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September 1980

Patients Acceptance of Physician's Assistants in Air Force Primary Medicine Clinics

David Maxwell Jolly

A Project AIR FORCE report prepared for the United States Air Force

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This report

Analyzes the reaction of patient populations to the reorganization of primary medicine clinics at four Air Force hospitals. Called the "panel system," the reorganization relied on large numbers of physician's extenders (physician's assistants and primary care nurse practitioners) practicing in teams consisting of two or three extenders and a supervising physician. Each team was assigned a panel of patient families. All visits were to be by appointment. Extenders received favorable ratings from a majority of patients, although from 10 to 20 percent were unfavorable. Even in this group, many felt that PAs could handle some simple medical problems. Most saw the panel system as an improvement and preferred it to an all physician alternative. The new system improved satisfaction with access to care. The results strongly support continued reliance on extenders to provide Air Force primary medical care. 87 pp. Ref.

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Rand
SANTA MONICA, CA. 90406

PREFACE

In 1976-1978, as part of a study of "Air Force Health Delivery Systems" for Project AIR FORCE, The Rand Corporation assisted the Office of the Air Force Surgeon General with a demonstration project in the use of "physician's extenders—i.e., physician's assistants and primary care nurse practitioners—in primary medicine outpatient clinics. This report, one in a series presenting Rand's evaluation of the demonstration project, assesses the patient population's acceptance of the reorganized clinic system instituted in the demonstration. Particular emphasis is given to the acceptance of increased numbers of physician's extenders.

An evaluation of the quality of extender care is presented in G. A. Goldberg and D. G. Jolly, *Quality of Care Provided by Physician's Extenders in Air Force Primary Medicine Clinics*, R-2436-AF, January 1980. A forthcoming overview report will examine operational and economic issues.

The present report joins a large literature on patient acceptance of physician's extenders, including a Rand Note on the project's earlier work by D. J. Armor, *Patient Acceptance of the Air Force Physician Assistant*, N-1303-AF, November 1979. The report differs from these earlier products in that it evaluates acceptance in a setting where extenders assume the majority of primary care duties. Findings here not only should interest analysts in the Air Force and other branches of the military, but should apply as well to the expanding use of extenders in civilian settings.

Other Rand publications on the subject of physician's extenders include S. D. Hosek and C. R. Roll, Jr., *Military Utilization of Physician's Assistants*, N-1019-HA, April 1979; and S. Hosek, *Potential Civilian Earnings of Military Physician's Assistants*, N-1342-AF, February 1980.

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SUMMARY

A series of household surveys fielded in 1976 and 1977 are the basis for an analysis of the attitudes and experiences of populations who lived on or near four Air Force bases and who were eligible to use Air Force medical services. In particular, the study investigates the reaction of these families to a new method for delivering care in primary medicine clinics at these bases. Called the "panel system," this concept relied on large numbers of physician's extenders (physician's assistants—PAs—and primary care nurse practitioners—PCNPs) organized into teams with physician supervisors. Two or three extenders practiced under each supervising physician, each team was assigned a panel of patient families, and an effort was made to have all patients seen by appointment. Because the new system relied heavily on extenders to assume a major portion of primary care duties, the analysis concentrated on acceptance of the extenders, patients' reactions to the new system, and satisfaction with several aspects of medical care at the base.

Acceptance of extenders is apparently widespread throughout the Air Force active duty and retired military populations who use the base hospitals. Rates of respondents reporting favorable attitudes toward PAs remained stable between 1974 and 1977, even though there were increases in both the numbers of extenders and the share of primary care patients they treated. A group remained (from 10 to 20 percent) with consistently unfavorable attitudes toward PAs. However, many of these respondents felt that PAs could handle some simple outpatient problems (colds, sore throat).

The majority of both active duty and retired personnel saw the new system as an improvement over the way things used to be at each base, and over a system that would guarantee seeing a physician even though it might not be the same one each time. Preference for the panel system depended largely on the highly positive attitudes patients had toward physician's extenders. Other changes in service brought by the reorganization, such as increased appointment availability, had some influence on preference for the new system.

Satisfaction with care at the four study bases remained stable despite the organizational and personnel changes. The organizational features of the panel system brought some improvement in satisfaction with access to care where the panel system's design was fully carried out. Dissatisfaction remained with the availability of specialists at the base hospitals.

Physician's extenders were well received by significant portions of the population. Patients' acceptance of extenders places no constraint on extender employment in primary care settings, even with the ratio of extenders as high as three extenders to one physician. These findings, together with the positive findings concerning the quality of extender care, strongly support continued reliance on extenders to provide a major portion of primary medical services in Air Force hospitals.

¹Goldberg, G. A., and D. G. Jolly. *Quality of Care Provided by Physician's Extenders in Air Force Primary Medicine Clinics*. R-2436-AF, January 1980.

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The author is greatly indebted to the intellectual leadership and encouragement of David S. C. Chu, who directed this research project from its inception in 1973 until 1978. He also wishes to thank Susan Husek, the current project leader, David Armor, and C. Robert Roll for their important advice and continuous assistance throughout this work. Rand colleagues Allyson Davies and Arleen Leibowitz reviewed an earlier draft and provided useful suggestions. Kathleen Scofield and Jane Peterson provided able data management and programming assistance.

The project team is indebted to numerous Air Force personnel for their cooperation and support. The Office of the Surgeon General established the demonstration project and generously assisted in the evaluation. Fred Ippoliti, the project monitor, was especially helpful. The staffs of the demonstration hospitals at Chanute, Dyess, Fairchild, and Nellis Air Force Bases carried out the project, and staff at the bases helped in selecting the sample populations. In particular, the contributions of the four hospital commanders are much appreciated: Colonel Gilbert Kitching, Colonel Blair Behringer, Colonel Thomas Coolidge, and the late Colonel William Walter.

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I. INTRODUCTION

THE DEMONSTRATION PROJECT

In 1976 the Air Force Surgeon General initiated a demonstration project designed to test the feasibility of a new scheme for organizing primary medical services. Called the "panel system," the new system relied on large numbers of physician's extenders (physician's assistants—PAs—and primary care nurse practitioners—PCNPs). It also included features designed to alleviate sources of patient dissatisfaction identified in earlier research. This system was carried out in 1976 as a demonstration project at four Air Force bases: Chanute in Illinois, Dyess in Texas, Fairchild in Washington, and Nellis in Nevada.

The Rand Corporation, in cooperation with the Air Force, conducted an extensive evaluation of the demonstration project. The evaluation considered the productivity of the physician's extenders (PEs), the quality of the care they provided, their use of ancillary services, and their level of supervision.¹ This report details an additional part of the evaluation, a study of the base patient populations' attitudes toward care received at the demonstration bases. Reliance on PEs could have succeeded only if the patients visiting the base hospitals were willing to be treated by extender personnel. Our study of the eligible populations measured their support for the care as provided by the panel system, their acceptance of extenders, and their satisfaction with all aspects of care at the hospital.

DESIGN OF THE PANEL SYSTEM

Since the end of the military draft, the Air Force has faced shortfalls in the numbers of recruited physicians. The greatest problem lies in recruiting and retaining primary care physicians, particularly the General Medical Officer (GMO). Preliminary Rand research in 1974 led to the conclusion that PEs could provide a substantial portion of primary care delivered in Air Force clinics. Thus, PAs and PCNPs offered a solution to part of the physician shortage in the Air Force.²

At that time the Air Force had small numbers of PAs working in several hospital clinics throughout the Medical Service. No one location had more than a few PAs. Usually a clinic would have a ratio of one PA for several primary care physicians. Our research showed that PAs and PCNPs were trained and competent to handle a substantial portion of primary care in typical Air Force clinics.³ Furthermore, analysis of patient attitudes toward receiving care from extenders showed that PEs were well accepted at their current level of employment in clinics.⁴ Using PEs to substitute for scarce physicians, clinics could be reorganized to include

¹Goldberg and Jolly (1980) present the findings of the analysis of the quality of care provided during the demonstration; a report on operational and economic issues is forthcoming.

²The expression physician's extender will refer to both physician's assistants and primary care nurse practitioners. The expression physician's assistant will not include PCNPs.

³Goldberg et al. (1979).

⁴Armor (1979).

substantially more extenders, up to a ratio of three extenders to each physician. The extenders would then assume a large part of primary care duties traditionally provided by physicians in Air Force clinics.

The reorganization also offered an opportunity to improve other aspects of clinic care. Previous surveys of base patient populations had shown dissatisfaction with the care received at the hospitals. In particular, patients felt they had to wait too long for appointments, had to wait too long in the clinic when they came for care, and were tired of frequent changes in personnel in the clinics. Some limited, easily made changes in scheduling and procedure were recommended to improve these organizational problems.

Features of the Panel System

The panel system included the following features:

- A richer mix of PEs in primary medicine clinics, using principally PAs;
- Providers organized into teams, with physician as supervisor;
- Extenders seeing and treating most patients. Physician serves as a supervisor, consultant, referral point, and regular provider for previously seen patients with complex problems;
- A system where all patients except true emergencies are seen by appointments;
- Direct but rationed access to a physician for those few patients who strongly prefer a physician;
- Retention of other usual system features (personnel rotations, facilities, support personnel).

The medical personnel were organized into teams consisting of a physician supervisor and either two or three PEs.⁵ The team structure also allowed the assignment of patient panels to each team, putting the responsibility for a specific group of patients in the hands of each team. This assignment of panels was intended to improve the chances of a patient seeing the same practitioner on each visit.

There was no formal attempt to triage patients with more serious problems to physician team members. The extenders were expected to evaluate all patients and either to treat or to decide when referral to a physician was necessary. The physicians carried a load of regular patients with more serious problems and were available to the extenders for advice and consultation.

In addition to changing staffing in the primary care clinics, the demonstration included a change in the appointment systems. The demonstration project called for decreased reliance on walk-in services, which previously caused crowded waiting rooms and long waits in the clinic. Instead, all patients were to be scheduled with appointments, spreading the patient arrivals throughout the day. Those unwilling to see extenders would be scheduled with physicians, although the waiting time would generally be longer for a physician's appointment.

⁵The three-to-one ratio was used only at Chanutte Air Force Base. Chanutte is a training base where a large portion of the base population is students whose typical medical problems are well suited for the extender.

RELIANCE ON PHYSICIAN'S EXTENDERS

The most important feature of the demonstration was the increased use of PEs. Where the ratio of extenders to physicians was usually one to three or four, the panel system called for reversing this ratio, using two or three PEs for every physician supervisor. Obviously, PEs would be assuming a major portion of the primary care duties.

The Air Force employs two types of PEs to provide primary medical care services. By far the largest group of extenders comprises the Air Force PAs. The Air Force PA is a former corpsman who has graduated from a two-year program of instruction operated by the Air Force. The course of study includes one year of classroom work in the basic sciences, and a one-year rotation through the outpatient department of a large Air Force Hospital. The PA is well trained to diagnose and treat common illnesses, and can also help manage complex patient problems under the supervision of a physician. Patients who see PAs do not usually see the physician on the same visit. PAs prescribe medication for conditions they are trained to treat; countersignatures are not required for many prescriptions.

The other type of Air Force extender is the primary care nurse practitioner, a registered nurse who has taken a variable amount of additional Air Force training, similar to that received by the PA, but slightly less extensive. Like the PA, the PCNP is trained to diagnose and treat illnesses and to help manage complex problems under physician's supervision. In addition to PCNPs, the Air Force also employs nurse practitioners who have specialized in Pediatrics or Obstetrics/Gynecology. Some confusion may exist in patients' minds between primary care and other types of nurse practitioners.

Although each branch of the military uses PAs and PCNPs in different ways, the Air Force uses them interchangeably. Despite the differences in training and background, PAs and PCNPs are expected to handle similar types of patients, with similar diseases, in similar settings. Because only seven PCNPs were employed at the four demonstration bases, most of our findings concerning PCNPs are less certain than those about PAs (the demonstration employed 23 PAs).⁶

Other Studies of Patients' Acceptance

Early research of the acceptance of extenders was hampered by the fact that few in the surveyed populations had actually experienced care from an extender (Litman, 1970; Strunk, 1972; California Board of Medical Examiners, 1973). But by the time the panel system was proposed in 1976, several studies had reported attitudes of patients who had received care from extenders (Nelson et al., 1974; Levine, 1976; Linn, 1976). These studies surveyed patients of clinics or practices when extenders were first introduced.

For example, Nelson et al. surveyed patients of preceptor-physicians and asked patients their attitudes about extenders and their experiences with extenders' care. They asked questions about any changes in the quality of or access to care that might have occurred since the extenders began at the doctor's office. They also

⁶The lower number of PCNPs reflects their smaller numbers Air Force-wide. In 1979 there were only 78 PCNPs practicing in the Air Force, but there were 428 PAs.

asked about the appropriateness of task delegation and the extenders' interpersonal manner and technical competence. They found that patients are satisfied with the services the physician's assistants provide, are impressed with their competence and manner, believe that the quality of care and access to services has improved, and favor delegating a wide range of functions to them. The approach of this study and its findings are typical of studies on patients' acceptance of extenders.

The intensive use of extenders called for by the panel system went beyond the experiences in both the civilian sector and the Air Force. We needed to study whether patients' attitudes remained positive when extenders began to provide the majority of the clinic's primary care. We were also interested in evaluating the panel system as a whole to determine whether, from the patient's point of view, the panel system is an effective way to organize clinics staffed heavily with extenders.

II. DATA SOURCES AND STUDY DESIGN

STUDY GOALS

This evaluation attempted to measure patient satisfaction with the panel system and to identify factors that explain acceptance of the panel system by both active duty and retiree families. Physician's extenders were investigated because they play such an important role in the panel system. Finally, a general overview of satisfaction with the performance of the new system considers access to the clinic, attitudes about practitioners, and other aspects of base care.

DATA SOURCES

The data that support the conclusions of this report come from a series of surveys that The Rand Corporation administered during the course of this project. These surveys provide an exceptionally useful data base for analysis of behavior, attitudes, and satisfaction of the populations eligible to use Air Force medical services.

All of these surveys have included separate samples for active duty households and retired military households. This study performs separate but parallel analyses on these two groups. The separation is necessary because the two groups differ in several respects, including age distribution, income, and length of residence in base area. They also differ in the terms of their eligibility to use military medical facilities.¹

Survey Administration

The first set of surveys was administered in 1974. At that time, samples of the eligible populations living in ten survey areas were surveyed. Nine of these areas included at least one Air Force base, two locations included two bases, and several survey areas included other military installations. The tenth area was a major

¹Active duty personnel are entitled to complete medical care in military facilities at no charge. Active duty dependents and members of retired families are eligible for outpatient care from military hospitals at no cost on a space-available basis. Priority is given by law to active duty dependents over retirees and their families. Usually, military facilities possess the staff and equipment to satisfy the demand generated from all groups, although retired families are occasionally denied care. The priority given active duty personnel and their dependents is often reflected in variations of waiting time, appointment delay, and services available.

An alternative to military facilities is the health insurance plan, CHAMPUS (Civilian Health and Medical Program for the Uniformed Services), which covers purchases of civilian medical care by all but active duty personnel. Eligible persons—active duty dependents, retirees, and dependents of retirees—are automatically enrolled in CHAMPUS; there is no premium. Outpatient visits require a \$50 individual and \$100 family deductible per fiscal year and, beyond that, a coinsurance rate of 20 percent for active duty dependents and 25 percent for retired families. CHAMPUS's range of services is more limited than those available in military clinics; routine physicals and immunizations are not covered. Inpatient care coverage is more generous for active duty dependents than for retired families.

metropolitan area with no nearby military installations. In 1974 few PAs were practicing at the bases in the survey areas, with the greatest concentration at Homestead Air Force Base. There were no PCNPs at that time.

Armor (1979) discussed the results of these surveys concerning patients' attitudes toward receiving care from extenders. He concluded that patients' attitudes should not constrain the use of extenders in larger numbers.

In 1976, with the establishment of the demonstration project, samples from the eligible populations were surveyed at Chanute, Dyess, Fairchild, and Nellis Air Force Bases. Table 1 lists the details concerning the administration of the surveys. The samples surveyed in 1976 were chosen randomly to yield 1000 active duty households and 1000 retired military households at each base. Because Chanute is a training base with a large number of students, the Chanute sample was inflated to yield a sufficiently large sample of nonstudents.²

The first survey, completed between December 1976 and January 1977, was intended to give a picture of the populations' attitudes before the demonstration began. Unfortunately, the surveys were completed after the August through September 1976 arrivals of the personnel required to man the provider teams. They were also completed after the October 1976 reorganization of clinic procedures required by the project design. The 1976 survey therefore gives a mixed picture of the situation before and after the demonstration began.³ The survey offers a measure of attitudes before the organizational changes but does not clearly show the situation before the changes in personnel that the demonstration project brought.

In 1977, the respondents to the 1976 survey were sent a second survey, substantially the same as in 1976 but with added questions concerning the respondents' reactions to the panel system.⁴ Table 1 also lists the details of this survey's administration. Table 2 lists characteristics of the respondents who completed both the 1976 and 1977 surveys. Responses to this second survey give a picture of the populations' attitudes after the panel system had been in operation for about one year. This report relies on the responses to the second survey to draw a picture of the reactions that clinic users and others had to the demonstration project. It also compares attitudes and experiences described by this survey with those in surveys completed earlier. There is no true before-after comparison, but rather two points in the course of the demonstration project from which it may be possible to detect shifts in attitude during the first year of the project.

Selection of Cases for Analysis

Subsets of respondents were used to construct samples appropriate to each of the questions being analyzed. In all cases, I excluded from the sample those respondents who reported that they did not use the base regularly and said that the first

²We have excluded the student population from this analysis because it differs considerably from the rest of the active duty populations at the other demonstration bases.

³About half of the respondents report their last visit to have occurred since the reorganization of the clinics on October 1, 1976. The actual percentages for active duty respondents are Chanute, 61; Dyess, 36; Fairchild, 57; and Nellis, 53. Figures for retirees are comparable.

⁴This survey is shown in Appendix A.

Table 1
CHARACTERISTICS OF SURVEY SAMPLES

Sample Group	Dates Mailed	Households Responding	Response Rate ^a (percent)
<u>1976 Active Duty</u>			
Chanute	1-10-77	1059 ^b	38
Dyess	12-6-76	861	82
Fairchild	1-5-77	772	77
Nellis	1-14-77	653	67
<u>1976 Retired</u>			
Chanute	2-8-77	706	77
Dyess	2-9-77	653	75
Fairchild	2-10-77	744	82
Nellis	3-8-77	730	79
<u>1977 Active Duty</u>			
Chanute	9-13-77	450 ^c	77
Dyess	8-29-77	372	54
Fairchild	9-8-77	395	65
Nellis	9-28-77	269	50
<u>1977 Retired</u>			
Chanute	10-12-77	534	84
Dyess	10-12-77	468	82
Fairchild	9-21-77	555	81
Nellis	10-4-77	409	53

^aResponse rates were calculated as a percent of deliverable surveys. Surveys returned in the mail because the sample family could not be located were excluded.

^bIncludes students in original survey.

^cExcludes students.

or second reason for not using it was the distance from home. This exclusion applied largely to retired respondents, but it also applied to a few active duty personnel.

In most of the tables in this report, responses are limited to regular users of the base.¹ The attitudes and experiences of the nonusers would be less likely to have

¹Respondents were considered regular users of the base if they indicated that the base was one of the places they would regularly go for outpatient services. (See Question 1 on the questionnaire.) This definition did not take into account where they regularly went for inpatient services. Separate questions were asked about the respondent's regular use and his spouse's, allowing determination of regular use by each.

