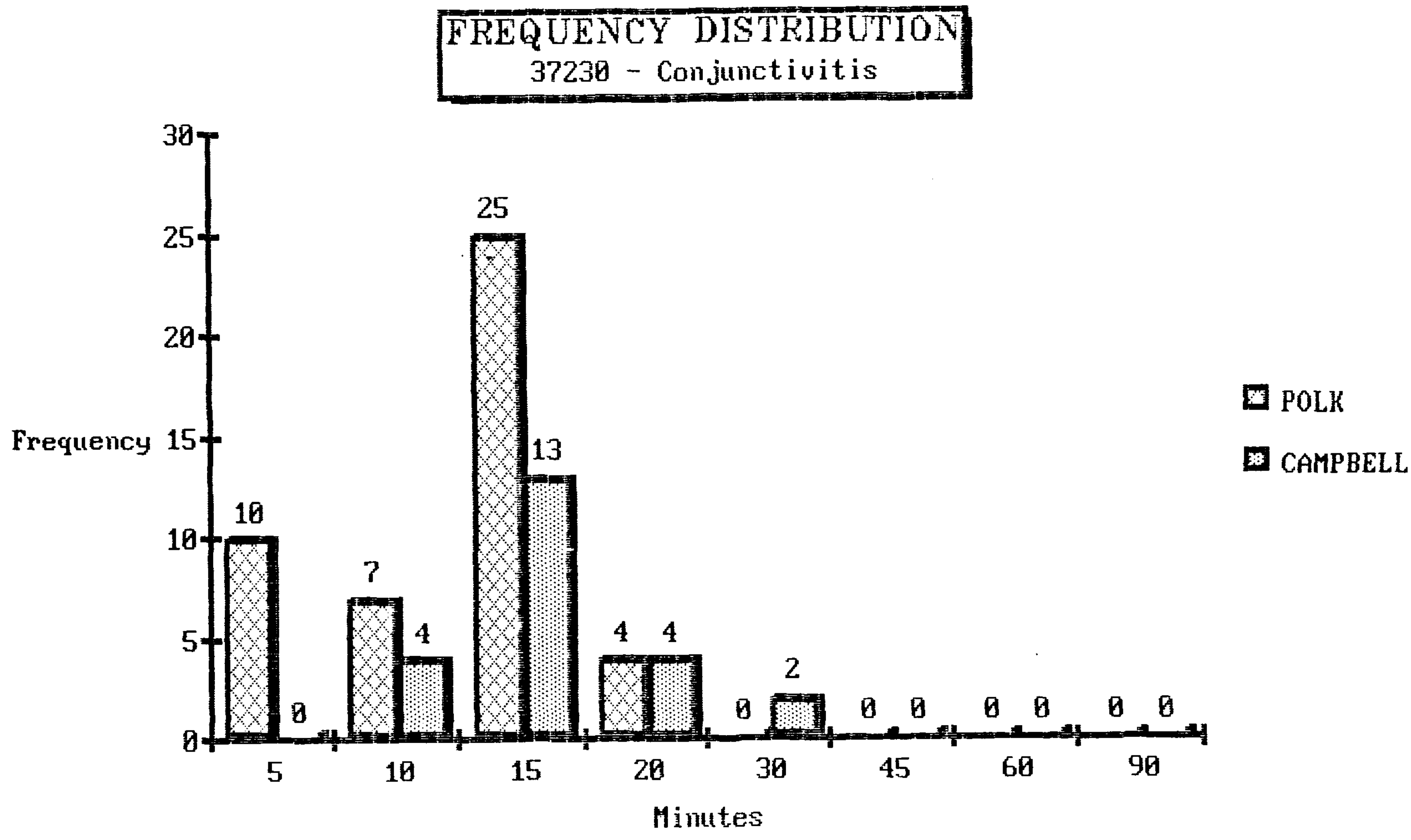
0
0
0
0
0


FREQUENCY DISTRIBUTION
7890 - Pain, Abdominal
POLK
CAMPBELL
Frequency
Minutes
0
5
10
15
20
25
5
10
15
20
30
45
60
90
10
0
5
0
23
17
21
7
4
0
0
0
0
1
0
0


FREQUENCY DISTRIBUTION
461 - Sinusitis, Acute
POLK
CAMPBELL
Frequency
0
5
10
15
20
25
Minutes
5
10
15
20
30