Table 2

CHARACTERISTICS OF THE RESPONDING SAMPLES, 1977 SURVEY
(Percent)

Questions and Responses	Active Duty	Retired
<u>Sex</u>		
Male	94.9	98.6
Female	5.1	1.4
<u>Age</u>		
18-19	1.1	0.0
20-29	49.0	0.0
30-39	34.9	1.6
40-49	14.0	27.9
50-59	1.1	37.3
60+	0.0	23.2
<u>Education</u>		
Not high school graduate	0.4	6.0
High school graduate	29.3	33.8
Some college/business/ technical	34.2	37.6
College graduate	21.5	12.0
Higher degree	14.6	7.0
<u>Race</u>		
White	84.3	95.0
Black	6.9	3.3
Oriental	1.4	0.3
Other	7.4	1.4
<u>Annual Earnings</u>		
Less than \$5,000	5.0	7.5
\$5,001 to 10,000	35.0	23.4
\$10,001 to 15,000	24.3	35.0
\$15,001 to 20,000	15.0	22.2
\$20,001 to 25,000	11.4	5.7
More than \$25,000	9.3	6.2
<u>Number of Visits in Past Year (heads of households)</u>		
0	12.6	23.5
1	12.9	8.7
2	14.5	11.5
3-4	22.6	17.3
5-8	20.2	18.5
9 or more	17.3	20.4

been influenced by the changes that the panel introduced, because their experience with the base would be sporadic or nonexistent. When the question applied to the respondent, nonuser respondents were excluded; when the question applied to the spouse, only the cases where the spouse was a nonuser were excluded.

Exclusion of nonusers has little effect on the responses of active duty personnel because 94 percent are regular users of the base. But the exclusion of nonusers from active duty spouses, retired respondents, and retired spouses has a potentially large effect. For outpatient care, members of these three groups can choose either to use the base hospital without charge or to use civilian facilities and rely on CHAMPUS coverage. Nonusers may choose not to use the base because of a negative attitude about base care or about seeing non-MDs. Differences in attitudes are more likely between the user and the nonuser groups.

Because the patterns of regular use are fairly stable over the course of the two surveys for both retirees and active duty personnel, we need not be concerned that confining ourselves to regular users will bias the results, which rely on comparisons over time. Table 3 shows that most regular users stay regular users. Retirees are very stable over the period of the study. Active duty personnel show some shift away from regular use by about 5 percent of the sample.

Spouse-related Questions

The surveys all contained questions that ask the respondent to indicate the spouse's opinion. In 80 to 85 percent of the cases the respondent indicated that the spouse was consulted in completing the questionnaire, but we cannot be sure to what extent the opinions of the respondent influenced the responses to the spouse's questions. Consideration of the responses concerning spouses' attitudes must take into account this limitation of the survey instrument.

ANALYSIS OF RESULTS

Several survey questions investigated patient attitudes toward extenders. Given the increased reliance on extenders, acceptance of PAs and PCNPs was critical to acceptance of the panel system. The questionnaire asked about the respondents' confidence in the PEs' ability to handle several medical problems of differing seriousness. Earlier work suggested that patient confidence in the PA depended on the nature of the medical problem that was being considered, and the results of this analysis confirm and expand this finding.

A second aspect of the evaluation concerns respondents' attitudes toward the panel system. Responses to two questions provide a summary measure of their approval of the panel system. However, the panel system included several features, each of which would influence respondents' overall reactions. Reliance on extenders, assignment to teams, or the new appointment procedures may each influence a patient's preference for the panel system. The analysis compares the respondents' panel preference with their experiences with each system feature and explains why people like or don't like the system.

A third aspect of the evaluation considers patient satisfaction with the service

Table 3

PERCENT OF RESPONDENTS BY STATUS AS REGULAR USER
OF BASE HOSPITAL, 1976 TO 1977

User Status	Chanute	Dyess	Fairchild	Nellis
<u>Active Duty Respondents</u>				
User both years	91.8	95.2	89.7	92.1
Nonuser to user	0.8	1.2	1.8	0.4
User to nonuser	4.6 ^a	3.3	5.3 ^a	6.0 ^a
Nonuser both years	2.8	0.3	3.2	1.6
(Number responding)	(390)	(332)	(379)	(252)
<u>Active Duty Spouses</u>				
User both years	81.4	76.1	77.7	81.3
Nonuser to user	3.4	6.0	3.1	3.0
User to nonuser	5.6	7.7	9.4 ^a	11.4 ^a
Nonuser both years	9.5	10.3	9.8	4.2
(Number responding)	(295)	(234)	(287)	(166)
<u>Retired Respondents</u>				
User both years	58.9	37.1	63.7	60.9
Nonuser to user	4.1	4.0	3.7	3.7
User to nonuser	8.9	5.4	7.0	8.0 ^a
Nonuser both years	27.8	33.5	25.6	27.5
(Number responding)	(270)	(202)	(430)	(327)
<u>Retiree Spouses</u>				
User both years	53.2	36.2	65.7	54.9
Nonuser to user	3.4	3.7	3.1	4.7
User to nonuser	0.6 ^a	3.7	5.5	8.0
Nonuser both years	34.8	56.4	25.7	32.4
(Number responding)	(233)	(163)	(332)	(275)

^aStatistically significantly more respondents moved from regular user to nonuser, $p < 0.05$.

provided by Air Force clinics. To be successful, the panel system as a whole must provide satisfactory care to a large majority of the populations at each base. Many aspects of medical care are considered, as are findings on the satisfaction with care at the demonstration bases during the course of the project. Any important objections to the panel system would be expressed in lowered satisfaction with one of these aspects of care.

THE DEMONSTRATION BASES

Each of the four demonstration bases varied in the populations served and in implementation of the panel system. Table 4 sets out the main features of the bases that relate to the primary care clinics. Further details of the variety among the bases will be discussed in other sections of this report.

Table 4
BASIC DATA ON PANEL SYSTEM

Item	Chanute	Dyess	Fairchild	Nellis
Team MDs ^a	3	4	3	4
Team PAs	7	5	5	6
Team PCNPs	1	2	2	2
PE:MD ratio per team	3:1	2:1	2:1	2:1
Approximate population served	26,400	19,200	19,100	28,000

^aIn addition to team physicians, each hospital had other physicians providing primary care to patients: at Chanute one General Medical Officer (GMO), at Fairchild one GMO and two Flight Surgeons, at Nellis two GMOs and one Flight Surgeon. The Flight Surgeons assisted in maintaining flight line duties, and the GMOs provided care in emergency rooms or in general therapy clinics. Internists not supervising teams saw only patients referred by primary providers.

III. ACCEPTANCE OF PHYSICIAN'S EXTENDERS

The panel system relied heavily on physician's extenders to provide primary care formerly provided by physicians. Patients' attitudes toward extenders were expected to have an important effect on their preferences for the panel system and their satisfaction with the care at the four demonstration bases. This section investigates the experience that respondents had with PAs, their willingness to see PAs in general, and their confidence in a PA's ability to handle specific problems. We also look closely at the attitudes of the spouses of the respondents toward extenders.

Analysis in 1974 showed generally high acceptance of treatment by PAs (Armor, 1979). Experience with PAs was not extensive throughout the populations at the bases surveyed then, with the exception of Homestead Air Force Base where larger numbers of PAs were concentrated. A small number of patients were unfavorable toward PAs and were dissatisfied with care if they saw a PA. This dissatisfaction applied to special problems where patients felt the potential threat was great or where the status of the then noncommissioned PA was not appropriate to the task, because of either rank or level of medical training.

The results of analysis of attitudes in 1974 could not be directly extrapolated to the situation of the demonstration project. The panel system relied much more heavily on PAs than did the typical Air Force clinic in 1974. An important issue in evaluating the demonstration project was to determine whether the high level of favorableness toward PAs would be maintained with increased exposure to PAs by more of the user population.

The analysis in this section relies on the set of surveys described in Section II. The 1976 surveys were completed after most of the personnel changes required by the project had already been made. Thus, experience with PAs did not change much between the two surveys. However, the data do reflect the administrative procedures that were instituted with the formation of the provider teams.

The surveys included questions concerning primary care nurse practitioners at the bases where PCNPs were stationed. I do not focus on these responses for two reasons. First, experience with PCNPs has not been as extensive as it has been with PAs, because the panels included only seven PCNPs. Second, PCNPs are not easily distinguished from other nurses or from pediatric and obstetrical/gynecological nurse practitioners. Thus, the reliability of responses about experience with PCNPs is questionable. In general, responses about PCNPs are very similar to those about PAs. Those cases where the responses about PCNPs are different are noted. Appendix D tabulates results for all other responses concerning PCNPs.

¹This section will concentrate on PA rather than PCNP acceptance because of greater numbers of PAs, the more complete survey information about them, and problems with PCNP data discussed below.

EXPERIENCE WITH PAs

In 1973 the first graduates of the Air Force training program began practicing in Air Force clinics. Table 5 shows how many respondents surveyed in 1974 had seen a PA during the previous year at the bases. Except at Homestead Air Force Base, few respondents had seen a PA.

Table 5 also shows responses to a similar question asked of the sample at each of the demonstration bases in 1976 and again in 1977. The percent having had some experience with a PA in the past year increased over that in 1974. General increases in numbers of Air Force PAs as well as increases in the numbers of PAs at these bases contributed to the greater experience. Responses in 1977 show increased exposure to PAs over the 1976 responses for the active duty group, but little change for others.

The type of practitioner reported for the last visit also shows the increased

Table 5

PERCENT OF RESPONDENTS SEEING A PA IN THE PAST YEAR

Base Location	Active Duty Base Users		Retired Base Users	
	Respondent	Spouse	Respondent	Spouse
<u>1974 Survey^a</u>				
Homestead	62	69	20	30
Keesler	22	19	9	9
March	35	41	24	31
Peterson	33	41	23	21
Robins	35	40	24	33
Williams	24	28	29	28
Nellis	20	16	16	22
<u>1976 Survey</u>				
Chanute	72	55	45	47
Dyess	45	45	57	55
Fairchild	58	55	55	57
Neilis	43	43	42	38
<u>1977 Survey</u>				
Chanute	78	56	47	48
Dyess	55	55	48	51
Fairchild	60	53	55	56
Nellis	50	50	46	41

^aD. J. Armor, *Patient Acceptance of the Air Force Physician Assistant*, The Rand Corporation, N-1303-AF, November 1979.

experience with PAs at each of the demonstration bases. Table 6 includes responses for both active duty and retired respondents. Data in these tables reveal some interesting patterns of use at the bases surveyed.

Table 6

PERCENT WHO SAW PA OR PCNP ON LAST VISIT
TO PRIMARY MEDICAL CLINICS

Base Location	Active Duty Respondents		Retired Respondents	
	1976	1977	1976	1977
Chanute	57	63	25	45
Dyess	38	38	54	37
Fairchild	39	44	42	44
Nellis	29	41	38	46

Homestead Air Force Base stands out from the others surveyed in 1974 in experience with PAs. In 1974 the primary medical clinics at Homestead were organized using PAs and assigning active duty families to teams of practitioners. The numbers of PAs were not so great as called for by the panel system, but the Homestead scheme provided important experience for the design of the panel system. Retiree families were not assigned to the teams with PAs, and their experience with PAs was considerably more limited.

During the demonstration at Chanute, PAs were used primarily for the treatment of active duty personnel. Active duty spouses, retirees, and retirees' spouses were much less likely to have seen a PA in the year before the panel reorganization. Despite the reorganization and the increase in the numbers of PAs, the pattern of greater active duty use continued.

Dyess shows a quite different pattern. Before the demonstration, retirees and their spouses were more likely to have seen PAs than active duty personnel and their spouses. The reorganization increased active duty families' exposure to PAs and reduced exposure to PAs by retired personnel.

ATTITUDE TOWARD PAs

With the majority of the user populations now having seen PAs, are the previously positive attitudes toward PAs maintained? In 1974, because there were few PAs, most patients who had reservations about seeing PAs could see a physician instead. At the demonstration bases the numbers of PAs substantially increased, and if a patient insisted on seeing a physician, he would then have to wait longer for the appointment.

Section II showed that the extent of regular use of the clinic did not decrease in the first year of the demonstration project. Table 7 indicates the attitudes of regular users among active duty and retired personnel toward receiving care from PAs. Attitudes are unchanged over the course of the demonstration project and similar to the attitudes toward PAs that were reported in 1974. Attitudes do not appear to be changed by increasing the numbers of PAs in the clinics and increasing patients' experiences with PAs. A few respondents persist in their disfavor toward PAs.

Table 7

ATTITUDE TOWARD RECEIVING CARE FROM A PA
(Regular users of base; percent)

Response	Chanute		Dyess		Fairchild		Nelliss		All Bases
	1976	1977	1976	1977	1976	1977	1976	1977	1974
Active Duty Respondents									
Favorable	65 ^a	70	51	47	49	48	51	51	50
Neutral	24	21	32	37	33	34	32	31	34
Unfavorable	11	8	17	16	18	19	17	19	16
(Number responding)	(403)	(405)	(377)	(326)	(366)	(346)	(239)	(238)	(1995)
Active Duty Spouses									
Favorable	53	58	39	53	42	40	37	40	50
Neutral	32	28	36	21	30	33	34	38	34
Unfavorable	15	15	25	26	28	27	29	23	17
(Number responding)	(307)	(304)	(253)	(190)	(276)	(253)	(166)	(152)	(1202)
Retired Respondents									
Favorable	68	72	68	63	63	66	57	61	58
Neutral	26	20	35	25	27	24	27	24	32
Unfavorable	6	9	7	13	10	9	17	16	10
(Number responding)	(190)	(222)	(81)	(152)	(307)	(295)	(222)	(213)	(701)
Retiree Spouses									
Favorable	62	68	68	51	54	60	51	51	54
Neutral	28	23	20	42	28	26	26	32	34
Unfavorable	10	10	12	6	18	15	23	18	13
(Number responding)	(154)	(171)	(65)	(115)	(284)	(279)	(174)	(172)	(562)

^aStatistically significant difference between 1976 and 1977, $p < 0.05$.

CONFIDENCE ON SPECIFIC PROBLEMS

Although many are favorable toward receiving care from PAs, the willingness to see a PA on a particular visit may depend on the patient's specific problem. Some interviews with patients and administrative personnel early in the project seemed to indicate that the objections raised about PAs relate to their handling potentially serious problems—e.g., chest pain—or to their performing routine gynecological exams.

To better understand these attitudes, both surveys of the demonstration base samples included several questions asking whether the respondents and their spouses felt that the PA should handle each of eight specific problems. Figure 1 shows the results for the 1976 and 1977 responses for active duty respondents, their spouses, and retired respondents and their spouses. Among active duty respondents in 1976 and 1977 (Fig. 1(a)), 84 and 86 percent felt that PAs should handle colds or sore throat. In both years only 25 percent felt that PAs should handle chest pain.

The lines connecting the points on the graph are not strictly correct. The horizontal axis of the figures represents eight individual problems, and it can be misleading to connect them with a line implying that the horizontal axis is a continuous variable. However, the eight problems are perceived as increasing in their appropriateness to the PA's role and thus represent a range of problems that people feel PAs can handle. The lines connecting the points are drawn to show the "level of confidence" that the respondent group has in the PA's ability. In a comparison of the levels of the lines in 1976 and 1977—i.e., the levels of confidence in PAs—they have changed very little in the first year of the demonstration project.⁴

The same method of display shows the correspondence between the responses to the general question about attitude toward PAs and the specific answers concerning the PAs' ability to handle the eight problems. Figure 2 shows the levels of confidence for each respondent category, separating the responses by their attitude toward receiving care from a PA. As one would expect, those favorable to PAs have the highest confidence and those unfavorable have the lowest confidence in the PAs' ability.

A small but consistent group of respondents remained unfavorable toward receiving care from PAs. This disfavor does not apply for visits involving all problems. In fact, Figs. 2(a) and (b) show that the majority of unfavorable active duty personnel and their spouses think that a PA should handle colds or sore throat. A quarter feel that PAs should handle such problems as a physical exam, a child's earache, or fatigue. Disfavor toward PAs depends on the patient's problem, and only a very small group of respondents feels that PAs should handle none of the problems about which we inquired.

This finding supports the evidence reported by Armor based on interviews with a few users of the clinics. The objections to PA care were primarily for complex internal medicine problems with potentially serious consequences and for procedures where PAs did not yet have the professional authority to overcome traditional attitudes.

⁴Responses across bases are quite similar and do not merit separating the responses by base.

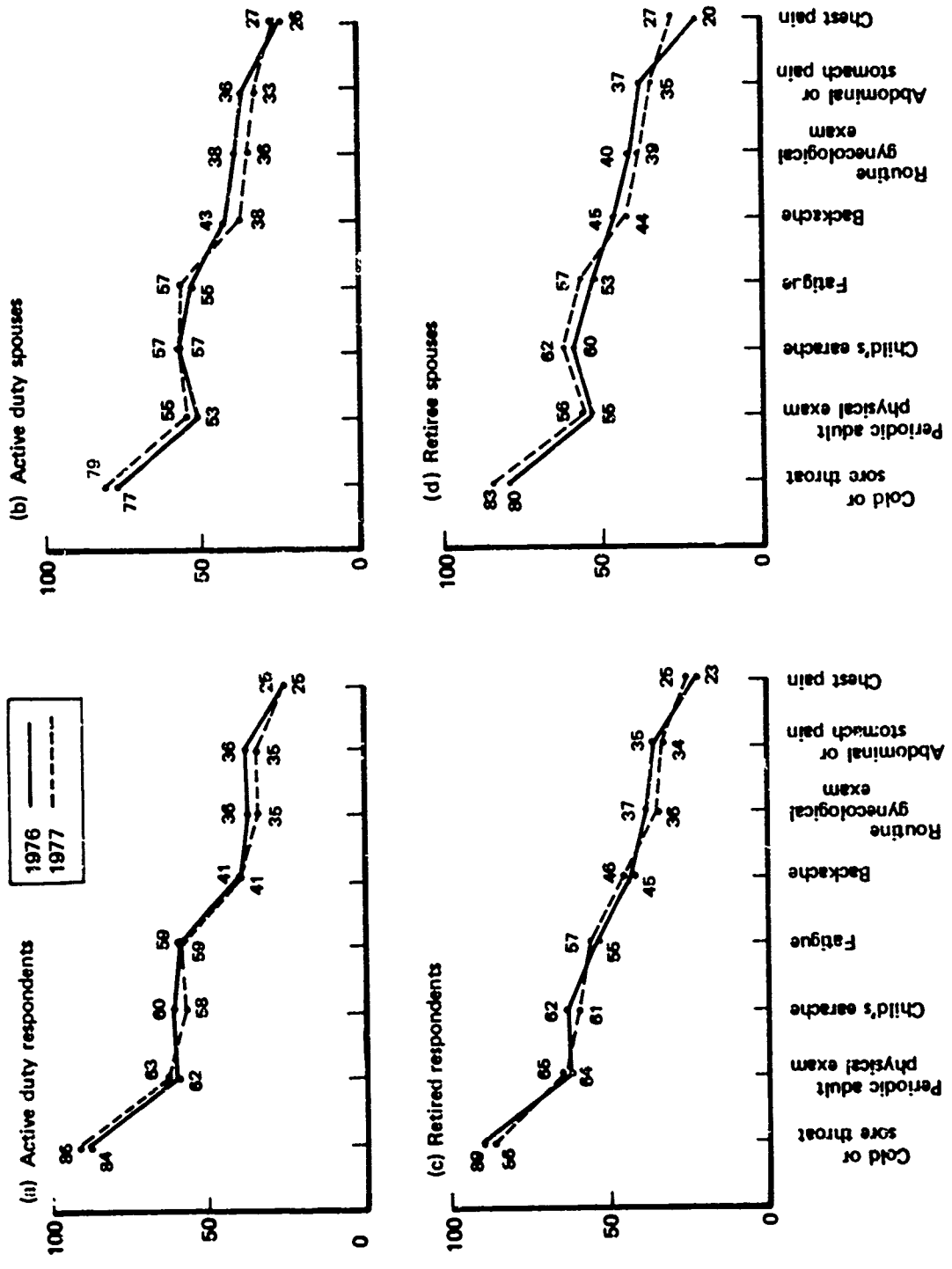


Fig. 1—Percent of respondents who feel PA can handle specific problems, 1976 and 1977, all bases (Regular base users only)

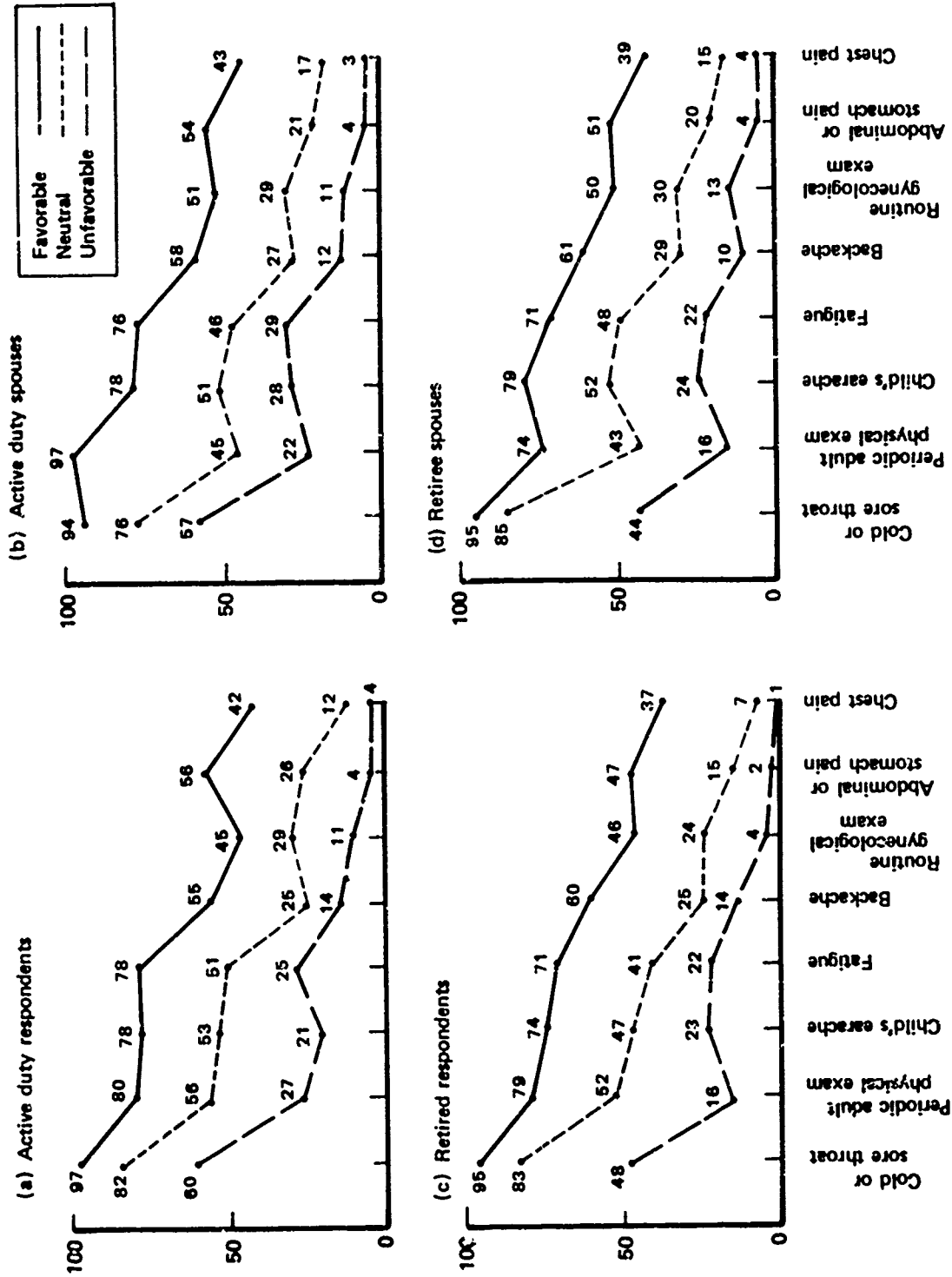


Fig. 2—Percent who feel PAs can handle specific problems by favorableness toward PAs; all bases, 1977 (Regular base users)

Patterns in PA Acceptance

Chanute stands out among all the demonstration bases as showing the highest level of favorableness toward PAs. The preference for the panel system was higher at Chanute as well, and this is in part accounted for by the more favorable rating of PAs. Chanute differed from other bases in a number of ways, including a higher PA:MD ratio, very low percentage of flyers among active duty personnel, and as mentioned above, the high percentage of active duty personnel seeing extenders. Any one of these could have an effect, as could the characteristics of the individual practitioners at Chanute.

At all the bases, spouses (both active duty and retired) were less likely to have seen a PA either in the past year or on the last visit. The less favorable attitude of spouses toward PAs compared with attitudes of military respondents was consistent across all bases. This difference remains even for attitudes concerning the female PCNPs, except for confidence in their ability to handle routine gynecological exams. Spouses are consistently less likely to approve of or use extender personnel.

Finally, retired personnel, particularly those who chose to use the base hospital regularly, are consistently more positive than are active duty personnel. They show greater favorableness toward PAs, and as indicated in Section V, they are generally more satisfied with most aspects of base care.

ATTITUDES TOWARD PCNPS

At Dyess, we asked the questions concerning ability to handle specific problems for PCNPs also. In Figure 3 the results for PCNPs are compared with those for PAs.¹ Most important is the difference in confidence in the PCNP to handle routine gynecological exams. All sample groups were consistently more likely to rate the PCNP than the PA as able to handle these exams. The difference in rating could result from something other than the title or training of these two professionals. PAs are more often male and were lower in rank at the time of the surveys than the PCNPs. Respondents may be confusing the Ob/Gyn nurse practitioners with those in primary care. Ob/Gyn specialists often handle such examinations, and the higher rating of the PCNP may be because respondents transferred the positive experience with Ob/Gyn practitioners to the PCNPs.

CONCLUSION

Since the Air Force PA program began, PAs have been widely accepted. That acceptance remains strong even with the increased reliance on PAs that was the basis of the demonstration project. Very few respondents surveyed are unfavorable toward PAs, and their numbers did not increase with the demonstration project's increased use of PAs in the primary care clinics. Of those unfavorable toward PAs, many feel PAs can handle such simple medical problems as colds and sore throat.

¹This figure gives results only for spouses. Active duty and retired respondents show the same pattern; their results are presented in Appendix D.

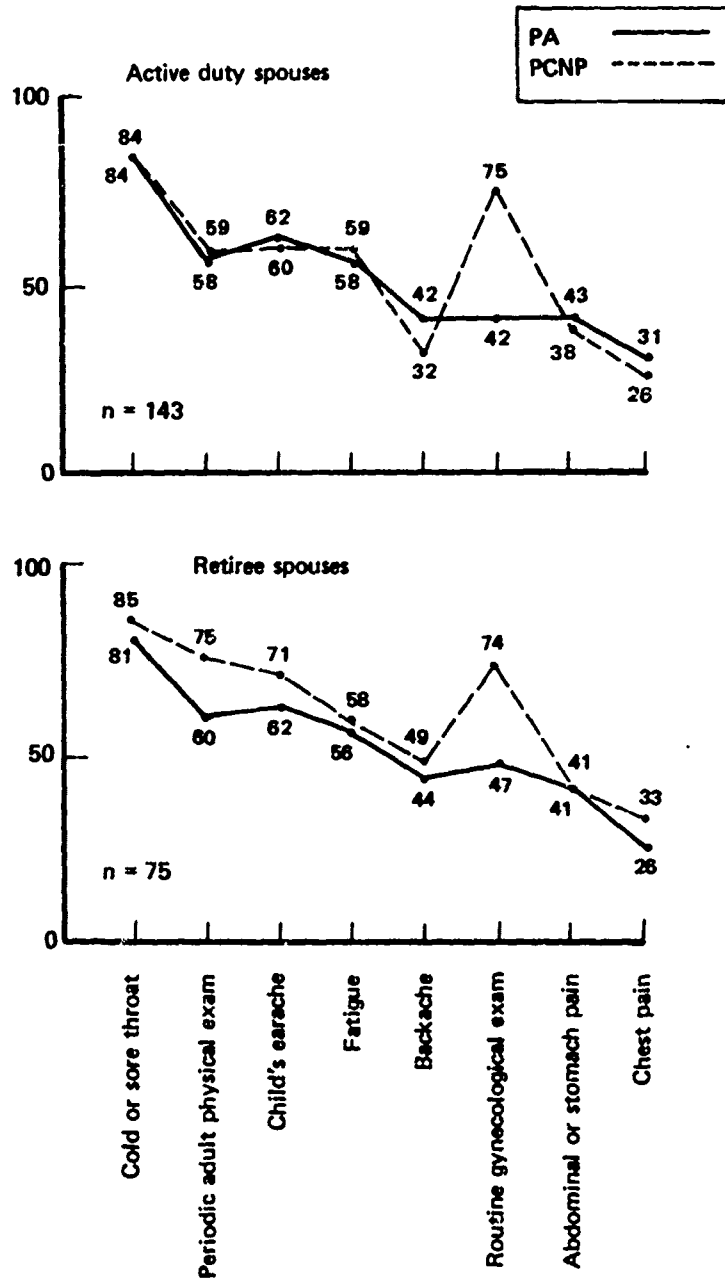


Fig. 3—Percent of spouses who feel PA and PCNP can handle specific problems; Dyess Air Force Base, 1977

The demonstration project has shown that PAs can provide care to a substantial portion of the population and gain the confidence of their patients. These findings strongly suggest that expansion of the panel system throughout the Air Force Medical System would result in similar acceptance of PAs. Certainly, patient acceptance presents no impediment to greater reliance on the PA for primary medical care.

IV. PREFERENCE FOR THE PANEL SYSTEM

INTRODUCTION

This section discusses the evaluation of the panel system. The reasons for preferences for the panel system are analyzed through a comparison of responses to the panel preference questions with other attitudes and experiences of the respondents. This analysis accounts, in part, for the strong endorsement that the users gave the panel system.

PREFERENCE FOR THE PANEL SYSTEM

The 1977 questionnaire was fielded after the panel system had been operating for a year. It included two questions that called for overall judgments about the panel system. The first asked respondents to compare the panel system at each base with "the way things used to be." Each base differed in the conditions before the institution of the panel system. This question asks whether the panel system improved or degraded service at the clinics. The overall responses for each group are shown in Table 8.

At all locations, a substantial proportion of the active duty sample preferred the panel concept. At Chanute and Dyess, enthusiasm for the changes was very strong. At Fairchild and Nellis, a large majority felt that they were better off or at least no worse off. The first section of Table 8 is limited to those active duty personnel who regularly used the base hospital. This includes more than 95 percent of the total group of active duty respondents.

Table 8 also shows the responses from retired military personnel, separating regular users of the base hospital from those who regularly seek care elsewhere. Regular users among retirees show a preference similar to that of active duty personnel. Those who chose to go elsewhere for care did not see the panel system as an improvement as often as did the regular users of the system.

Nonregular users' assessments of the base are likely to be influenced by opinions formed before the demonstration. Many seek base care only for special medical services or for optometrics. Those services were not directly affected by the panel reorganizations, so users of only those services would know little about the changes in the primary care clinics. Furthermore, some who go elsewhere for regular medical services may choose not to use the base because they are less satisfied with what the base has to offer.

In general, at all bases both active duty and retired personnel show strong preference for the panel concept. It represents an improvement in service for most and is seen as a degradation in service by only a small proportion of the population.

A second question asked respondents to indicate whether they would prefer the panel system or "a system in which you saw a physician each time you came to the hospital, even though it might be a different physician"—i.e., an "any-MD" system.

Table 8
PREFERENCE FOR PANEL CONCEPT OVER PREVIOUS SYSTEM
(Percent)

Response	Chanute	Dyess	Fairchild	Nellis
<u>Active Duty Respondents (regular base users)</u>				
Prefer panel concept	72	65	44	57
Like both about the same	23	27	43	30
Prefer the way things used to be	6	9	12	14
(Number responding)	(390)	(273)	(286)	(207)
<u>Retired Respondents (regular base users)</u>				
Prefer panel concept	54	49	46	56
Like both about the same	32	39	40	24
Prefer the way things used to be	14	12	14	21
(Number responding)	(208)	(127)	(251)	(182)
<u>Retired Respondents (regular users at other locations)</u>				
Prefer panel concept	37	67	36	39
Like both about the same	32	11	35	24
Prefer the way things used to be	31	21	29	37
(Number responding)	(75)	(55)	(86)	(74)

Although the first question will reflect the different levels of service that prevailed before and after the institution of the panel concept, the second question draws closer attention to reliance on PEs instead of physicians. It more directly reflects respondents' willingness to see extenders.

Even before the panel system, patients were not sure of seeing a physician on every visit. Many patients were seeing PEs and corpsmen. Thus, the "any-MD" system described in the second question would be seen as different from "the way things used to be," and answers to the two questions may differ.

Again, the majority of the active duty respondents preferred the panel concept over the alternative (see Table 9). This hypothetical alternative results in more respondents making a decision between the two systems, with fewer saying they like both about the same. Responses to this question by the retired sample are similar to their responses to the first question.

Both of the questions asking for overall assessments of the panel system show strong preference for the system, whether compared with previous conditions at each base or with a hypothetical all-physician alternative. The results suggest that

Table 9
PREFERENCE FOR PANEL CONCEPT OVER "ANY DOCTOR" SYSTEM
 (Percent)

Response	Chanute	Dyess	Fairchild	Nellis
<u>Active Duty Respondents (regular base users)</u>				
Prefer panel concept	72	61	52	64
Like both about the same	15	16	24	16
Prefer "any-MD" system	13	23	24	20
(Number responding)	(395)	(304)	(313)	(213)
<u>Retired Respondents (regular base users)</u>				
Prefer panel concept	58	52	49	56
Like both about the same	21	24	24	14
Prefer "any-MD" system	21	24	26	31
(Number responding)	(216)	(136)	(270)	(193)
<u>Retired Respondents (regular users at other locations)</u>				
Prefer panel concept	38	51	43	34
Like both about the same	18	10	16	21
Prefer "any-MD" system	44	39	41	45
(Number responding)	(90)	(99)	(107)	(87)

most patients of Air Force base hospitals will support a system where physician's extenders (PEs) provide a substantial portion of primary medical care formerly provided by physicians.

ANALYSIS OF PANEL PREFERENCE

The strong endorsement of the concept shown by these responses could reflect reactions to several changes that occurred with the organization of the panels in each hospital. The influence of each change was gauged separately through an analysis of the relationship between the preferences for the panel and (1) respondents' experiences on their last visits to the base clinic, and (2) respondents' attitudes toward receiving care from PEs. The regression analysis measures the relationship between variables in these groups and responses to the panel preferences question, and controls for respondents' demographic characteristics.

The variables that were included in the regression estimations are defined in

Table 10. Although most of these definitions are self-explanatory, the coding of the dependent variable and the definition of the variable CONFIDENCE need some elaboration.

Dependent Variable

The regression analysis uses a dependent variable that codes the responses to the two panel preference questions. The responses specify three points on the continuum of preference for the panel, from preferring the panel system to indifference to preferring either of the two alternatives offered. If separate questions had been asked about attitudes toward the panel system and each of the alternatives, the differences in these ratings would yield the same continuum. The three points are numerically coded with the values 0, 0.5, and 1 in the regression formulation with the value of 1 indicating preference for the panel system.

The middle response, "feel about the same," may not be equidistant between the other two responses as is dictated by the coding scheme. Those who indicate this neutral response may be closer to one end of the continuum or the other. To test sensitivity of the findings to this coding scheme, the model was estimated two additional times, by combining the middle group first with the "1" group (those preferring the panel), and second with the "0" group (those preferring the alternative). The estimates of the coefficients were insensitive to the coding scheme. The size of the coefficient estimates was insensitive to the coded values of the middle group, because the extreme responses determine the coefficients' signs and sizes.

The Confidence Variable

The variable CONFIDENCE measures respondents' attitudes toward extenders using a scale constructed from responses to a set of questions concerning the PA's ability to handle specific problems.¹ The questionnaire asked whether the respondent felt that the PA could handle six medical problems, including colds or sore throat, fatigue, child's earache, back pain, abdominal or stomach pain, and chest pain. It also asked about the PA's ability to handle periodic adult physicals and routine gynecological exams. The responses to these eight questions were consistent across various groups of respondents, with the ordering of the problems being the same for most groups.²

From the responses to these questions, we constructed a Guttman scale of confidence in PAs by counting the number of problems that each respondent thought the PA could handle. The scale ranged from 0 to 8. In cases where the response to one of the problems was missing, the missing response was imputed from the responses to other problems. In cases where more than one response was missing, I used the responses to other PA-related questions to impute a scale score for the individual.³

¹Recall that these questions were asked about PCNPs at only one base. The CONFIDENCE variable refers only to confidence in PAs.

²The coefficients of reproducibility were 0.87 for both active duty and retired respondent samples.

³The details of estimating missing scale scores is discussed in Appendix C.

Table 10

REGRESSION VARIABLE DEFINITIONS

Variable Name	Definition
<u>Independent Variables</u>	
CHANUTE DYESS NELLIS FCHILD	Dummy variables indicating respondent's base: Chanute, Dyess, Nellis, or Fairchild
AGELT30	=1 if respondent's age less than 30
AGE30	=1 if respondent's age between 30 and 39
AGE40	=1 if respondent's age between 40 and 49
AGE50	=1 if respondent's age between 50 and 59
AGEGT60	=1 if respondent's age 60 or greater
HLTHPRFR	=1 if respondent's health poor or fair (i.e., not reported as good or excellent)
COLL	=1 if respondent graduated from college
MARRIED	=1 if respondent is married
OFFIC	=1 if respondent is officer
NONWHITE	=1 if respondent indicated race other than white
INMIL1	=1 if respondent has been in the Air Force for less than four years
NEWT0AR	=1 if respondent has been in the area for less than 1-1/2 years
SPUNFAV	=1 if respondent married and spouse reported as unfavorable to PAs
RREGUSE	=1 if respondent is regular user of the base
SPREGUSE	=1 if respondent is married and spouse is regular user of the base
CONFIDENCE	Scale of confidence in PA's ability to handle specific problems; ranges from 0 to 8
MD PA	Dummy variables for provider type on last visit: physician, PA; other providers (nurse, corpsman) are omitted
APPT FOLLUP	Dummy variables for how last visit was arranged: appointment, followup; others (walk-in, sick call, emergency) are omitted
OFWAIT	Office wait on last visit, in minutes
APPTWT	Appointment delay for last visit if visit scheduled by appointment or as followup; otherwise=0
LENGMD	Length of time with provider on last visit if seen by MD; otherwise=0
EEXPER	Logit of probability of having some experience with base care in the past year, estimated from other characteristics of respondent (Logit of $p = \ln(p/1-p)$)
<u>Dependent Variables</u>	
PREFPANL	Preference for panel over "the way things used to be" (1 = prefer panel; 0.5 = about the same; 0 = prefer old system)
PANLVAMD	Preference for panel over "any-MD" system (1 = prefer panel; 0.5 = about the same; 0 = prefer "any-MI" system)

Estimation

The chances that respondents would have visited the base on the last visit depend on their attitudes about extenders and about the care at the base in general. This presents a serious problem in the analysis of the retired sample because many in that sample regularly seek care at locations other than the base hospital. Estimating the relationship between panel preference and all the independent variables at once will exclude those who have no experience with the base. Such respondents would be less favorable to the base and their exclusion would bias the estimates. This is not a serious problem for active duty personnel who almost always use the base hospital as their regular source of care, only rarely having had their last visit at some other location.