45
60
90
2
1
4
2
21
9
8
9
0
3
1
0
0
0
0
0
0
0


FREQUENCY DISTRIBUTION
37230 - Conjunctivitis
Frequency
30
25
20
15
10
5
0
10
0
7
4
25
13
4
4
0
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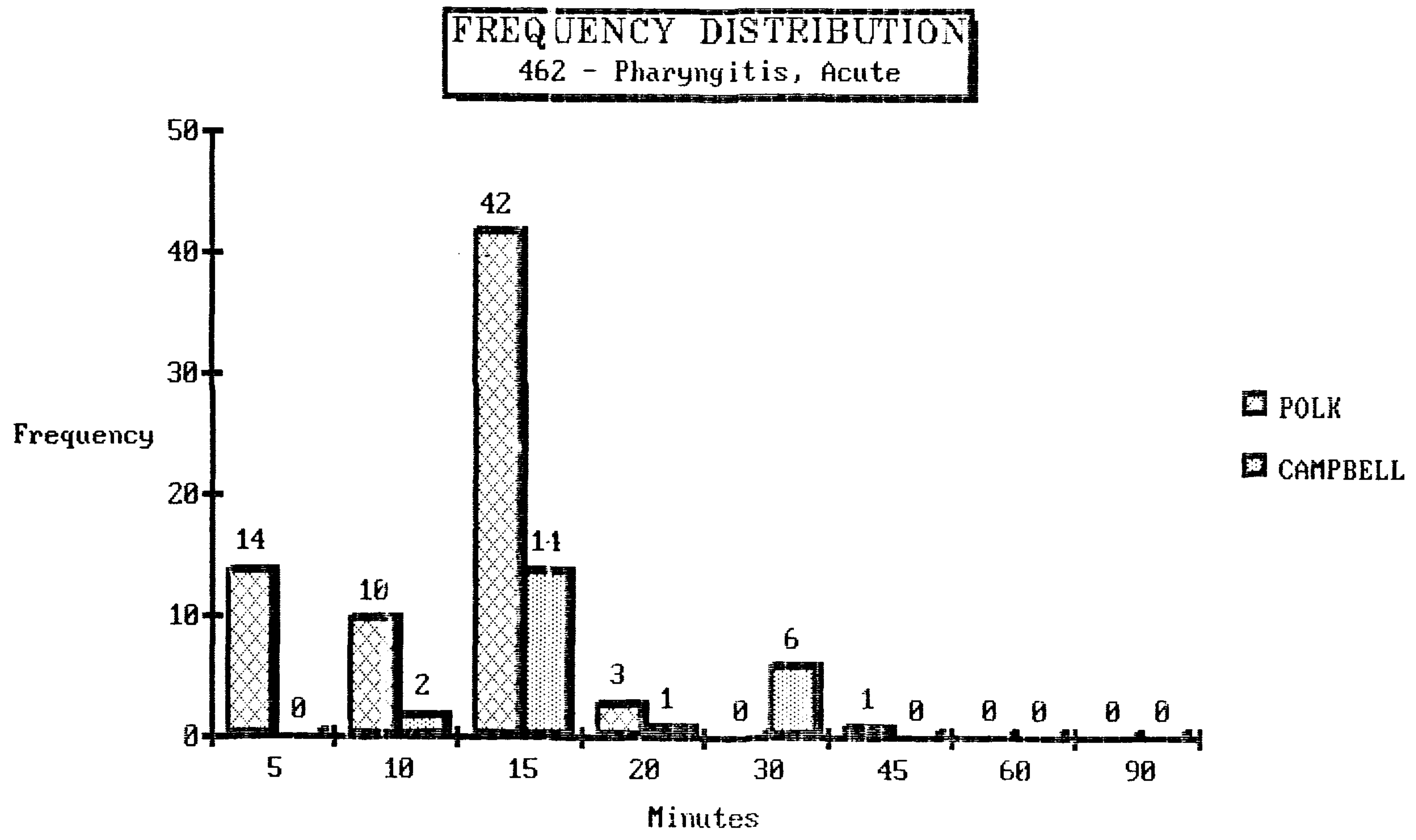
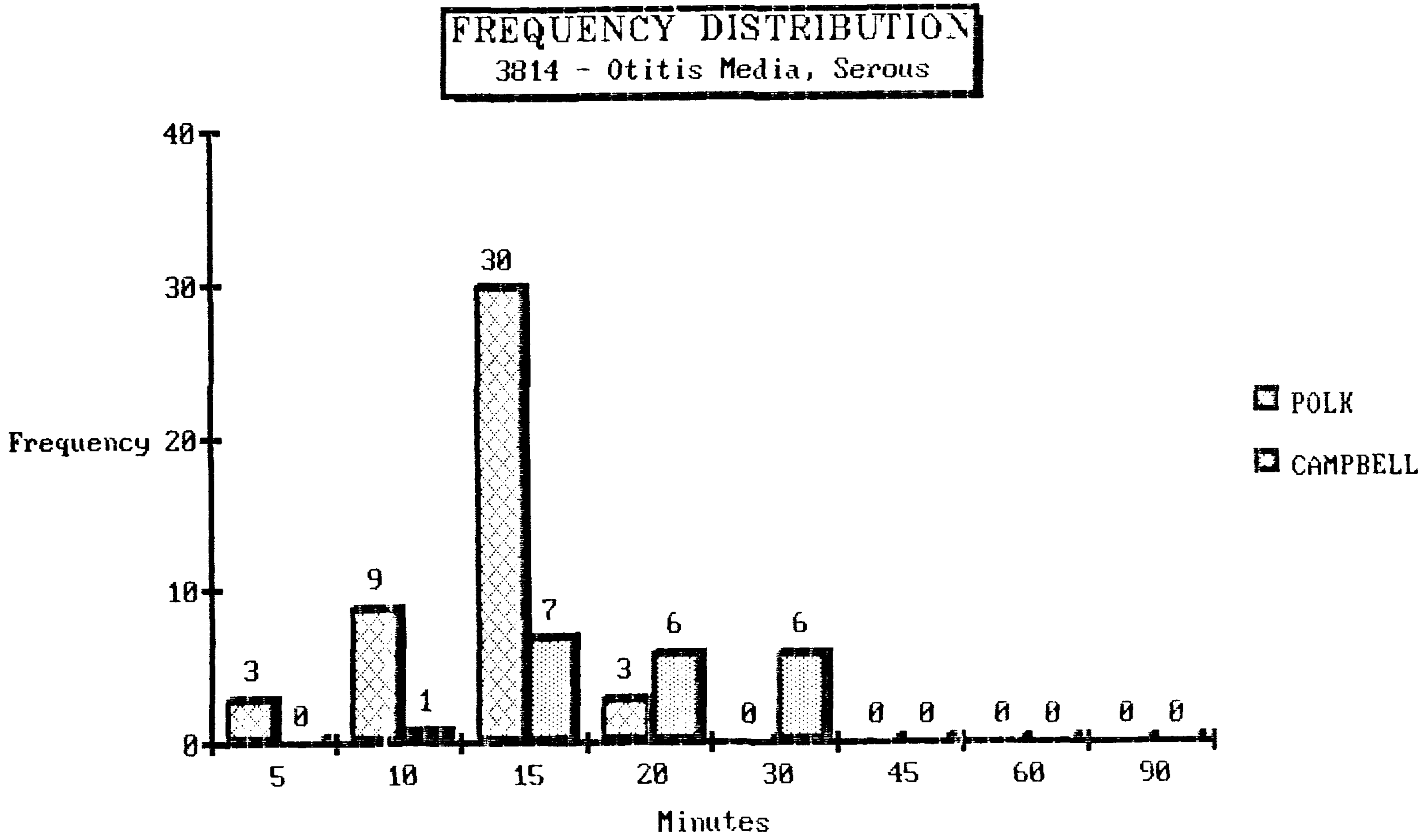
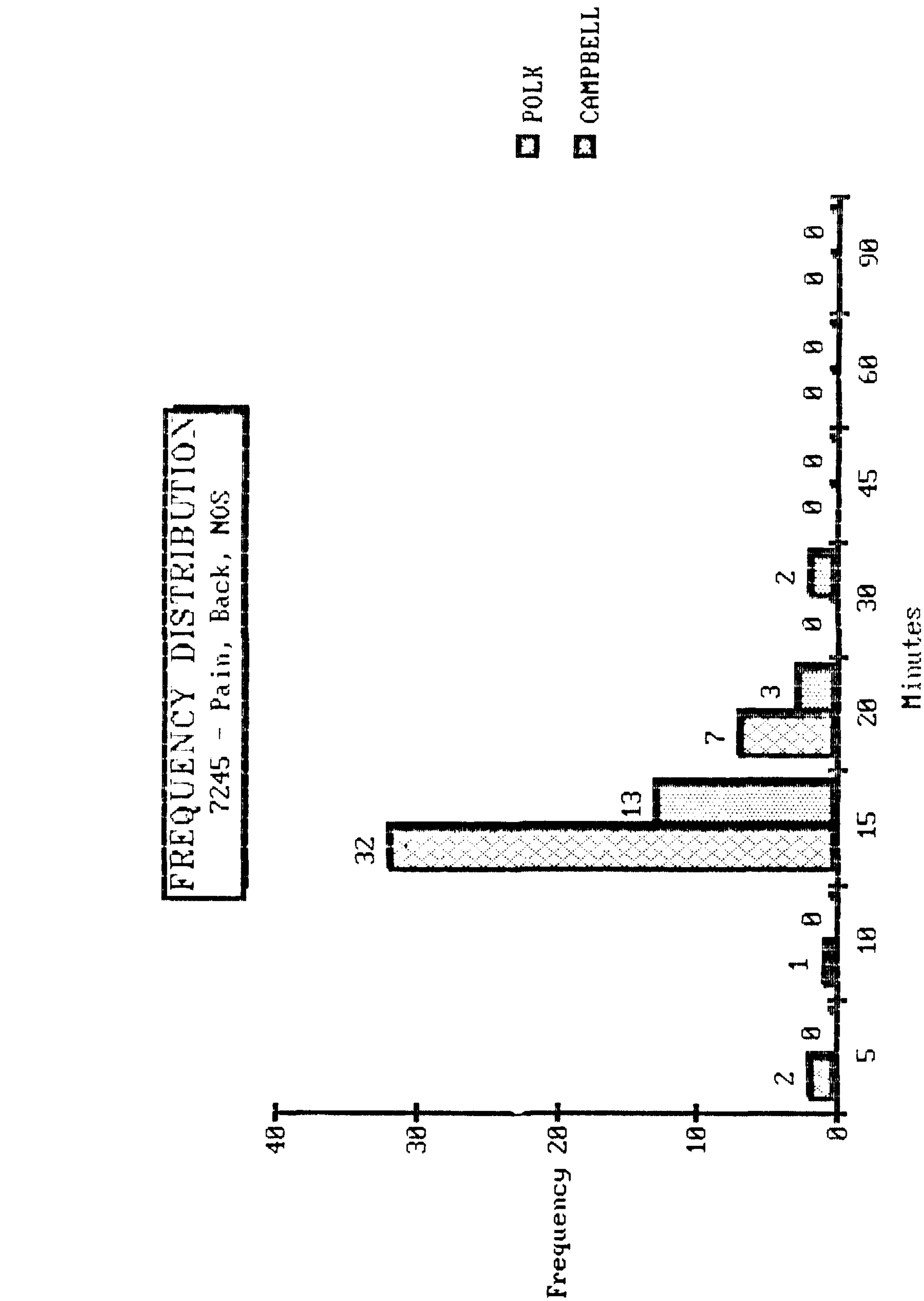