To avoid this problem for the retiree sample, I first used all respondents to estimate the influence of demographic and attitude variables on panel preferences. Then, to estimate the influence of the last visit's experience on the panel preference, I used the responses of only those whose last visit was at the base. When estimating the effect of last visit experience on panel preference, I have separated the sample into those whose last visit was to one of the primary care teams and those whose last visit was to one of the hospital's other outpatient clinics.

The dependent variable in these regressions is a discrete variable taking on three ordered values: prefer panel system, indifferent, and prefer the alternative (either the old system or the "any-MD" system). These responses were coded with values 1, 0.5, and zero. Ordinary least squares estimates are reported in the following sections. Below I report coefficient estimates only for those with their last visit at the base. The results for other groups are quite similar and are included in full in Appendix C. There I also discuss the choice of regression technique and questions concerning the variables. Table 11 presents sample means for the variables included in the regression estimations and standard deviations where appropriate.

Results for Active Duty Respondents

Respondents' confidence in PAs' ability had a strong and consistent influence on the preference for the panel system, whether compared with the way things used to be or with the hypothetical "arty-MD" system. Confidence in the PAs' ability was measured by the scale described above. In every regression, the coefficient of this confidence scale was statistically significant and of similar size (Table 12). With its reliance on such large numbers of PEs, strong preference for the panel system depends on the high confidence patients have in PAs' (and PCNPs') ability to treat common primary care problems.

The regression results suggest that conditions varied among the bases before the demonstration project, and the panel system brought different degrees of improvement to each base. Base differences in the simple percentages in Table 8 remain even after one accounts for differences in the base populations captured by the other independent variables included in the regression analysis. At Chanute and Dyess, preference for the panel is greater than at either Fairchild or Nellis.¹

¹The sample population at Chanute reported markedly higher satisfaction with the panel system and with care provided by PEs. To some extent this higher satisfaction is confirmed by a later, independently drawn sample at Chanute, discussed in Appendix B.

Table 11

MEAN VALUES FOR VARIABLES IN REGRESSION EQUATIONS FOR
RESPONDENTS WITH LAST VISIT TO BASE PRIMARY MEDICINE CLINIC

(Standard deviations in parentheses)

Variable	Active Duty Respondents n = 450	Retired Respondents n = 279
CHANUTE	0.356	0.297
DYESS	0.251	0.100
FCHILD	0.224	0.337
NELLIS	0.169	0.265
CONFIDENCE	4.88 (2.24)	5.37 (1.98)
SPUNFAV	0.200	0.143
RREGUSE	(a)	0.932
SPREGUSE	0.744	0.792
AGELT30	0.496	0.0
AGE30	0.356	0.025
AGE40	0.144	0.434
AGE50	0.004	0.412
AGEGT60	0.0	0.129
HLTHPRFR	0.056	0.161
INMIL1	0.180	(a)
NEWT0AR	0.240	(a)
COLL	0.709	0.577
MARRIED	0.816	0.968
OFFIC	0.311	(a)
NONWHITE	0.164	(a)
FEMALE	0.024	0.011
MD	0.418	0.430
PA	0.440	0.462
APPT	0.569	0.735
FOLLUP	0.082	0.043
OFWAIT	23.9 (26.3)	19.9 (21.6)
APPTWT	(a)	3.33 (4.72)
LENGPA	5.89 (14.7)	7.55 (16.4)
LENGMD	7.21 (20.1)	7.87 (14.8)
PREFPANL	0.751 (0.344)	0.695 (0.353)
PANLVAMD	0.721 (0.404)	0.670 (0.398)

^aVariable not included in regression estimation.

Table 12

**REGRESSION RESULTS FOR RESPONDENTS WITH LAST
VISIT TO BASE PRIMARY MEDICINE CLINICS**
(OLS coefficients and t-statistics)

Explanatory Variables	Active Duty Respondents		Retired Respondents	
	PREFPANL ^a	PANLVAMD ^b	PREFPANL	PANLVAMD
CHANUTE	0.157 ^c (3.66)	0.104 ^d (2.15)	0.095 (1.79)	0.085 (1.46)
DYESS	0.160 ^c (3.30)	0.024 (0.44)	-0.046 (-0.61)	-0.048 (-0.57)
FCHILD	(e)	(e)	-0.041 (-0.79)	-0.037 (-0.64)
NELLIS	0.080 (1.64)	0.052 (0.95)	(e)	(e)
CONFIDENCE	0.048 ^c (5.84)	0.062 ^c (6.61)	0.040 ^c (3.49)	0.047 ^c (3.72)
SPUNFAV	-0.041 (-0.92)	-0.165 ^c (-3.25)	-0.240 ^c (-3.62)	-0.299 ^c (-4.08)
RREGUSE	(f)	(f)	0.042 (0.48)	0.047 (0.49)
SPREGUSE	0.082 (1.57)	-0.072 (-1.22)	0.004 (0.06)	0.039 (0.60)
AGELT30	(e)	(e)	(f)	(f)
AGE30	-0.026 (-0.71)	0.005 (0.12)	(e)	(e)
AGE40	-0.074 (-1.51)	-0.081 (-1.46)	0.003 (0.03)	-0.070 (-0.49)
AGE50	-0.557 ^d (-2.44)	-0.543 ^d (-2.10)	-0.021 (-0.16)	-0.090 (-0.62)
AGEGT60	(f)	(f)	-0.033 (-0.24)	-0.105 (-0.68)
HLTHPRFR	-0.010 (-0.15)	-0.091 (-1.20)	-0.084 (-1.50)	-0.099 (-1.61)
INMIL1	0.035 (0.75)	0.021 (0.39)	(f)	(f)
NEWTOAR	-0.066 (-1.83)	-0.053 (-1.30)	(f)	(f)
COLL	0.027 (0.73)	-0.035 (-0.82)	-0.013 (-0.31)	-0.036 (-0.79)
MARRIED	-0.052 (-0.86)	0.032 (0.46)	0.043 (0.35)	0.046 (-0.34)

Table 12—continued

Explanatory Variables	Active Duty Respondents		Retired Respondents	
	PREFPANL ^a	PANLVAMD ^b	PREFPANL	PANLVAMD
OFFIC	-0.018 (-0.41)	-0.018 (-0.36)	(f)	(f)
NONWHITE	-0.055 (-1.30)	-0.064 (-1.34)	(f)	(f)
FEMALE	0.063 (0.63)	0.052 (0.45)	-0.043 (-0.22)	0.068 (0.32)
MD	0.035 (0.72)	0.108 (1.96)	-0.043 (-0.56)	-0.032 (-0.39)
PA	0.078 (1.55)	0.087 (1.54)	-0.047 (-0.63)	0.044 (0.53)
APPT	0.009 (0.26)	0.057 (1.46)	-0.080 (-1.49)	0.014 (0.24)
FOLLUP	0.004 (0.08)	0.042 (0.63)	-0.011 (-0.10)	0.045 (0.37)
OFWAIT	-0.001 (-1.84)	-0.001 (-1.51)	-0.0009 (-0.88)	-0.001 (-1.13)
APPTWT	(f)	(f)	-0.006 (-1.17)	0.003 (0.51)
LENGPA	-0.001 (-1.13)	-0.001 (-0.92)	0.00 (0.00)	-0.002 (-1.10)
LENGMD	0.0006 (0.69)	-0.0006 (-0.69)	0.0009 (0.55)	0.002 (1.22)
Intercept	0.398 ^c (4.96)	0.412 ^c (4.54)	0.584 ^c (2.93)	0.551 ^c (2.49)
R ²	0.217	0.274	0.247	0.273
F-statistic	4.91	6.68	3.80	4.36
n	450	450	279	279

^aPREFPANL = panel compared with old system.

^bPANLVAMD = panel compared with "any-MD" system.

^cCoefficient significantly different from zero, $p < 0.01$.

^dCoefficient significantly different from zero, $p < 0.05$.

^eExcluded category in the dummy variable specification.

^fVariable not used in estimation.

The opinions of the respondent's spouse have a consistent influence on the preference for the panel. Women are less willing to see PAs in lieu of physicians. If a spouse is unfavorable toward treatment by a PA, then preference for the panel decreases. The effect is greater when the alternative is the "any-MD" system. Because spouse attitudes have an effect on panel preference that is separable from respondent attitudes toward PAs, this finding would seem not to result merely from the respondents' answering for spouses.

Although the data concerning PCNPs are sparse and rather unreliable, they do suggest that wives are much more willing to see the (usually female) PCNP than the (usually male) PA. Section III indicated that the only important difference between confidence in PAs and PCNPs is that more respondents feel the PCNP can handle routine gynecological exams than feel the PA can. The data indicate that wives are less confident than their husbands in either PAs or PCNPs. This difference is not simply due to the wives' concern about male extenders performing gynecological exams, a concern shared by their husbands; it includes their concern about PAs' and PCNPs' ability to handle other problems as well.

Shorter waiting time in the office seemed to contribute to respondents' preference for the panel system over previous conditions. This result suggests that some patient reluctance to be treated by PAs is mitigated by improvements in waiting time in the clinic. However, the effect of office waiting time was not so strong as the effect of confidence in the PAs' ability.

Finally, the results fail to show any consistent relationship between preference for the panel and demographic characteristics, with the exception of the respondent's age. Respondents under 30 years of age were more positive toward the panel than all older age groups, and the older the age group the less its preference for the panel. Race had a consistent but statistically insignificant effect, with white respondents preferring the panel more than those of other racial groups.

Retired Respondents

Because retired personnel often choose not to visit the base hospital for care, I split the analysis of the relevant variables into two parts. In the first regression I estimated the relationship between panel preference and the first two categories of explanatory variables—i.e., demographic characteristics and attitudes toward PAs. I also controlled for the respondent's experience with the base hospital in the past year. The results are presented in Appendix C.

The results here are for the second regressions where I selected those respondents whose last medical visit was to the primary medicine clinics of the base hospital and estimated the relationship between their preference for the panel and their experiences on that last visit. Included in this regression were the variables in the first regression found to be important. The sample was limited to those whose last visit was to the primary care panel at the demonstration base. (Appendix C shows the results for those with the last visit to some other clinic in the hospital.)

As with active duty personnel, the most consistent explainer of panel preference is confidence in PAs' ability. The size of the effect is similar to that found for the active duty sample. Among the retired population also the success of the demonstration was due to a willingness to see PAs for primary care problems.

The attitude of the spouse toward PAs influenced panel preferences. As with active duty spouses, the influence was stronger in comparing the panel with the "any-MD" alternative. Married respondents with spouses unfavorable toward PAs were much more negative about the panel. Other demographic variables had statistically insignificant coefficients, and firm conclusions about their influence cannot be made.

The results here show little influence by the last panel visit experience on preference for the panel system (see Table 12). The waiting time on last visit did not have a significant effect on panel preference. The respondents' confidence in the PA and the spouses' attitudes toward PAs still have the greatest influence on panel preference.

Retired respondents reporting poor or fair health preferred the panel system less often than those reporting good or excellent health. This applies only to respondents whose last visit was to one of the primary care panels. Those not in good health are more often uneasy about not seeing a physician. The panel's reliance on extenders would represent a greater decrease in service for this group. This finding does not apply to those whose last visit was to another clinic in the hospital, where some sort of specialty care would be given.

The Role of Assignment in Preference for the Panel System

An important feature of the panel system was the assignment of both active duty and retired families to a particular team of providers. This placed the responsibility for a specific portion of the eligible population clearly in the hands of a small number of providers and permitted continuity in the contact between family members and the hospital.

Unfortunately the surveys cannot provide any indication of how this feature increases preference for the panel system over alternatives. The design of the demonstration made it impossible to separate effects related to the changes in staffing from effects that may have been due to the panel assignment. Nor would the assignment effect be immediately apparent. The contact initiated by the hospital in the assignment process probably generated some goodwill among the eligible population that cannot be directly related to the panel preference responses. It would take a time period longer than that covered by our surveys to expect families to have experienced an improvement in the continuity of care by their assigned team.

The publicity surrounding the establishment of the panel system emphasized the family assignment to provider teams. The expectation of improved continuity of care may have contributed to respondents' positive reactions to the panel system, even though few would have visited the clinic often enough to have experienced any true improvement.

CONCLUSION

Both active duty personnel and retired persons strongly endorsed the panel system. The heavy reliance on extenders (particularly PAs) did not substantially

detract from this support because of the widespread favorable attitude toward receiving care from PEs. In fact, support for the panel system is primarily a function of confidence in PEs' abilities. Improvements in clinic waiting times appeared to contribute some support for the panel system among active duty personnel. The improvements in waiting time apparently can compensate for some unwillingness to be treated by PAs instead of physicians. Any system that relies on extenders should also provide reasonable access to physicians for those patients who would prefer seeing a physician for their particular complaint. Those unfavorable to PAs may nevertheless prefer a panel system if their access to physicians is assured.

V. SATISFACTION WITH CARE

This section presents data on the level of satisfaction with a number of different aspects of medical care at the demonstration bases. The panel system cannot be judged a success unless it can fit into the entire health care system at each base and provide satisfactory care for a majority of the user population.

The section's first half presents the summary of results from the surveys. Respondents gave their opinions about specific aspects of care provided at the base, their satisfaction with the last visit to the base, and their usual experience. Put together, these sets of questions provide a broad picture of the level of satisfaction of the users of the demonstration base hospitals.

The second half presents the detailed results from the surveys administered over the course of the project. First, results from the surveys reflect the changes in access to care that the panel system was to improve: (1) availability of appointments, (2) waiting time for appointments, and (3) waiting time in the office. The panel system was intended to decrease the use of walk-in services by shifting to an all-appointment system. Scheduling the arrival of patients smoothly throughout the day was to reduce the long waits experienced by patients arriving in the morning, and the full staffing of the clinic and assignment of patients to each team was to improve appointment availability for those willing to see PAs.

Second, the surveys provide data concerning several aspects of patient satisfaction with care, including access, art of care, technical quality, and availability of services usually and on last visit. A selection of these responses portrays patient satisfaction with care at these Air Force hospitals.

Recall that the 1976 and 1977 surveys were sent to the same sample of families. Repeated mailings of the survey allowed monitoring any changes in satisfaction that may have occurred over the course of the demonstration project. The numbers of respondents may differ in the two years because of changes in regular-user status or because respondents failed to answer all questions in one year or the other.

STATISTICAL TESTS OF SIGNIFICANCE

The statistical tests applied in this section were tests on correlated proportions described by McNemar (1955). Responses for a given question are matched for the two years of the survey. Then the responses for a question are grouped into two categories: satisfied (including very satisfied, satisfied, and neutral) and dissatisfied (including dissatisfied and very dissatisfied). The responses are cross-tabulated by the two years, so that those who are satisfied (or dissatisfied) in both years appear in the diagonal cells of the matrix. The off-diagonal cells contain those whose opinions have changed between the two surveys. Some of these changes are due to error in measurement and should be equally distributed between those who increase and those who decrease their satisfaction—i.e., between the two off-diagonal cells. The more numbers of respondents differ in the two off-diagonal cells, the less random is the change between the two surveys.

I wish to test the hypothesis that the chances of being in either off-diagonal cell are the same. Assuming the chances are the same, the binomial distribution gives the chances of a particular spread of respondents between these two cells. Let a be the number in one off-diagonal cell and b the number in the other. The probability of a given pair a and b occurring, assuming no change in satisfaction, is

$$\binom{a+b}{a} (0.5)^{a+b}$$

The chances of getting a given result or a more divergent result can be calculated by summing the binomial probabilities from zero to a (assuming that a is the smaller of a and b). Twice this gives the p -value for the two-tailed test of the hypothesis that the chances of being in either cell are equal. With large enough numbers of observations, a Chi-square approximation can be used.

SUMMARY RESULTS

The data suggest that little change has occurred in attitudes toward base care despite the considerable changes in both personnel providing the care and organization of the base clinics. Those bases where the organizational changes were most complete also had the greatest increases in satisfaction with access to care. At no base did the substantial change in staffing based on physician's extenders cause any detectable change in satisfaction with care received or with service at the hospital as a whole. This is an important finding of the demonstration project: Substantial reliance on physician's extenders does not cause any measurable shift in satisfaction with care. Patient dissatisfaction does not limit the numbers of PEs (relative to physicians) employed at the demonstration bases, numbers considerably greater than previous experience in the Air Force or in comparable civilian settings.

Results concerning last visit experience paint a mixed picture of the changes in procedure that were to occur in the panel system. Although one of the bases considerably increased the use of scheduled appointments rather than walk-in services, the other bases' procedures remained unchanged. Waiting time in the office improved somewhat.

Retiree respondents showed greater satisfaction overall with every aspect of base care (reflecting in part the low monetary cost of base services relative to alternatives in the civilian sector). Satisfaction also remained stable over the course of the demonstration project for both retirees and active duty personnel. On the whole, the panel system did not improve the service of one of these groups at the cost of the other.

On all aspects of care, whether in reference to the last visit or to the usual experience at the base, a majority of respondents are satisfied with the service. From 60 to 70 percent of the active duty samples and between 75 and 90 percent of the retired samples say they are satisfied or very satisfied with each aspect of the care covered in the questionnaire.

One important exception to the generally high level of satisfaction is the response to the question concerning availability of specialist care. Active duty and retired respondents are less satisfied with this aspect of the base services than any

other about which they were queried. Availability of specialists remains an unsolved problem at these bases.¹

DETAILED RESULTS

The timing of the 1976 survey was such that its results reflect the situation shortly after the panel system organization—i.e., the specification of the teams, the assignment of panel patients, and the adjustment of appointment procedures. The personnel who manned the teams were already at the bases providing care. Thus, the differences imperfectly reflect the organizational aspects of the panel concept and the personnel changes.

In all tables in this section, the 1976 results are limited to those who also responded in 1977.² These results therefore reflect attitudes of a respondent cohort composed of those who completed both surveys. The comparisons may also reflect changes in the mood of the population that might not result from their experiences with medical care. Such attitude changes will probably play a minor role in this study given the short time (nine months) between the administration of the two surveys. Limiting the sample to this cohort can introduce a bias into the analysis. Those who respond to both rounds of surveys are more often those who use the base hospital regularly and thus may be more favorable toward base care than nonrespondents.³ But it is necessary to limit the sample to a stable group in order to make comparisons over time. Although the cohort can no longer be considered a truly random sample of the eligible population, it does give a useful indication of change in satisfaction over the course of the demonstration.

Access to Care

One of the goals of the panel system was to improve access to primary care. Typically, Air Force hospitals reserve a substantial part of each practitioner's day for seeing patients with acute problems. Patients arrive at the clinic on the day when they wish to be seen and see the first available practitioner. Such a system can cause long waits in the clinic for those patients who arrive when the clinic is most crowded. Unless a careful balance is struck in practitioners' schedules between these same-day appointments and appointments scheduled in advance, there can be either too little time to treat those with acute problems or too few appointments for the patients able to schedule their visits in advance. Shifting to a system where all visits are made by appointment was expected to provide two benefits. First, patient arrivals would be evenly spaced throughout the day, corresponding

¹Some shortage of specialists is to be expected for Air Force hospitals of size similar to the demonstration bases. Their patient populations are not large enough to fully employ specialists whose caseloads consist of rarer problems.

²Respondents were included in the sample for these tables if a questionnaire was answered during both of the survey years. Because these respondents did not complete all questions on both years' surveys, the number of responses will differ across the two years for any one question. Unfortunately, it was not possible to match the responses of retirees at Dyess for the two mailings. For Dyess retirees, the 1976 results include all of 1976 returns and are not limited to those who also answered in 1977.

³Appendix B shows the 1977 response rates for those responding in 1976, tabulated by various characteristics of the respondents.

to the available practitioner time, which should reduce the waiting time in the office for those with appointments. Second, appointment availability should increase, helping to reduce the number of days patients would have to wait for appointments.

Respondents reported how long they had to wait in the office on their last visit. Tables 13 and 14 gave the responses for active duty and retired personnel. Responses are separated for those who had scheduled visits (either appointment or follow-up visits) and those who had unscheduled visits (sick call, walk-in, or emergency).

Responses about office waiting time show small improvements for both scheduled and unscheduled appointments. Active duty personnel experienced decreases in the numbers having to wait more than 30 minutes in all cases except unscheduled appointments at Chanute. Similarly, the percentage waiting less than five minutes increased in six out of eight cases. Although the changes in the distribution of waiting times are not statistically significant, there is a clear trend of improvement in waiting time for active duty personnel over the course of the demonstration.

The case for retired personnel is not so clear. Decreases occurred in waits on scheduled appointments in three of the four bases, including a statistically signifi-

Table 13

ACTIVE DUTY RESPONDENTS, WAITING TIME IN THE OFFICE ON LAST VISIT
(Percent)

Waiting Time	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Scheduled Visits^a								
Less than 5 min	6	10	8	14	11	14	11	4
5-15 min	38	37	36	35	36	41	37	47
15-30 min	27	28	24	26	27	24	26	25
More than 30 min	26	25	32	23	26	20	26	23
(Number responding)	(267)	(283)	(167)	(202)	(202)	(220)	(141)	(134)
Unscheduled Visits^b								
Less than 5 min	14	16	20	15	16	21	16	23
5-15 min	30	19	29	38	33	46	25	36
15-30 min	21	27	26	29	22	18	27	17
More than 30 min	35	39	25	16	29	15	33	24
(Number responding)	(71)	(64)	(129)	(85)	(100)	(91)	(64)	(70)

^aScheduled visits include those arranged by appointment or as followup.

^bUnscheduled visits include walk-in, sick call, and emergency visits.

Table 14

RETIRED RESPONDENTS, WAITING TIME IN THE OFFICE ON LAST VISIT
(Percent)

Waiting Time	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Scheduled Visits^a								
Less than 5 min	8	6	8 ^b	11	8 ^c	16	7	8
5-15 min	43	42	46	49	47	51	46	43
15-30 min	32	28	29	24	27	20	28	31
More than 30 min	18	25	17	16	19	12	19	18
(Number responding)	(114)	(149)	(93)	(96)	(215)	(183)	(139)	(121)
Unscheduled Visits^d								
Less than 5 min	17	13	19 ^b	30	20	29	18	13
5-15 min	23	38	50	26	41	38	15	25
15-30 min	13	21	19	19	23	18	27	27
More than 30 min	47	28	13	26	16	11	11	35
(Number responding)	(30)	(39)	(16)	(27)	(44)	(45)	(30)	(30)

^aScheduled visits include those arranged by appointment or as followup.

^bResults based on total 1976 Dyess sample.

^cDifference in 1976 and 1977 distributions is statistically significant, $p < .025$.

^dUnscheduled visits include walk-in, sick call, and emergency visits.

cant decrease at Fairchild. Retired personnel usually visit the clinic on scheduled visits, rarely using walk-in or emergency services (78 percent in 1977 for scheduled retirees at the four bases overall).

A second expected change in access to base care was a decrease in unscheduled use of the clinic. The panel system called for full reliance on appointment scheduling except for those on flying status. The success in achieving this change was uneven across the bases. Dyess experienced the largest shift from unscheduled to scheduled visits. Table 15 shows the proportion of unscheduled visits and for the scheduled visits shows the proportion having to wait various ranges of time for the appointments.

The results from Dyess are worth a closer look. Before the panel system, waiting times to scheduled appointments were longer here than at any of the other bases. Ten percent of the last visits had waits for appointments that exceeded two weeks. In addition (and probably as a result of the long appointment waits), 42 percent of visits were unscheduled visits. The panel system achieved a substantial reduction in the use of unscheduled visits at Dyess, and at the same time decreased

Table 15
 ACCESS TO ALL CLINICS ON LAST VISIT BY APPOINTMENT LEAD TIME
 (Percent)

Visit Type and Appointment Lead Time	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active Duty Respondents								
Unscheduled visits ^a	21	18	42 ^b	30	33	29	31	34
Scheduled visits								
0 days	35	37	28	45	22	18	18	15
1-2 days	18	26	5	9	19	20	19	29
3-7 days	15	12	7	9	15	16	20	12
8-14 days	6	5	7	4	7	9	7	6
>14 days	5	3	10	5	5	8	4	3
(Number responding)	(313)	(307)	(246)	(248)	(246)	(259)	(182)	(178)
Retired Respondents								
Unscheduled visits	22	21	26 ^c	22	17	17	27	28
Scheduled visits								
0 days	13	16	29	41	11	11	11	7
1-2 days	10	13	20	11	29	25	14	13
3-7 days	22	23	15	13	24	25	27	27
8-14 days	23	14	3	4	13	12	17	21
>14 days	11	13	7	10	6	3	5	3
(Number responding)	(124)	(173)	(121)	(111)	(228)	(203)	(178)	(149)

^aUnscheduled visits include walk-in, sick call, and emergency visits.

^bDifference between distributions is statistically significant, $p < .005$.

^cResults based on total 1976 Dyess sample.

the proportion of patients who had long waits (greater than two weeks) for appointments. The retirees at Dyess also experienced improvements in their appointment waits, with a large increase in the proportion getting appointments on the same day as requested.

The results on use of scheduled visits and appointment wait from the other three bases do not show any significant change. At Chanute, use of unscheduled visits was already low at the time of the 1976 survey and could not be expected to drop further. Neither Fairchild nor Nellis shows any evidence of having changed appointment policies. Use of unscheduled visits and appointment waiting times have not changed for active duty and retired personnel.

Satisfaction with Care

Respondents rated their satisfaction with overall experiences at the bases in the past year (Table 16). Most active duty and retired respondents were satisfied or very satisfied with their experiences. At all bases except Nellis, active duty respondents showed some increase in satisfaction over the course of the project. However, the changes in retiree satisfaction are small and not consistently in one direction or the other.

Table 16
**SATISFACTION WITH OVERALL EXPERIENCE AT BASE
 IN THE PAST YEAR**
 (Regular users of base; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active Duty Respondents								
Very satisfied	12 ^a	18	8	7	14	14	8 ^b	11
Satisfied	50	52	48	55	52	53	54	48
Mixed/neutral	25	22	24	23	23	23	25	23
Dissatisfied	11	6	16	10	9	8	9	12
Very dissatisfied	2	3	4	5	3	2	4	5
(Number responding)	(375)	(386)	(354)	(309)	(342)	(330)	(228)	(226)
Retired Respondents								
Very satisfied	44 ^b	47	40 ^c	27	45	50	37	33
Satisfied	43	42	46	47	44	39	43	48
Mixed/neutral	6	9	7	15	9	9	11	10
Dissatisfied	8	2	5	10	2	1	8	7
Very dissatisfied	0	0	2	2	0	1	2	2
(Number responding)	(163)	(186)	(117)	(136)	(284)	(260)	(198)	(182)

^aStatistically significant difference between 1976 and 1977, $p < .01$.

^bStatistically significant difference between 1976 and 1977, $p < .05$.

^cResults based on total 1976 Dyess sample.

Satisfaction with waiting time in the office generally improved for active duty personnel at all bases (Table 17). This reflects the improvements in waiting time on unscheduled appointments at bases except Dyess, and improvements at Dyess in scheduled appointments. The results for retired respondents show some improvement in satisfaction, but the findings are not compelling.

At Chanute and Dyess, where the largest changes in appointment procedures

Table 17

SATISFACTION WITH USUAL WAITING TIME IN OFFICE
(Regular users of base; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active Duty Respondents								
Very satisfied	10	14	9	13	10	12	5	11
Satisfied	41	47	47	49	40	45	44	40
Mixed/neutral	24	20	21	23	24	22	23	17
Dissatisfied	19	15	17	11	20	17	23	24
Very dissatisfied	6	5	7	3	6	5	5	8
(Number responding)	(382)	(386)	(361)	(315)	(344)	(329)	(227)	(220)
Retired Respondents								
Very satisfied	29	37	29 ^a	30	33	40	28	30
Satisfied	48	45	56	43	48	46	46	44
Mixed/neutral	10	9	11	17	10	8	11	16
Dissatisfied	16	9	3	9	7	6	12	1
Very dissatisfied	4	1	1	2	1	< 1	5	1
(Number responding)	(167)	(186)	(119)	(137)	(285)	(260)	(200)	(182)

^aResults based on total 1976 Dyess sample.

occurred, there were large and significant changes in satisfaction with usual waiting time for an appointment (Table 18). At these two bases changes in appointment procedures affected attitudes toward the clinic's performance. Retired personnel did not report the improvements in appointment wait that the active duty personnel experienced, and their satisfaction with usual waits for appointments did not show the same increase. At Fairchild and Nellis the changes in satisfaction were small and in no definite direction, reinforcing the lack of evidence for any real change in appointment waiting time at either of these bases.

The results of the questions concerning the course of the last visit show generally high levels of satisfaction with all aspects of care, relating to both the "art of care" and the technical quality of the care in the eyes of the respondents (Table 19). Under 10 percent of all active duty respondents and fewer retired respondents felt dissatisfied with the conduct, ability, or interest shown by the medical persons on the last visit. Recall that about 30 percent of these visits were seen by PEs. Again, users of the base show strong support for the care provided by extenders.

Finally, the least satisfaction was expressed about the availability of specialists at the base hospitals (Table 20). Satisfaction with this aspect of service is clearly

Table 18

**SATISFACTION WITH USUAL WAITING TIME FOR APPOINTMENTS
IN PAST YEAR**
(Regular users of base; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active Duty Respondents								
Very satisfied	17 ^a	22	15	16	15	16	9	12
Satisfied	45	51	38	55	51	44	49	42
Mixed/neutral	18	14	21	18	14	20	17	19
Dissatisfied	15	10	19	9	15	15	18	19
Very dissatisfied	5	3	8	<1	6	5	6	8
(Number responding)	(377)	(388)	(339)	(303)	(333)	(323)	(218)	(215)
Retired Respondents								
Very satisfied	35 ^b	37	35 ^c	29	37	48	26	23
Satisfied	37	48	45	49	44	34	44	43
Mixed/neutral	13	11	9	8	8	9	10	11
Dissatisfied	12	5	9	9	9	9	14	17
Very dissatisfied	3	1	3	5	2	1	6	5
(Number responding)	(165)	(180)	(118)	(132)	(278)	(257)	(193)	(178)

^aStatistically significant difference between 1976 and 1977, $p < .025$.

^bStatistically significant difference between 1976 and 1977, $p < .05$.

^cResults based on total 1976 Dyess sample.

lower than either the overall level of satisfaction or satisfaction with other specific aspects of care. This remains an important problem in the eyes of the population relying on these bases for medical care.

Appendix D includes results on other questions asked about satisfaction with base care.

Table 19

SATISFACTION WITH CONDUCT OF MEDICAL PERSON ON LAST VISIT
(Regular users of base; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active Duty Respondents								
Very satisfied	49	48	34	43	45	43	38	37
Satisfied	39	39	44	33	38	41	45	42
Mixed/neutral	7	8	14	12	9	10	10	13
Dissatisfied	4	3	5	7	5	4	5	4
Very dissatisfied	2	2	3	5	2	2	3	4
(Number responding)	(324)	(331)	(290)	(278)	(290)	(290)	(192)	(193)
Retired Respondents								
Very satisfied	72	73	60 ^a	51	73	72	61	59
Satisfied	20	22	33	36	23	24	27	37
Mixed/neutral	5	4	7	6	2	2	7	2
Dissatisfied	1	1	0	6	2	2	1	1
Very dissatisfied	2	1	0	0	<1	0	3	1
(Number responding)	(130)	(170)	(93)	(113)	(230)	(196)	(176)	(153)

^aResults based on total 1976 Dyess sample.

Table 20

SATISFACTION WITH AVAILABILITY OF SPECIALISTS
(Regular users of base; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
<u>Active Duty Respondents</u>								
Very satisfied	11	11	9	5	12	16	6	11
Satisfied	22	25	17	32	38	38	30	28
Mixed/neutral	22	24	31	32	29	25	36	26
Dissatisfied	28	27	29	22	15	17	22	24
Very dissatisfied	18	14	13	0	8	6	6	11
(Number responding)	(331)	(358)	(306)	(267)	(288)	(291)	(196)	(189)
<u>Retired Respondents</u>								
Very satisfied	27	23	20 ^a	12	33	31	23	19
Satisfied	21	28	31	29	37	41	26	32
Mixed/neutral	18	21	21	28	14	15	23	30
Dissatisfied	23	21	19	19	14	10	19	17
Very dissatisfied	11	8	9	12	2	2	11	3
(Number responding)	(140)	(153)	(94)	(113)	(229)	(214)	(151)	(145)

^aResults based on total 1976 Dyess sample.

VI. CONCLUSION

The purpose of the demonstration project was to test the feasibility of providing primary medical care by relying on large numbers of physician's extenders in Air Force clinics. Analysis of surveys administered to measure patients' attitudes has shown that reliance on physician's extenders does not adversely affect the level of satisfaction with the care provided by the clinic. Favorableness toward PAs is so widespread and confidence in their ability is so high that very little change in satisfaction with care at the bases occurred despite a substantial change in the way services were provided.

The users of the demonstration bases saw the panel system as an improvement in the clinic and preferred it over an "any-MD" system, because of the high level of confidence the population had in the PAs' ability to handle most common outpatient problems. To a limited extent, other changes that the panel system brought influenced the preference for it, such as decreases in office waiting time, increased availability of appointments, and access to physicians for those who preferred not to see an extender.

Levels of satisfaction with care at the demonstration bases were generally stable over the course of the project. In no aspect did satisfaction decrease. In general the panel system proved to be a satisfactory means for delivering care in the Air Force clinic. The one feature of the four demonstration hospitals with which the surveyed populations, both active duty and retired, have been and continue to be dissatisfied is the availability of specialists at Air Force hospitals.

Like numerous earlier studies of patient acceptance of extenders, the demonstration project has shown that most patients are satisfied with extenders' care and have confidence in their ability to handle a wide range of primary care problems. The results from the demonstration project extend these previous findings to a system where physician's extenders provide the major portion of primary care. Patients' attitudes are not a constraint on the use of physician's extenders in numbers considerably larger than those currently used in most primary care settings.

An analysis of the quality of extender care also conducted at the four demonstration bases concluded that "the Air Force can deliver the same quality of medical care when PEs treat a sizeable proportion of the patients formerly treated by physicians, and that no quality bar exists to the continued training and employment of PAs and PCNPs in Air Force outpatient clinics."¹ The findings of this study of patient attitudes supplement the findings on quality of care, further strengthening the case for reliance on physician's extenders in the Air Force primary medicine clinics.

¹Goldberg and Jolly (1979).

Appendix A
1977 MEDICAL SURVEY

INSTRUCTIONS

PLEASE ANSWER ALL QUESTIONS BY PLACING AN "X" IN THE APPROPRIATE BOX (E.G., [X]) OR BY FILLING IN THE BLANKS AS INDICATED. SOME QUESTIONS ASK ABOUT YOUR SPOUSE'S USE OF THE MEDICAL CARE SYSTEM; YOU MAY WANT TO CONSULT YOUR SPOUSE IN ANSWERING THESE QUESTIONS. IF YOU ARE NOT MARRIED, PLEASE LEAVE THESE QUESTIONS BLANK.

PRIVACY ACT STATEMENT

The following information is provided as required by the Privacy Act of 1974:

- a. This survey information is authorized for solicitation by Federal Statute Title 10, United States Code, Sections 133 and 8012, and Executive Order 9397, 22 November 1943.
- b. The principal purposes of this survey are to assess the medical care needs of military families (active and retired), and to evaluate the functioning of military medical facilities and programs.
- c. Participation in this survey is voluntary.
- d. No adverse action of any kind may be taken against any individual who elects not to participate in any or all of this survey.

CONFIDENTIALITY

The questionnaire will be used only for statistical summaries; individual persons will not be identified. All information which would permit identification of respondents will be regarded as strictly confidential, will be used only for the purposes of the study and will not be disclosed or released for any other purpose without prior consent, except as required by law.

¹Surveys to all bases were the same except that at Dyess question 13 was asked about PCNPs as well as PAs.
The 1976 survey was the same as 1977 except for the exclusion of questions 16c and 16d.

1. a. Where do you regularly go if you need the following types of medical care? (EXCLUDE DENTAL CARE)

	<u>Fairchild AFB Facility</u>	<u>Another Military Facility</u>	<u>Civilian Doctor or Facility (incl. V.A.)</u>	
	1	2	3	
1. A visit with a doctor (outpatient care)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10/
2. Hospitalization (inpatient care)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11/

- b. Where does your spouse regularly go if the following types of medical care are needed? (EXCLUDE DENTAL CARE)

	<u>Fairchild AFB Facility</u>	<u>Another Military Facility</u>	<u>Civilian Doctor or Facility (incl. V.A.)</u>	
	1	2	3	
1. A visit with a doctor (outpatient care)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13/
2. Hospitalization (inpatient care)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14/

- c. If your children live with you, where do they regularly go if they need the following types of medical care? (EXCLUDE DENTAL CARE)

	<u>Fairchild AFB Facility</u>	<u>Another Military Facility</u>	<u>Civilian Doctor or Facility (incl. V.A.)</u>	
	1	2	3	
1. A visit with a doctor (outpatient care)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16/
2. Hospitalization (inpatient care)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17/

- d. If you or a member of your family regularly use another military facility, please indicate its name:

_____ 18-19/

2. a. If you or a member of your family regularly use a civilian facility, approximately how many miles do you live from that facility?

_____ miles 20-22/

- b. About how long does it take you to get to that facility?

_____ minutes 23-25/

3. a. If you or a member of your family DOES NOT use Fairchild AFB facilities for one or more of the above types of care, indicate why below. Otherwise, go to Question 4.

ANSWER ALL QUESTIONS YES OR NO.