0
0
0
0
0
0
5
10
15
20
30
45
60
90
Minutes
POLK
CAMPBELL


FREQUENCY DISTRIBUTION
462 - Pharyngitis, Acute
Frequency
50
40
30
20
10
0
14
0
10
2
42
11
3
1
0
6
1
0
0
0
0
0
5
10
15
20
30
45
60
90
Minutes
POLK
CAMPBELL


FREQUENCY DISTRIBUTION
3814 - Otitis Media, Serous
Frequency
0
10
20
30
40
3
0
9
1
30
7
3
6
0
6
0
0
0
0
0
0
5
10
15
20
30
45
60
90
Minutes
POLK
CAMPBELL


FREQUENCY DISTRIBUTION
7245 - Pain, Back, NOS
POLK
CAMPBELL
Frequency
Minutes
0
10
20
30
40
5
10
15
20
30
45
60
90
2
0
1
0
32
13
7
3
0
2
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0
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0
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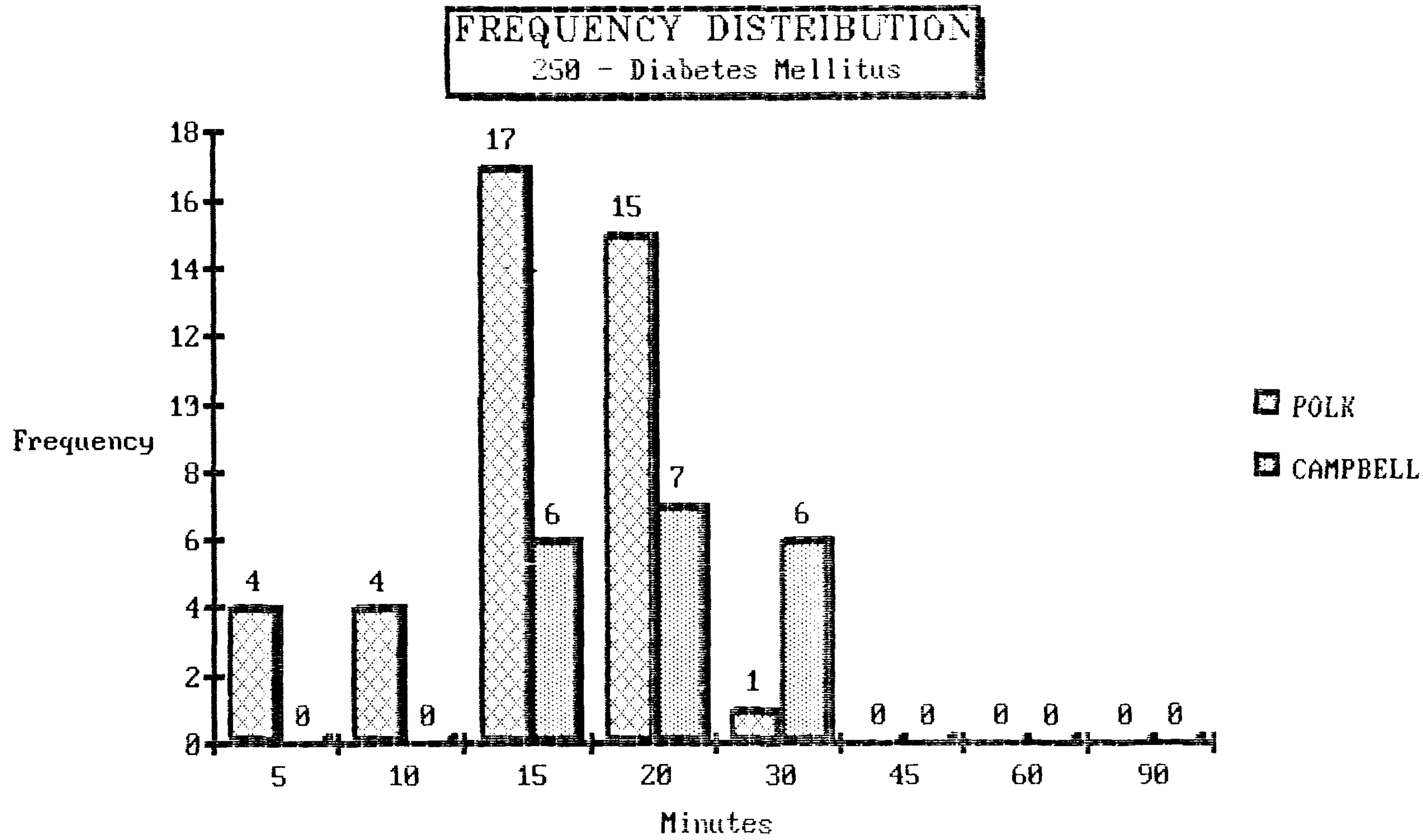
FREQUENCY DISTRIBUTION
250 - Diabetes Mellitus
Frequency
18
16
14
12
10
8
6
4
2
0
4
0
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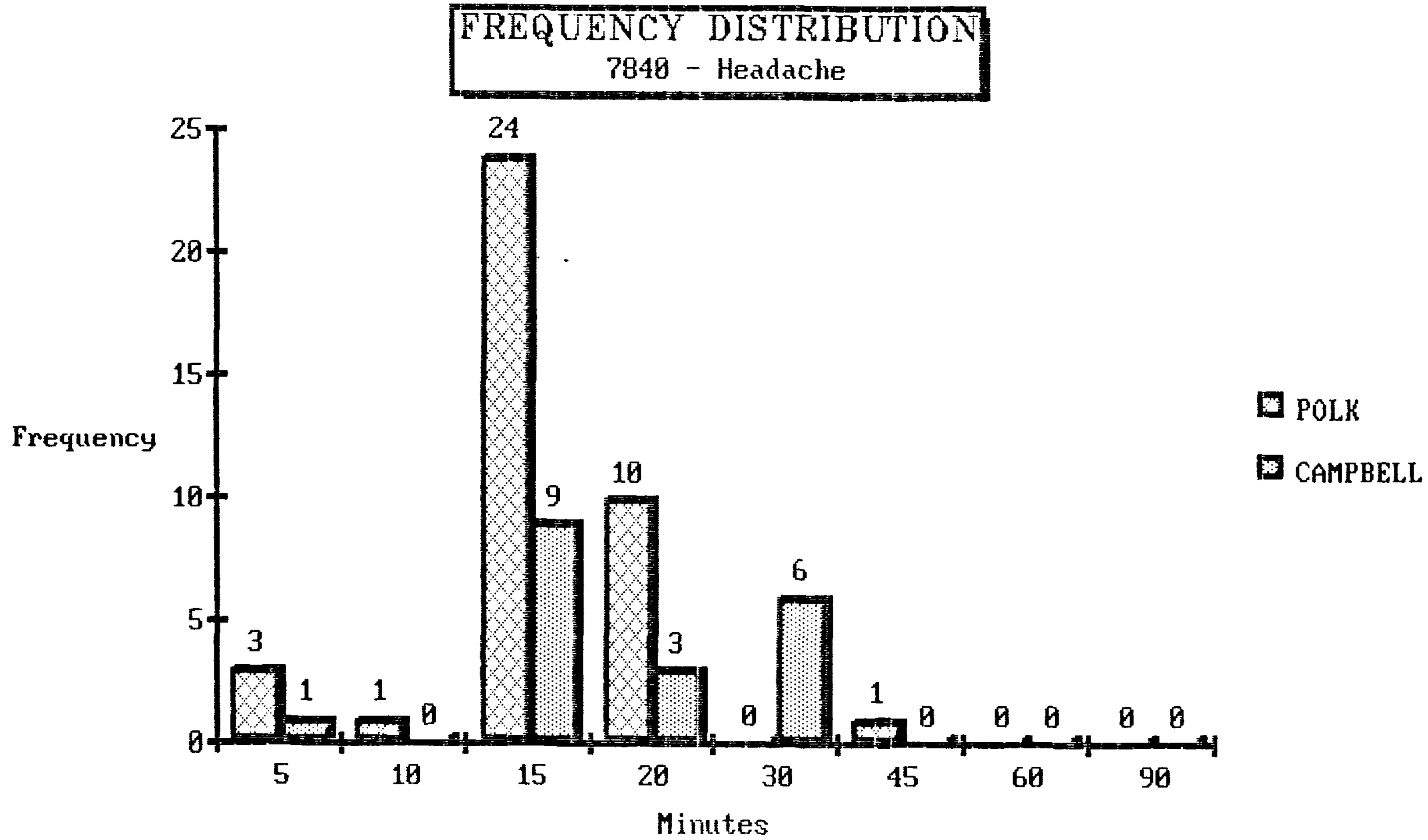
0
17
6
15
7
1
6
0 0
0 0
0 0
5
10
15
20
30
45
60
90
Minutes
POLK
CAMPBELL



FREQUENCY DISTRIBUTION
7840 - Headache
Frequency
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20
15
10
5
0
3
1
1
0
24
9
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3
0
6
1
0
0
0
0
0
5
10
15
20
30
45
60
90
Minutes
POLK
CAMPBELL

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