	<u>YES</u>	<u>NO</u>	
	1	2	
1. Takes too long to get an appointment?	<input type="checkbox"/>	<input type="checkbox"/>	26
2. Waiting time in the office is too long?	<input type="checkbox"/>	<input type="checkbox"/>	27/
3. Facilities too run-down?	<input type="checkbox"/>	<input type="checkbox"/>	28/
4. Doctors too busy to give adequate care?	<input type="checkbox"/>	<input type="checkbox"/>	29/
5. Doctors not concerned enough with your problems?	<input type="checkbox"/>	<input type="checkbox"/>	30/
6. Doctors not qualified to handle your problems?	<input type="checkbox"/>	<input type="checkbox"/>	31/
7. Cannot choose your own doctor?	<input type="checkbox"/>	<input type="checkbox"/>	32/
8. Too much turnover among doctors?	<input type="checkbox"/>	<input type="checkbox"/>	33/
9. Doctors too inexperienced?	<input type="checkbox"/>	<input type="checkbox"/>	34/
10. Too many problems turned over to corpsmen or other assistants?	<input type="checkbox"/>	<input type="checkbox"/>	35/
11. You live too far away?	<input type="checkbox"/>	<input type="checkbox"/>	36/
12. A lack of specialists you need?	<input type="checkbox"/>	<input type="checkbox"/>	37/
13. Other (specify: _____)	<input type="checkbox"/>	<input type="checkbox"/>	38/

- b. In the boxes below, please write in the numbers of the three reasons that are most important to the decision NOT to use Fairchild for care.

Most Important Second Most Important Third Most Important

39-40/

41-42/

43-44/

4. a. During the past year, how many visits have you made for yourself to a medical person (doctor, physician assistant, nurse, corpsman) for each of the following reasons?

(If you had no visits, check here and go on to Question 5.) 45/

NUMBER OF VISITS

1. Cold, flu or other upper respiratory problem	_____	46-47/
2. Digestive or abdominal problem	_____	48-49/
3. Skin problem	_____	50-51/
4. Eye exam	_____	52-53/
5. Eye or ear problem	_____	54-55/
6. Urinary infection or problem	_____	56-57/
7. High blood pressure or heart or chest problem	_____	58-59/
8. Diabetes, thyroid or other endocrine problem	_____	60-61/
9. Allergy	_____	62-63/
10. Nervous tension	_____	64-65/
11. Sprain/strain/fracture or other accidental injury	_____	66-67/
12. Back or joint problem	_____	68-69/
13. Headache or dizziness	_____	70-71/
14. Weight problem	_____	72-73/
15. Fatigue	_____	74-75/
16. Gynecological problem	_____	76-77/
17. Routine gynecological exam	_____	78-79/
18. Pregnancy exam	_____	10-11/
19. Annual or periodic physical exam	_____	12-13/
20. Other physical exams	_____	14-15/
21. All other reasons	_____	16-17/

TOTAL (Please add) _____

CARD 2

- b. How many of your TOTAL visits were with:

NUMBER OF VISITS

1. A Fairchild AFB medical person	_____	18-19/
2. another military medical person	_____	20-21/
3. a civilian medical person (include V.A.)	_____	22-23/

5. a. During the past year, about how many visits has your spouse made to a medical person?
- (If your spouse had no visits, check here. ¹) 24/
- _____ visits to a Fairchild AFB medical person 25-26/
 _____ visits to another military medical person 27-28/
 _____ visits to a civilian medical person (incl. V.A.) 29-30/
- b. During the past year, about how many visits have your children made to a medical person?
- (If your children had no visits, check here. ¹) 31/
- _____ visits to a Fairchild AFB medical person 32-33/
 _____ visits to another military medical person 34-35/
 _____ visits to a civilian medical person (incl. V.A.) 36-37/
6. Compared to other persons your age, would you say your health is:
1. Excellent 38/
 2. Good
 3. Fair
 4. Poor
7. How many times have you been hospitalized in the past year?
- (If you had no hospitalizations, check here. ¹) 39/
- _____ times in a military facility 40/
 _____ times in a civilian facility 41/
8. ANSWER THE FOLLOWING QUESTIONS FOR YOUR LAST VISIT TO A MEDICAL PERSON (EXCLUDING DENTAL CARE):
- a. With whom was this last visit? 42/
1. Fairchild AFB medical person
 2. Another military medical person (specify facility: _____)
 3. Civilian medical person (include V.A.)
- b. About how long ago was this visit?
- _____ month(s) ago, or, if less than 1 month 43-44/
 _____ day(s) 45-46/

c. Was this visit for a problem of yours or a child of yours?

1. My problem 47/
 2. My child's problem
 3. Both

d. If visit for child: Age of child

_____ year(s), or, if less than 1 year old, 48-49/
 _____ months(s) 50-51/

e. How was the visit arranged?

1. Walk-in (no appointment and not an emergency) 4. Called for an appointment 52/
 2. Emergency 5. Pre-arranged as follow-up to a prior visit (e.g., post-surgery follow-up; routine pre-natal visit)
 3. Sick call

f. If you called for an appointment: About how many days did you wait between your call and appointment? (Write "0" if none.)

_____ day(s) 53-54/

g. What type of medical person provided the main treatment on this visit?

1. Doctor 4. Nurse 55/
 2. Physician's Assistant (identified by the blue "PA" emblem on his jacket) 5. Corpsman
 3. Nurse Practitioner 6. Other (SPECIFY: _____)
 7. Not sure

h. Approximately how long did you wait to see the medical person after you arrived at the office or waiting room?

1. Less than 5 minutes 5. 45 minutes to 1 hour 56/
 2. 5 to 15 minutes 6. 1 to 1-1/2 hours
 3. 15 to 30 minutes 7. 1-1/2 to 2 hours
 4. 30 to 45 minutes 8. Over 2 hours

i. Approximately how long did the visit with the medical person last?

- 1. Less than 1 minute
- 2. 1 to 5 minutes
- 3. 5 to 10 minutes
- 4. 10 to 20 minutes
- 5. 20 to 30 minutes
- 6. 30 minutes to 1 hour
- 7. 1 to 2 hours
- 8. Over 2 hours

57/

j. What was the principal reason for the visit? (Check one box only.)

- 1. Cold, flu or other upper respiratory problem
- 2. Digestive or abdominal problem
- 3. Skin problem
- 4. Eye exam
- 5. Eye or ear problem
- 6. Urinary infection or problem
- 7. High blood pressure or heart or chest problem
- 8. Diabetes, thyroid, or other endocrine problem
- 9. Allergy
- 10. Nervous tension
- 11. Sprain/strain/fracture or other accidental injury
- 12. Back or joint problem
- 13. Headache or dizziness
- 14. Weight problem
- 15. Fatigue
- 16. Gynecological problem
- 17. Routine gynecological exam
- 18. Pregnancy exam
- 19. Annual or periodic physical exam
- 20. Other physical exams
- 21. All other reasons

58-59/

HOW SATISFIED WERE YOU WITH THE FOLLOWING ITEMS IN CONNECTION WITH YOUR LAST VISIT? (LEAVE BLANK IF ITEM DOES NOT PERTAIN TO YOUR VISIT)

	<u>Very</u> <u>Satisfied</u>	<u>Satisfied</u>	<u>Mixed or</u> <u>Neutral</u>	<u>Dissatisfied</u>	<u>Very</u> <u>Dissatisfied</u>	
	1	2	3	4	5	
k. The length of time you waited for an appointment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	60/
l. The waiting time in the office or waiting room?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	61/
m. The length of the visit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	62/
n. The manners and conduct of the medical person seen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	63/
o. The interest taken in your problem by the medical person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	64/
p. The ability of the medical person to handle your problem?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	65/
q. The treatment or action taken by the medical person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	66/
r. If the visit was at Fairchild AFB, what was the principal clinic you visited?						67-68/
<input type="checkbox"/> 1. Emergency						
<input type="checkbox"/> 2. Family Clinic (General Therapy)						
<input type="checkbox"/> 3. Flight Surgeon						
<input type="checkbox"/> 4. Sick Call						
<input type="checkbox"/> 5. Eye/ENT						
<input type="checkbox"/> 6. Internal Medicine						
<input type="checkbox"/> 7. Ob-Gyn						
<input type="checkbox"/> 8. Orthopedics						
<input type="checkbox"/> 9. Pediatrics						
<input type="checkbox"/> 10. Psychiatry						
<input type="checkbox"/> 11. Surgery						
<input type="checkbox"/> 12. Physical Therapy						
<input type="checkbox"/> 13. Other: _____						

9. If the visit was at a civilian medical facility, how was the visit paid for?

- | | | |
|--|--|-----|
| <input type="checkbox"/> 1. Entirely by myself | <input type="checkbox"/> 4. Partly by CHAMPUS and partly by another insurance plan | 69/ |
| <input type="checkbox"/> 2. Partly or entirely by CHAMPUS | <input type="checkbox"/> 5. Other (Specify: _____) | |
| <input type="checkbox"/> 3. Partly or entirely by another insurance plan | | |

10. During the past year about how many times have you or a member of your family telephoned a medical person to discuss a problem? EXCLUDE CALLS FOR APPOINTMENTS AND FOR DENTAL CARE.

(If there were no telephone calls, check here.)

70/

_____ calls to a Fairchild medical person

71-72/

_____ calls to another military medical person

73-74/

_____ calls to a civilian medical person (include V.A.)

75-76/

11. The Physician's Assistant (identified by a blue "PA" emblem on his jacket) is a health care professional who will complement the doctor's staff by handling certain kinds of medical problems. A Physician's Assistant has received special training that certified him to diagnose and treat common illnesses; he can also diagnose and treat more complicated problems under the supervision of a doctor.

a. Are you favorable or unfavorable to receiving treatment from a Physician's Assistant as described above?

CARD 3

- | | | |
|---------------------------------------|---|-----|
| <input type="checkbox"/> 1. Favorable | <input type="checkbox"/> 3. Unfavorable | 10/ |
| <input type="checkbox"/> 2. Neutral | <input type="checkbox"/> 4. Not sure | |

b. To your knowledge have you visited or consulted with a Physician's Assistant within the last year?

- | | |
|--------------------------------------|-----|
| <input type="checkbox"/> 1. Yes | 11/ |
| <input type="checkbox"/> 2. No | |
| <input type="checkbox"/> 3. Not sure | |

c. IF YES, give name: _____

12-14/

d. Is your spouse favorable or unfavorable to receiving treatment from a Physician's Assistant as described above?

- | | | |
|---------------------------------------|---|-----|
| <input type="checkbox"/> 1. Favorable | <input type="checkbox"/> 3. Unfavorable | 15/ |
| <input type="checkbox"/> 2. Neutral | <input type="checkbox"/> 4. Not sure | |

e. To your knowledge has your spouse visited or consulted with a Physician's Assistant within the last year?

1. Yes 16/
 2. No
 3. Not sure

f. IF YES, give name: _____ 17-19/

12. a. IF YOU HAVE VISITED OR CONSULTED A PHYSICIAN'S ASSISTANT IN THE LAST YEAR, ANSWER THE FOLLOWING QUESTIONS ABOUT THE LAST TIME YOU DID SO.

i. Did the Physician's Assistant provide the care or were you referred to a doctor?

1. Provided treatment 2. Referred me to a doctor 20/

ii. Overall, how satisfied were you with the way the Physician's Assistant handled your problem?

1. Very satisfied 4. Dissatisfied 21/
 2. Satisfied 5. Very dissatisfied
 3. Neutral

iii. Would you say that your problem was handled better or worse than doctors who have treated you at Fairchild?

1. Better 2. About the same 3. Worse 22/

b. IF YOUR SPOUSE VISITED OR CONSULTED A PHYSICIAN'S ASSISTANT IN THE LAST YEAR, PLEASE ANSWER THE FOLLOWING QUESTIONS ABOUT THE LAST VISIT OF THIS KIND:

i. Did the Physician's Assistant provide the care or was your spouse referred to a doctor?

1. Provided treatment 2. Referred my spouse to a doctor 23,

ii. Overall, how satisfied was your spouse with the way the Physician's Assistant handled the problem?

1. Very satisfied 4. Dissatisfied 24/
 2. Satisfied 5. Very dissatisfied
 3. Neutral

iii. Would your spouse say that the problem was handled better or worse than doctors who have provided treatment at Fairchild?

1. Better 2. About the same 3. Worse 25/

13. PLEASE ANSWER FOUR QUESTIONS FOR EACH OF THE MEDICAL PROBLEMS LISTED BELOW.

In column A indicate whether you have seen a PA in the past year for that type of problem.

In Column B indicate whether, in your opinion, a PA should handle that type of problem.

In Column C indicate whether your spouse has seen a PA in the past year for that type of problem.

In Column D indicate whether, in your spouse's opinion, a PA should handle that type of problem.

	Column A Have you seen a PA for this?		Column B Do you think a PA should handle this?			Column C Has your spouse seen a PA for this?		Column D Does your spouse think a PA should handle this?		
	Yes 1	No 2	Yes 1	No 2	Not Sure 3	Yes 1	No 2	Yes 1	No 2	Not Sure 3
1. Cold or sore throat	<input type="checkbox"/>	<input type="checkbox"/> 26/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 27/	<input type="checkbox"/>	<input type="checkbox"/> 28/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 29/
2. Chest pain	<input type="checkbox"/>	<input type="checkbox"/> 30/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 31/	<input type="checkbox"/>	<input type="checkbox"/> 32/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 33/
3. Routine gynecological examination	<input type="checkbox"/>	<input type="checkbox"/> 34/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 35/	<input type="checkbox"/>	<input type="checkbox"/> 36/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 37/
4. Periodic adult physical examination	<input type="checkbox"/>	<input type="checkbox"/> 38/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 39/	<input type="checkbox"/>	<input type="checkbox"/> 40/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 41/
5. Child's earache	<input type="checkbox"/>	<input type="checkbox"/> 42/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 43/	<input type="checkbox"/>	<input type="checkbox"/> 44/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 45/
6. Backache	<input type="checkbox"/>	<input type="checkbox"/> 46/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 47/	<input type="checkbox"/>	<input type="checkbox"/> 48/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 49/
7. Abdominal or stomach pain	<input type="checkbox"/>	<input type="checkbox"/> 50/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 51/	<input type="checkbox"/>	<input type="checkbox"/> 52/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 53/
8. Fatigue	<input type="checkbox"/>	<input type="checkbox"/> 54/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 55/	<input type="checkbox"/>	<input type="checkbox"/> 56/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 57/

14. The Primary Care Nurse Practitioner (PCNP) is a registered nurse with additional special training who also complements the doctor's staff. The PCNP is qualified to diagnose and treat common illnesses and can also diagnose and treat more complicated problems under the supervision of a doctor.

a. Are you favorable or unfavorable to receiving care from a PCNP as described above?

1. Favorable

2. Neutral

3. Unfavorable

4. Not sure

58/

b. To your knowledge have you visited or consulted with a PCNP within the last year?

1. Yes 59/
 2. No
 3. Not sure

c. IF YES, give name: _____ 60-62/

d. Is your spouse favorable or unfavorable to receiving care from a PCNP as described above?

1. Favorable 3. Unfavorable 63/
 2. Neutral 4. Not sure

e. To your knowledge has your spouse visited or consulted with a PCNP within the last year?

1. Yes 64/
 2. No
 3. Not sure

f. IF YES, give name: _____ 65-67/

15.a. IF YOU HAVE VISITED OR CONSULTED A PCNP IN THE LAST YEAR, ANSWER THE FOLLOWING QUESTIONS ABOUT THE LAST TIME YOU DID SO.

i. Did the PCNP provide the care or were you referred to a doctor?

1. Provided treatment 68/
 2. Referred me to a doctor

ii. Overall, how satisfied were you with the way the PCNP handled your problem?

1. Very satisfied 4. Dissatisfied 69/
 2. Satisfied 5. Very dissatisfied
 3. Neutral

iii. Would you say that your problem was handled better or worse than doctors who have treated you at Fairchild?

1. Better 70/
 2. About the same
 3. Worse

- b. IF YOUR SPOUSE HAS VISITED OR CONSULTED A PCNP IN THE LAST YEAR, PLEASE ANSWER THE FOLLOWING QUESTIONS ABOUT THE LAST VISIT OF THIS KIND:
- i. Did the PCNP provide the care or was your spouse referred to a doctor?
1. Provided treatment 71/
 2. Referred my spouse to a doctor
- ii. Overall, how satisfied was your spouse with the way the PCNP handled the problem?
1. Very satisfied 4. Dissatisfied 72/
 2. Satisfied 5. Very dissatisfied
 3. Neutral
- iii. Would your spouse say that the problem was handled better or worse than doctors who have provided treatment at Fairchild?
1. Better 73/
 2. About the same
 3. Worse

16. a. Overall, would you say that medical services at Fairchild are better, worse, or about the same as those you have experienced at other military facilities?

CARD 4

1. Much better 4. Somewhat worse 42/
 2. Somewhat better 5. Much worse
 3. About the same 6. Don't know enough to rate

b. Overall, would you say that medical services at Fairchild are better, worse, or about the same as those you have experienced in civilian facilities?

1. Much better 4. Somewhat worse 43/
 2. Somewhat better 5. Much worse
 3. About the same 6. Don't know enough to rate

*c. During the past year Fairchild has operated under a panel concept in which each family was assigned to a primary medical module consisting of one physician and two or three PAs/PCNPs. Do you prefer the panel concept or the way things used to be?

1. Prefer panel concept (modules) 44/
 2. Like both about the same
 3. Prefer the way things used to be

*d. Suppose you had your choice of the panel system or a system in which you saw a physician each time you came to the hospital, even though it might be a different physician. Which would you prefer?

1. Prefer panel concept (modules) 45/
 2. Like both about the same
 3. Prefer seeing physician each time, even if it's a different physician

17. Have you or members of your family ever participated in CHAMPUS (Civilian Health and Medical Program of the Uniformed Services)?

1. No 46/
 2. Yes, but not within the last year
 3. Yes, within the last year
 4. Have never heard of it

18. IF YES: For what types of care?

1. A visit with a doctor (outpatient care) 47/
 2. Hospitalization (inpatient care)
 3. Prenatal care and delivery

19. Are you covered by a health insurance policy other than CHAMPUS?

1. Yes 48/
 2. No, but other members of my family are
 3. No

*These questions were included only in the 1977 survey.

20. ANSWER THE FOLLOWING QUESTION IF YOU ARE COVERED BY HEALTH INSURANCE OTHER THAN CHAMPUS.

a. Who pays for this other insurance?

1. Paid entirely by an employer or union 49/
2. Paid partly by an employer or union and partly by yourself or your spouse
3. Paid entirely by yourself or your spouse
4. Other (specify: _____)

b. Is any part of this other insurance designed specifically to pay expenses not covered by CHAMPUS?

1. Yes 50/
2. No

c. Does this other insurance cover outpatient care (visit with a doctor)?

1. Yes 51/
2. No

d. IF YES, have you used it to pay for any outpatient care during 1976?

1. Yes, for myself 52/
2. Yes, for my spouse
3. Yes, for one or more of my children
4. No

21. PLEASE RATE THE FOLLOWING ITEMS AS THEY PERTAIN TO YOUR USUAL EXPERIENCE AT FAIRCHILD IN THE PAST YEAR. LEAVE BLANK IF NO EXPERIENCE WITH A PARTICULAR ITEM.

	<u>Very Satisfied</u>	<u>Satisfied</u>	<u>Mixed or Neutral</u>	<u>Dissatisfied</u>	<u>Very Dissatisfied</u>	
	1	2	3	4	5	
a. Overall experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	53/
b. The length of time between requesting an appointment and seeing a medical person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	54/
c. The waiting time once in the office	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	55/
d. Interest of doctors in my health problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	56/
e. Ability and experience of doctors to handle my health problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	57/
f. Availability of specialists	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	58/
g. Primary Care Nurse Practitioners	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	59/
h. Physician Assistants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	60/
i. Emergency room procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	61/
j. Pediatric (children's) clinic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	62/
k. Internal medicine clinic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	63/
i. Obstetrics/gynecology clinic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	64/
m. Family clinic (General Therapy clinic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	65/
n. Flight Surgeon's office	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	67/

BACKGROUND

22. What is your sex?

 1. Male

68/

 2. Female

23. What is your age?

_____ years

69-70/

24. What is your marital status?

 1. Single 3. Separated/divorced

71/

 2. Married 4. Widowed25. a. How many persons live in your household *now*, including yourself, spouse, children and other dependents? (WRITE "1" IF LIVING ALONE)

_____ person(s)

72-73/

b. Please indicate your spouse's age:

_____ years

74-75/

CARD 5

c. Please indicate the age and sex of your dependent children living with you:

	Age (Write "0" if less than 6 months old)	Sex		
		Male 1	Female 2	
1.	_____ years 10-11/	<input type="checkbox"/>	<input type="checkbox"/>	12/
2.	_____ years 13-14/	<input type="checkbox"/>	<input type="checkbox"/>	15/
3.	_____ years 16-17/	<input type="checkbox"/>	<input type="checkbox"/>	18/
4.	_____ years 19-20/	<input type="checkbox"/>	<input type="checkbox"/>	21/
5.	_____ years 22-23/	<input type="checkbox"/>	<input type="checkbox"/>	24/
6.	_____ years 25-26/	<input type="checkbox"/>	<input type="checkbox"/>	27/

26. What is your branch of service?

 1. Air Force, 3. Navy

28/

 2. Army 4. Marine Corps 5. Other (specify: _____)

27. What is your military status?

1. Active military

29/

2. Retired military

28. RETIREES: What year did you retire? 19 _____

30-31/

RETIREED PERSONNEL SKIP TO QUESTION 30.

29. a. Is this your first term enlistment (AIRMEN) or initial active duty obligation (OFFICERS)?

1. Yes

32/

2. No

b. Are you rated?

1. Yes

33/

2. No

c. Are you on flying status?

1. Yes

34/

2. No

30. What is your pay grade? (RETIREES INDICATE THEIR HIGHEST GRADE)

1. E - 1

7. E - 7

13. O - 4

35-36/

2. E - 2

8. E - 8, 9

14. O - 5

3. E - 3

9. W - 1 to 4

15. O - 6

4. E - 4

10. O - 1

16. O - 7 to 10

5. E - 5

11. O - 2

17. Not sure

6. E - 6

12. O - 3

31. What do you consider yourself?

- | | | |
|--------------------------------------|--|-----|
| <input type="checkbox"/> 1. White | <input type="checkbox"/> 4. American Indian | 37/ |
| <input type="checkbox"/> 2. Black | <input type="checkbox"/> 5. Spanish- or Mexican-American | |
| <input type="checkbox"/> 3. Oriental | <input type="checkbox"/> 6. Other (specify: _____) | |

32. What is your highest level of civilian education?

- | | | |
|--|---|-----|
| <input type="checkbox"/> 1. None | <input type="checkbox"/> 6. Post-secondary technical or business school | 38/ |
| <input type="checkbox"/> 2. Grades 1 to 6 | <input type="checkbox"/> 7. Some college | |
| <input type="checkbox"/> 3. Grades 7 to 9 | <input type="checkbox"/> 8. Graduated from college (Bachelor's Degree) | |
| <input type="checkbox"/> 4. Grades 10 to 11 | <input type="checkbox"/> 9. Higher degree (Masters, Ph.D., M.D., etc.) | |
| <input type="checkbox"/> 5. Grade 12 (completed high school or equivalency test) | | |

33. How long have you been at Fairchild or in the Fairchild area?

_____ year(s) and 39-40/
 _____ month(s) 41-42/

34. How long have you been in the military?
 (RETIRES INDICATE LENGTH OF SERVICE)

_____ year(s) and 43-44/
 _____ month(s) 45-46/

35. Do you live on base?

- | | |
|---------------------------------|-----|
| <input type="checkbox"/> 1. Yes | 47/ |
| <input type="checkbox"/> 2. No | |

36. IF NO:

a. Approximately how many miles away do you live?

_____ miles 48-49/

b. About how long does it take you to get to the base?

_____ minutes 50-51/

37. IF YOU ARE A RETIREE, are you employed?

- | | |
|---------------------------------|-----|
| <input type="checkbox"/> 1. Yes | 52/ |
| <input type="checkbox"/> 2. No | |

38. IF YES:

a. How many hours did you work last week?

_____ hours

53-54/

b. How many weeks do you expect to work altogether in 1976?

_____ weeks

55-56/

c. What are your earnings?

\$ _____ per

57-61/

 1. hour

62/

 2. week 3. month 4. year**39.** Did you consult your spouse in answering this questionnaire? 1. Yes

63/

 2. No**40.** Please add any comments that you would like to make on the medical care you have received:

Appendix B

DETAILS OF DATA

This appendix discusses several issues concerning the data that support the findings of the report. Some of the decisions made about the handling of problems with the data, the construction of variables, and the choice of statistical technique are discussed.

PROVISION FOR MISSING DATA

As with any self-administered mail survey, respondents' questionnaires vary in their completeness. For all summary statistics, the percentages reported include only complete responses. Most respondents answered the questions of interest in this analysis, so the addition of the small group of incomplete answers would not substantially affect the results reported or the conclusions drawn. For the regression estimates, only complete cases were used for the variables included in the equations (those cases complete after their CONFIDENCE scores are imputed). Comparisons of the respondents included in and excluded from the regression analysis show few differences, and these differences are not so large as to affect the conclusions from the regression estimations.

A second problem results when a sample member fails to return a completed survey. With the entire response missing it is impossible to tell whether the respondents differ in any important way from those who did respond. However, repeated mailings achieved a reasonably high response rate, so the missing respondents would have to differ substantially for their absence to bias the results seriously.

Nonresponse can be particularly troublesome because the demonstration follows a cohort through the first year of the project, surveying them twice. Attrition from the sample can be large. However, the resampling also allows a check on any characteristics that may distinguish the responding group from the nonresponding group. Analysis of the responses to the 1976 survey compared the responses of those who also answered in 1977 with those who failed to respond or could not be reached in 1977. Tables B.1 and B.2 show the response rates for active duty and retired respondents in several categories. Differences do exist. Single persons were less likely than married ones to have responded in 1977. The nonusers and those dissatisfied with base care responded less often than others. Officers responded more often than enlisted personnel.

To control for any differences between the respondents to both surveys and those who failed to respond to the second survey, the analysis in Sections III and V relies only on respondents who completed surveys in both 1976 and 1977. That is, comparisons between the 1976 and 1977 responses eliminate respondents who answered in 1976 but failed to respond in 1977. This restriction of the 1976 sample eliminates biases in the comparisons that may be due to nonresponse. The resulting

Table B.1

**ACTIVE DUTY RESPONDENTS' RESPONSE RATES TO 1977
QUESTIONNAIRE GROUPED BY ANSWERS TO 1976 QUESTIONNAIRE**

1976 Question and Response	Chanute	Dyess	Fairchild	Nellis
Regular base user	72	60	66	51
Not regular base user	65	52	60	51
Spouse regular user	75	62	72	52
Spouse not regular user	67	60	61	41
Enlisted	68	54	65	47
Officer	87	62	69	64
Single	61	56	50	49
Married	73	63	71	51
Divorced/Separated	69	59	48	56
Very satisfied with base care ^a	75	56	71	40
Satisfied	72	65	69	58
Neutral	73	56	61	50
Unsatisfied	59	54	55	36
Very dissatisfied	53	65	64	46
Favorable toward PA	75	64	71	55
Neutral	61	61	58	44
Unfavorable	61	66	61	51
Not sure	55	69	76	40
Seen PA	71	59	66	49
Not seen PA	76	61	65	51
Not sure	55	58	74	55

^aRegular users only.

tables accurately reflect changes in attitude but may show a slightly biased picture of the base populations.

NEW 1977 SAMPLES

At two of the demonstration bases, Chanute and Dyess, the study compared responses given in 1977 by the resurveyed cohort with the responses given by a new, independently drawn active duty sample. The twice-surveyed cohort, chosen in 1976, represented the views of a population with greater experience with the base, which may affect respondents' attitudes. If the composition of the base population changed greatly in the course of the year, then the cohort may not adequately represent the attitudes of the base population.

On comparing the new 1977 sample at these two bases and the original 1976 cohort, the study found that responses from both samples are substantially similar. The results of these comparisons are discussed in detail below. This study's reliance on the sample drawn in 1976 does not appear to introduce any biases in the results that may be avoided by using a more current sample.

Table B.2

**RETIRED RESPONDENTS' RESPONSE RATES TO 1977 QUESTIONNAIRE
GROUPED BY ANSWERS TO 1976 QUESTIONNAIRE**

1976 Question and Response	Chanute	Dyess	Fairchild	Nellis
Regular base user	92	90	85	53
Not regular base user	86	81	75	56
Spouse regular user	91	87	86	55
Spouse not regular user	89	84	76	55
Officer				
Enlisted				
Single	80	48	74	55
Married	90	84	81	55
Divorced/Separated	84	92	62	49
Very satisfied with base care ^a	97	97	87	58
Satisfied	92	85	87	56
Neutral	62	100	94	46
Dissatisfied	97	57	73	54
Very dissatisfied	b	b	b	45
Favorable toward PA	92	87	83	57
Neutral	92	77	84	49
Unfavorable	76	86	67	50
Not sure	82	72	81	31
Seen PA	91	86	83	54
Not seen PA	91	81	79	54
Not sure	66	95	83	60

^aRegular users only.

^bNo respondents indicated "very dissatisfied" in 1976.

Comparison of New and Old Samples

The comparison of responses from the old and the new samples did show differences. Table B.3 summarizes the results of the comparisons. As expected, in 1977 the old sample group reports being in the area longer than the new group. Those in the old sample have a higher mean age, have been in the military longer, and are less likely to be first-termers than the new sample. They are also more likely to be married, and their spouses are less likely to be regular users of the base hospital.

In spite of these demographic differences, the two samples agree in their attitudes toward and experience with physician's assistants. In both groups a majority have seen a PA in the past year. The old sample at Chanute stands out as a group extremely enthusiastic toward the PA. The new sample is less enthusiastic on the whole. Recall that the Chanute sample showed considerably higher approval of the panel system and PAs than did samples at other bases. There is no evidence to suggest that this sample had experiences that differed substantially from the younger cohort. Some of the high favorableness may result from drawing an unexpectedly favorable sample.

Table B.3

**COMPARISON OF 1977 RESPONSES BY COHORT SAMPLE AND
NEW SAMPLE AT CHANUTE AND DYESS, ACTIVE DUTY
(Percent)**

Population Characteristic	Chanute		Dyess	
	Cohort	New Sample	Cohort	New Sample
First term	21	45	43	47
Married	84	62	68	74
Regular base users	92	92	92	95
Spouse base users	84	87	84	90
Having seen PA	78	60	55	51
Spouse having seen PA	56	52	55	51
Favorable toward PA	70	64	47	48
Neutral	18	21	30	25
Unfavorable	8	9	16	17
Not sure	3	6	7	11
Spouse favorable toward PA	58	56	53	37
Neutral	20	21	17	29
Unfavorable	15	18	26	27
Not sure	8	5	4	7
Mean age	31.1	28.0	29.8	28.0
Mean years in military	11.4	7.9	9.8	8.3
(Approximate n)	(390)	(280)	(290)	(250)

DYESS SAMPLING BIAS

The sample drawn at Dyess included a disproportionately large number of officers. The method that was used to generate the sample was, nevertheless, random in relation to other characteristics not correlated with officer-enlisted status. To adjust the results at Dyess, responses from officers and enlisted personnel were weighted so that the results would reflect the proportions in the actual base population as measured in the new 1977 sample. The weights used are calculated so that the weighted frequencies found in the 1976 sample will equal the actual frequencies in the fully random 1977 new sample. Each officer's response was weighted by 0.256 and each enlisted man's response by 3.121. This procedure should make the sample more closely reflect the actual Dyess population.

Appendix C

REGRESSION ANALYSIS

INDEPENDENT VARIABLES

The most important variable in the regression analysis is the scale of confidence in the physician's assistant. The scale was constructed from the responses to the questions concerning the respondents' confidence in the PA's ability to handle six specific medical problems and two routine examinations. The value of the scale equals the number of problems that a respondent feels the PA can handle.

A number of respondents failed to answer one or more of the eight questions. In these cases, scale values were imputed with two procedures. The eight problems are ordered in their complexity and severity. Combined, they form a Guttman Scale, where knowing the total sum of responses defines the responses to each question—i.e., if four are answered positively then they will be the four simplest problems. Any individual who failed to answer one of the questions may have answered the questions about the problem of next highest and next lowest severity. If both of these were answered a response to the unanswered question may be inferred for that individual.

When a respondent did not complete more than one of the eight questions about medical problems, responses to a question about attitudes toward PAs and a question on satisfaction with experience with PAs were used to impute scale values. The coefficients in a regression equation were estimated. They related the scale values to dummy variables that indicated each possible response to the attitude and satisfaction question. Table C.1 gives the results for those estimations. These coefficients were used in a function that estimated scale response based on complete responses to the two PA questions for those respondents where the scale could not be directly computed.

The coefficients shown in Table C.1 yield a well-behaved function that falls within the range of the original scale; it assumes minimum values at 1.07 (active duty) and 0.69 (retirees) for respondents unfavorable toward PAs and unsatisfied with experiences with PAs. The functions' highest values are at 6.96 (active duty) and 6.88 (retirees), for those favorable toward PAs and very satisfied with experiences with PAs.

ESTIMATION TECHNIQUE

The coefficients in Section IV were estimated using ordinary least squares estimation, modeling the dependent variable as a simple linear function to the set of independent variables described in Section IV. The dependent variable here can

¹The question about favoring PAs is 11a on the questionnaire; the one about satisfaction with PAs is 21h.

Table C.1

**REGRESSION RESULTS RELATING CONFIDENCE
SCALE TO OTHER PA ACCEPTANCE QUESTIONS,
COMPLETE CASES ONLY
(OLS coefficients and t-statistics)**

Explanatory Variables	Active Duty Respondents	Retired Respondents
FAVOR ^a	0.428 (0.65)	2.66 (3.54)
NEUTRAL	-0.607 (-0.91)	1.35 (1.75)
UNFAVOR	-2.43 (-3.50)	-0.340 (-0.42)
VUNSAT ^b	-1.10 (-2.49)	-1.38 (1.74)
UNSAT	-0.567 (-1.66)	0.201 (0.33)
SAT	0.994 (4.17)	0.644 (1.70)
VSAT	1.92 (6.80)	1.81 (4.34)
Intercept	4.61	2.41
R ²	0.472	0.480
F-statistic	66.95	31.5
n	533	247

^aThe excluded group was those responding "Not sure."

^bThe excluded group was those responding "Mixed or neutral."

be considered a dichotomous variable with respondents either in favor of or opposed to the panel system. Those in the middle category are somewhere in between, and as mentioned above, their location between the two extremes doesn't affect the conclusions of this report. Although a logit or discriminant model might be more appropriate for this dependent variable, the simple OLS model yields good approximations of the discriminant function estimates that would come from more sophisticated techniques. The t-statistics here are also good estimates of the asymptotic t-statistics that one could calculate for the more complicated model.

Some biases in coefficients may result from the errors in the measurement inherent in questionnaire data. In particular, the variable CONFIDENCE, which is a scale constructed from several questions, has errors associated with the process of imputing missing responses. Error in an independent variable tends to bias the estimates of other coefficients. In this case there also are potential errors in the dependent variable, because respondents were required to conform their answers to one of three responses. The size of the coefficient on CONFIDENCE is large and significant in all regressions and the existence of downward bias would not affect the conclusions.

ADDITIONAL RESULTS

Section IV shows the results for a subset of the population—i.e., those whose last visit was to the primary medical clinics at the base. Results are tabulated for those in the sample whose last visit was to another clinic at the hospital. Table C.2 presents the sample means for the variables used in the regression estimations for this group, and Table C.3 gives the coefficient estimates. For retired respondents, Tables C.4 and C.5 show sample means and the estimates of coefficients that relate the demographic characteristics and attitudinal variables to the preference for the panel system. Conclusions drawn in Section IV are consistent with these additional regression estimates.

Table C.2

MEAN VALUES FOR RESPONDENTS WITH LAST VISIT
TO A CLINIC OTHER THAN PRIMARY MEDICINE
(Standard deviations in parentheses)

Variables	Active Duty Respondents	Retired Respondents
CHANUTE	0.348	0.273
DYESS	0.194	0.209
FCHILD	0.273	0.324
NELLIS	0.185	0.194
CONFIDENCE	5.41 (2.03)	5.18 (2.10)
SPUNFAV	0.188	0.158
RREGUSE	(a)	0.935
SPREGUSE	0.715	0.777
AGELT30	0.498	0.0
AGE30	0.389	0.014
AGE40	0.107	0.432
AGE50	0.006	0.417
AGECT60	0.0	0.137
HLTHPRFR	0.034	0.072
INMIL1	0.194	(a)
NEWT0AR	0.241	(a)
COLL	0.649	0.626
MARRIED	0.821	0.935
OFFIC	0.260	(a)
NONWHITE	0.154	(a)
FEMALE	0.082	0.022
M	0.495	0.604
	0.213	0.187
PT	0.596	0.705
FOLLUP	0.213	0.094
OFWAIT	25.0 (28.3)	20.7 (25.7)
APPTWT	(a)	6.19 (10.7)
LENGPA	3.49 (15.3)	3.47 (14.0)
LENGMD	8.73 (16.2)	12.4 (20.7)
PREFPANL	0.752 (0.314)	0.665 (0.378)
PANLVAMD	0.696 (0.384)	0.644 (0.427)
n	319	139

^aVariable not included in estimations.

Table C.3

REGRESSION RESULTS FOR RESPONDENTS WITH LAST VISIT TO CLINIC
OTHER THAN PRIMARY MEDICAL CLINIC
(OLS coefficients and t-statistics)

Explanatory Variables	Active Duty Respondents		Retired Respondents	
	PREFPANL ^a	PANLVAMD ^b	PREFPANL	PANLVAMD
CHANUTE	0.059 (1.29)	0.035 (0.61)	-0.015 (-0.16)	-0.085 (-0.79)
DYESS	-0.026 (-0.45)	-0.091 (-1.27)	0.104 (1.03)	-0.099 (-0.83)
FCHILD	(c)	(c)	0.042 (0.46)	-0.050 (-0.46)
NELLIS	-0.004 (-0.08)	0.062 (0.97)	(c)	(c)
CONFIDENCE	0.035 ^d (3.50)	0.046 ^d (3.76)	0.052 ^d (2.80)	0.066 ^d (3.07)
SPUNFAV	-0.04 ^e (-0.89)	-0.144 (-2.22)	-0.080 (-0.74)	-0.007 (-0.05)
RREGUSE	(e)	(e)	-0.260 (-1.92)	-0.286 (-1.81)
SPREGUSE	0.110 ^c (2.25)	-0.009 (-0.15)	0.175 (1.95)	0.213 ^f (2.03)
AGELT30	(c)	(c)	(c)	(c)
AGE30	-0.051 (-1.23)	-0.047 (-0.91)	(e)	(e)
AGE46	-0.058 (-0.93)	-0.030 (-0.38)	-0.070 (-0.25)	-0.237 (-0.71)
AGE50	-0.418 (-1.94)	-0.166 (-0.62)	-0.180 (-0.64)	-0.275 (-0.82)
AGEGT60	(e)	(e)	-0.284 (-0.37)	-0.314 (-0.91)
HLTHPRFR	-0.025 (-0.26)	-0.079 (-0.67)	-0.055 (-0.43)	0.030 (0.21)
INMIL1	-0.049 (-0.92)	0.011 (0.17)	(e)	(e)
NEWTOAR	-0.034 (-0.32)	-0.052 (-1.03)	(e)	(e)
COLL	0.018 (0.45)	-0.044 (-0.87)	0.080 (1.23)	0.051 (0.66)
MARRIED	-0.110 (-1.80)	0.019 (0.26)	-0.118 (-0.82)	-0.042 (-0.25)
OFFIC	0.062 (1.28)	0.063 (1.08)	(e)	(e)
NONWHITE	-0.019 (-0.41)	-0.068 (-1.15)	(e)	(e)
FEMALE	-0.075 (-1.09)	-0.067 (-0.78)	-0.233 (-1.01)	0.001 (0.004)

Table C.3—continued

Explanatory Variables	Active Duty Respondents		Retired Respondents	
	PREFPANL ^a	PANLVAMD ^b	PREFPANL	PANLVAMD
MD	0.0004 (0.01)	-0.0006 (-0.01)	0.172 (1.91)	0.228 (2.16)
PA	0.122 ^f (2.27)	0.053 (0.79)	-0.069 (-0.61)	0.162 (1.21)
APPT	-0.070 (-1.50)	-0.010 (-0.17)	-0.254 ^d (-2.75)	-0.241 ^f (-2.24)
FOLLUP	-0.005 (-0.08)	0.035 (0.50)	-0.341 ^d (-2.72)	-0.132 (-0.90)
OFWATT	-0.001 ^f (-2.33)	-0.001 (-1.23)	-0.0002 (-0.15)	-0.0003 (-0.19)
APPTWT	(e)	(e)	0.006 (1.89)	-0.0002 (-0.06)
LENGPA	-0.003 ^f (-2.20)	-0.002 (-1.44)	0.005 (2.01)	-0.003 (-1.00)
LENGMD	0.0009 (0.71)	0.001 (0.63)	-0.001 (-0.79)	-0.001 (-0.52)
Intercept	0.654 ^d (6.93)	0.532 ^d (4.54)	0.783 ^f (2.08)	0.774 (1.76)
R ²	0.182	0.157	0.309	0.258
F-statistic	2.73	2.28	2.36	1.84
n	319	319	139	139

^aPREFPANL = panel compared with old system.

^bPANLVAMD = panel compared with "any-MD" system.

^cExcluded category in the dummy variable specification.

^dCoefficient significantly different from zero, $p < 0.01$.

^eVariable not used in estimation.

^fCoefficient significantly different from zero, $p < 0.05$.

Table C.4

MEAN VALUES FOR VARIABLES FOR ALL RETIRED RESPONDENTS
(Standard deviations in parentheses)

Variable	Mean	Variable	Mean
CHANUTE	0.273	AGE30	0.015
DYESS	0.154	AGE40	0.466
FCHILD	0.351	AGE50	0.395
NELLIS	0.223	AGEGT60	0.123
		HLTHPRFR	0.107
CONFIDENCE	5.10 (2.16)	MARRIED	0.937
SPUNFAV	0.180	COLL	0.574
		EEXPER	0.978 (0.815)
n	521	PREFPANL	0.679 (0.365)
		PANLVAMD	0.659 (0.418)

Table C.5

REGRESSION RESULTS FOR RETIRED RESPONDENTS
(OLS coefficients and t-statistics)

Explanatory Variables	PREFPANL ^a	PANLVAMD ^a
CHANUTE	0.008 (0.19)	0.008 (0.16)
DYESS	0.037 (0.69)	-0.016 (-0.28)
FCHILD	-0.024 (-0.57)	-0.019 (-0.42)
CONFIDENCE	0.042 ^b (5.03)	0.058 ^b (6.35)
SPUNFAV	-0.128 ^b (-2.65)	-0.204 ^b (-3.89)
SPREGUSE	0.020 (0.52)	0.065 (1.59)
AGE30	(c)	(c)
AGE40	-0.030 (-0.22)	-0.156 (-1.14)
AGE50	-0.041 (-0.33)	-0.138 (-1.00)
AGEGT60	-0.108 (-0.82)	-0.155 (-1.08)
HLTHPRFR	-0.053 (-1.07)	0.023 (0.24)
MARRIED	0.033 (0.50)	0.076 (1.05)
COLL	0.013 (0.40)	-0.021 (-0.62)
FEMALE	-0.120 (-0.76)	0.084 (0.49)
EEXPER	-0.014 (-0.39)	-0.036 (-1.59)
Intercept	0.498 ^b (3.26)	0.482 ^b (2.90)
R ²	0.133	0.214
F-statistic	5.53	9.82
n	521	521

^aPREFPANL = panel compared with old system; PANLVAMD = panel compared with "any-MD" system.

^bCoefficient significantly different from zero, $p < 0.01$.

^cThis age category is the excluded category in the regression estimations.

Appendix D

ADDITIONAL RESULTS

This appendix contains results from questionnaire items and provides additional information concerning attitudes toward primary care nurse practitioners and satisfaction with a range of aspects of care at the base hospitals.

ATTITUDE TOWARD PCNPS

Figure D.1 provides comparisons of confidence levels in PCNPs and PAs for 1977 for respondent groups not reported in Section III.

Tables D.1 to D.4 present data on experience with and attitudes toward PCNPs, responses analogous to those reported in Section III for PAs.

SATISFACTION WITH BASE CARE

The remaining tables (D.5 to D.12) give the complete results for satisfaction with each of the aspects of care covered by the questionnaire for experience on the last visit and for usual experience at the base. These complete the picture of satisfaction with care at the demonstration bases.

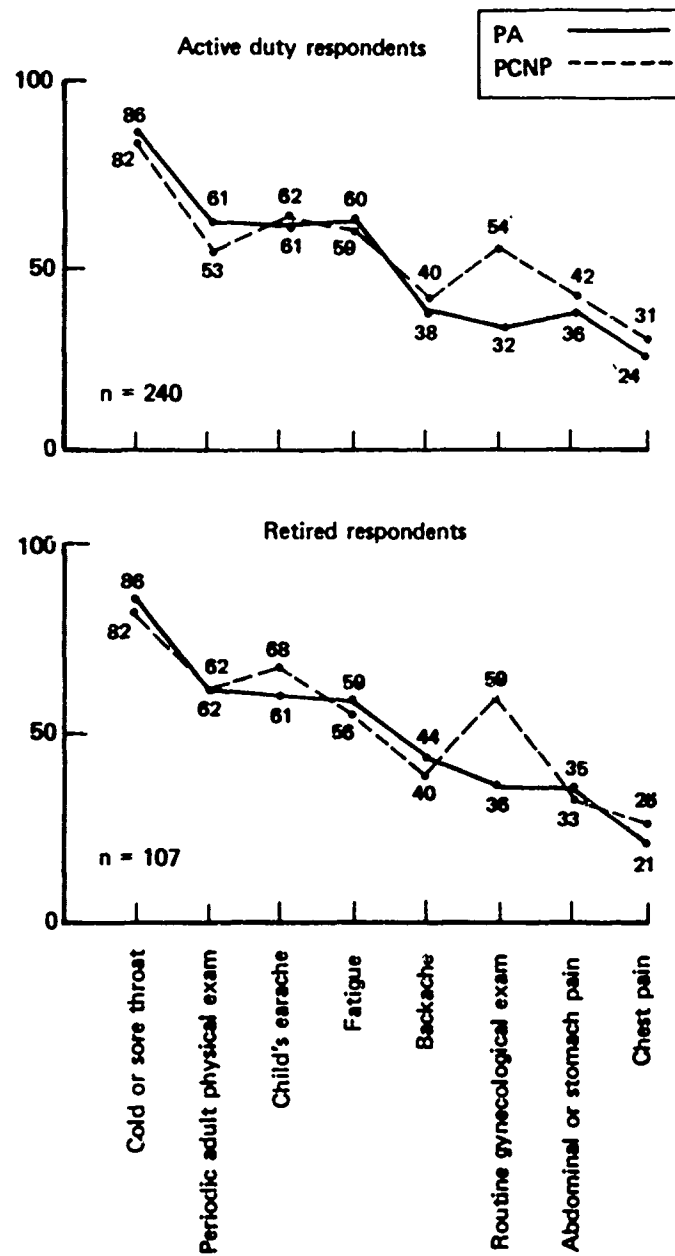


Fig. D.1—Percent of respondents who feel PAs or PCNPs can handle specific problems; Dyess Air Force Base, 1977

Table D.1

PERCENT SEEING A PRIMARY CARE NURSE PRACTITIONER
DURING THE PAST YEAR
(Regular users of base)

Respondent Group	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active duty person	15	15	9	10	7	9	5	11
Active duty spouse	39	34	20	31	28	30	24	30
Retired person	10	7	10	9	8	10	6	9
Retiree spouse	35	30	24	16	21	26	20	18

Table D.2

PERCENT SEEING PRIMARY CARE NURSE PRACTITIONER
ON LAST VISIT
(Regular users of base)

Respondent Group	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active duty person	1	3	1	4	1	2	0	2
Retired person	2	3	1	2	1	2	1	3

Table D.3

**ATTITUDE TOWARD RECEIVING CARE FROM
A PRIMARY CARE NURSE PRACTITIONER**
(Regular users of base; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active Duty Respondents								
Favorable	59	61	45	52	51	45	54	49
Neutral	27	25	31	28	32	33	28	29
Unfavorable	4	6	11	11	9	10	8	9
Not sure	11	8	13	10	9	12	10	13
(Number responding)	(391)	(391)	(382)	(322)	(365)	(342)	(239)	(230)
Active Duty Spouses								
Favorable	59	60	40	63	52	42	43	52
Neutral	22	22	31	22	25	29	24	22
Unfavorable	9	6	12	10	22	13	16	10
Not sure	11	12	17	5	22	11	17	16
(Number responding)	(294)	(297)	(248)	(196)	(273)	(255)	(166)	(148)

Table D.4

**ATTITUDE TOWARD RECEIVING CARE FROM
PRIMARY CARE NURSE PRACTITIONER**
(Regular users of base; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Retired Respondents								
Favorable	67	65	61	54	59	60	60	63
Neutral	18	21	20	24	27	24	22	21
Unfavorable	9	6	6	11	7	8	8	10
Not sure	7	8	13	11	7	8	9	5
(Number responding)	(185)	(220)	(79)	(149)	(300)	(284)	(219)	(202)
Retiree Spouses								
Favorable	67	65	64	67	55	56	58	57
Neutral	18	18	10	14	27	24	22	23
Unfavorable	7	8	14	10	9	12	11	13
Not sure	8	9	12	10	9	8	9	7
(Number responding)	(149)	(172)	(58)	(114)	(266)	(271)	(172)	(168)

Table D.5

**SATISFACTION WITH APPOINTMENT WAIT ON LAST BASE VISIT,
SCHEDULED VISITS ONLY**
(Regular users of base; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active Duty Respondents								
Very satisfied	37	39	40	35	32	28	31	24
Satisfied	37	38	40	43	39	45	36	48
Mixed/neutral	12	12	9	14	15	12	17	10
Dissatisfied	9	6	6	6	5	9	7	10
Very dissatisfied	5	5	4	2	8	5	8	9
(Number responding)	(255)	(269)	(162)	(197)	(183)	(209)	(127)	(125)
Retired Respondents								
Very satisfied	52	50	55 ^a	47	54	64	44	49
Satisfied	29	31	32	39	33	27	37	35
Mixed/neutral	9	11	7	9	6	6	9	8
Dissatisfied	6	5	6	4	5	4	6	6
Very dissatisfied	3	3	0	1	2	1	4	3
(Number responding)	(99)	(132)	(85)	(90)	(187)	(162)	(122)	(101)

^aResults based on total 1976 Dyess sample.

Table D.6

SATISFACTION WITH WAITING TIME IN THE OFFICE ON LAST VISIT
(Regular users of base; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active Duty Respondents								
Very satisfied	26	23	26	25	26	26	23	25
Satisfied	39	40	37	38	38	42	41	41
Mixed/neutral	15	15	18	20	19	15	15	13
Dissatisfied	12	13	13	11	12	9	13	13
Very dissatisfied	9	9	6	6	6	7	10	8
(Number responding)	(324)	(333)	(287)	(278)	(289)	(288)	(190)	(191)
Retired Respondents								
Very satisfied	52	49	45 ^a	41	52	55	42	46
Satisfied	30	38	44	42	34	32	37	39
Mixed/neutral	7	5	8	8	9	6	11	6
Dissatisfied	8	5	2	6	4	5	7	7
Very dissatisfied	3	2	1	4	1	1	3	3
(Number responding)	(130)	(167)	(33)	(113)	(230)	(196)	(174)	(153)

^aResults based on total 1976 Dyess sample.

Table D.7

SATISFACTION WITH LAST VISIT LENGTH AT BASE
(Regular users of base; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active Duty Respondents								
Very satisfied	32	26	25	29	26	28	23	23
Satisfied	47	51	48	49	53	52	55	50
Mixed/neutral	13	14	13	10	11	13	13	14
Dissatisfied	5	7	8	7	3	4	7	7
Very dissatisfied	2	2	5	6	3	3	3	6
(Number responding)	(324)	(327)	(288)	(278)	(290)	(288)	(192)	(193)
Retired Respondents								
Very satisfied	54	53	40 ^a	35	53	59	43	45
Satisfied	33	37	51	52	38	35	44	41
Mixed/neutral	7	7	5	10	5	4	9	11
Dissatisfied	4	2	3	3	3	2	3	3
Very dissatisfied	2	1	0	1	1	1	2	1
(Number responding)	(129)	(168)	(92)	(113)	(228)	(191)	(174)	(152)

^aResults based on total 1976 Dyess sample.

Table D.8

**SATISFACTION WITH INTEREST OF MEDICAL PERSON
ON LAST BASE VISIT**
(Regular users of base; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active Duty Respondents								
Very satisfied	45	43	29	34	40	39	30	31
Satisfied	35	38	34	39	36	36	46	43
Mixed/neutral	13	11	23	11	11	15	12	15
Dissatisfied	6	5	9	8	9	6	6	6
Very dissatisfied	2	2	5	8	4	4	6	6
(Number responding)	(326)	(332)	(286)	(277)	(288)	(288)	(191)	(192)
Retired Respondents								
Very satisfied	65	68	58 ^a	45	68	66	59	56
Satisfied	23	22	32	38	23	26	26	33
Mixed/neutral	8	7	10	9	6	5	8	8
Dissatisfied	1	2	0	4	2	2	3	2
Very dissatisfied	3	4	0	4	<1	1	3	1
(Number responding)	(130)	(168)	(93)	(113)	(231)	(198)	(176)	(153)

^aResults based on total 1976 Dyess sample.

Table D.9

**SATISFACTION WITH ABILITY OF MEDICAL PERSON
ON LAST VISIT**

(Regular users of base; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active Duty Respondents								
Very satisfied	44	41	30	35	37	33	31	33
Satisfied	38	33	40	34	39	45	47	43
Mixed/neutral	13	13	20	15	14	15	14	14
Dissatisfied	3	6	5	10	6	5	4	7
Very dissatisfied	3	3	5	6	4	3	4	4
(Number responding)	(325)	(330)	(284)	(277)	(291)	(290)	(192)	(192)
Retired Respondents								
Very satisfied	64	65	50 ^c	43	64	61	55	54
Satisfied	24	24	37	37	26	29	26	32
Mixed/neutral	9	8	10	16	7	7	12	9
Dissatisfied	2	~	2	2	3	2	3	3
Very dissatisfied	2	0	1	2	1	1	3	3
(Number responding)	(130)	(166)	(92)	(111)	(231)	(199)	(176)	(151)

^aResults based on total 1976 Dyess sample.

Table D.10

**SATISFACTION WITH TREATMENT OR ACTION TAKEN
BY MEDICAL PERSON ON LAST VISIT**

(Regular users of base; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active Duty Respondents								
Very satisfied	43	36	27	37	32	33	28	29
Satisfied	37	41	41	35	43	42	47	42
Mixed/neutral	12	12	19	14	13	16	14	14
Dissatisfied	6	7	7	7	8	5	5	9
Very dissatisfied	3	4	6	8	5	5	6	6
(Number responding)	(326)	(325)	(289)	(277)	(286)	(286)	(190)	(191)
Retired Respondents								
Very satisfied	64	64	47 ^a	39	61	58	53	52
Satisfied	25	21	38	41	28	31	29	33
Mixed/neutral	5	11	13	13	7	6	10	9
Dissatisfied	4	4	2	5	2	3	5	3
Very dissatisfied	2	1	0	3	1	3	3	3
(Number responding)	(129)	(167)	(93)	(111)	(232)	(197)	(176)	(153)

^aResults based on total 1976 Dyess sample.

Table D.11

SATISFACTION WITH INTEREST SHOWN BY DOCTORS
(Usual experience of regular base users; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active Duty Respondents								
Very satisfied	18	24	12	14	19	20	15	13
Satisfied	45	47	37	40	41	44	44	46
Mixed/neutral	23	17	32	28	21	20	26	21
Dissatisfied	9	9	13	12	15	11	11	14
Very dissatisfied	4	3	6	7	4	5	5	7
(Number responding)	(375)	(380)	(350)	(308)	(333)	(324)	(218)	(218)
Retired Respondents								
Very satisfied	39	43	40 ^a	32	45	48	41	32
Satisfied	41	43	44	34	40	40	33	48
Mixed/neutral	13	11	13	21	10	8	16	14
Dissatisfied	5	2	1	8	5	4	7	7
Very dissatisfied	2	1	2	5	<1	<1	4	1
(Number responding)	(170)	(179)	(112)	(131)	(276)	(257)	(190)	(162)

^aResults based on total 1976 Dyess sample.

Table D.12

SATISFACTION WITH ABILITY OF DOCTORS
(Usual experience by regular base users; percent)

Response	Chanute		Dyess		Fairchild		Nellis	
	1976	1977	1976	1977	1976	1977	1976	1977
Active Duty Respondents								
Very satisfied	19	22	15	13	18 ^a	21	14	16
Satisfied	50	47	42	47	47	54	57	49
Mixed/neutral	21	22	28	25	23	18	22	23
Dissatisfied	8	6	11	10	9	5	7	9
Very dissatisfied	2	3	4	4	3	3	1	2
(Number responding)	(370)	(382)	(337)	(302)	(333)	(321)	(217)	(214)
Retired Respondents								
Very satisfied	39	44	39 ^b	27	46	45	38 ^a	33
Satisfied	39	40	44	48	43	43	39	49
Mixed/neutral	17	15	13	15	8	9	15	10
Dissatisfied	5	1	4	8	2	1	4	7
Very dissatisfied	0	0	1	2	0	1	3	1
(Number responding)	(168)	(179)	(109)	(131)	(272)	(250)	(186)	(159)

^aStatistically significant difference between 1976 and 1977, $p < 0.025$.

^bResults based on total 1976 Dyess sample.

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