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This study developed a plan for marketing the Inpatient Pharmacy Branch, Pharmacy Service, Dwight David Eisenhower Army Medical Center. The plan was developed through the use of both a marketing audit and interviews of representatives of the major publics. The author concluded with an extensive plan to market the pharmacy.

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A MARKETING STUDY
OF THE
INPATIENT PHARMACY BRANCH
DWIGHT DAVID EISENHOWER ARMY MEDICAL CENTER

A Graduate Research Project

Submitted to the Faculty of

Baylor University

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Health Administration

by

CPT(P) Butch Hammel, MSC

June 1984

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INTRODUCTION

Conditions Prompting this Study

For the past twenty years or more, marketing has been used in the service industries as a basic method of planning and management. Yet incorporation of marketing methods into the planning and management of health care organizations has failed to materialize to any significant degree. In fact, marketing as management philosophy and policy is used in only about 10 percent of the health care institutions.[1] In the last few years, however, marketing as applied to health care institutions has received a great deal of interest in the literature.

The common theme prevalent throughout the literature is that the goals of marketing--to identify the needs, wants, and desires of major publics; to develop programs which meet such needs in consonance with the resources of the organization; and to implement those programs to satisfy the publics while providing a profitable return to the organization--are the very goals most health care organizations are striving to achieve. It has largely been the misperception of marketing as "advertising" that has inhibited its adoption in the health care industry.[2]

In those health care institutions where the marketing concept has been implemented, positive results have been

achieved in terms of increased patient census, patient satisfaction, physician satisfaction, employee morale and productivity, and heightened positive community image, to name a few.[3]

The application of marketing, however, is not just appropriate at the organizational level but may be applied at the individual service or department level. Similar benefits can be derived from application at this level although the benefits will be service or department specific. While such applications have occurred with increasing regularity in the civilian health care arena, there is little evidence to suggest that military health care institutions have made any conscious attempt to use marketing concepts for planning and management at either the organizational or department level.

The Pharmacy Service at Dwight David Eisenhower Army Medical Center (DDEAMC) is the type of service ideally suited to apply marketing in its planning and management efforts. The Pharmacy interacts with almost all of the major staff elements (physicians, nurses, ward personnel, etc.) of the Medical Center (MEDCEN) and has a variety of services which it performs for the staff elements within the MEDCEN. The various staff elements with which the Pharmacy interacts will hereafter be referred to as "publics." It is perceived that the use of marketing concepts focusing on the relationships between the Pharmacy Service and its various publics as a series

of exchanges would provide a useful planning and management methodology. What is unknown is the efficacy of marketing for planning and management in the military health care setting.

Statement of Research

To determine the most appropriate application of the marketing concept to the planning and management of the Inpatient Pharmacy Branch, Pharmacy Service, DDEAMC.

Assumptions

Funding and manpower resources will remain constant for the Pharmacy Service through Fiscal Year 1984.

Limitations

No funding is available for a professional firm to conduct a market audit and construct a marketing plan for the Pharmacy Service.

The study is limited to the scope of the Inpatient Pharmacy Branch, Pharmacy Service, DDEAMC.

Literature Review

As mentioned previously, marketing as applied to health care institutions has received a great deal of interest in the literature over the past several years. As a management philosophy, the marketing concept embodies the idea that customer want or need satisfaction is the economic and social justification of an organization's existence.[4] An organization's activities should be directed

toward the end of customer satisfaction. Thus marketing has moved from a philosophy of product orientation to a philosophy of customer orientation.

Along with this new orientation has come a broader definition of marketing. Where marketing was once primarily concerned with the buying and selling transactions, the definition has broadened to include a societal perspective of transactions. "Marketing occurs any time one social unit strives to exchange something of value with another social unit."[5] Exchange, then, is the essence of marketing and this concept has been well summarized in Kotler's definition of marketing:

> Marketing is the analysis, planning, implementation and control of carefully formulated programs designed to bring about voluntary exchanges of values with target markets for the purpose of achieving organizational objectives. It relies heavily on designing the organization's offering in terms of the market's needs and desires, and on using effective pricing, communication, and distribution to inform, motivate and service the markets.[6]

The definition incorporates some very important points:

1. Marketing is a process of analysis, planning, implementation, and evaluation.

2. Exchange of value--value being often defined as goods, services, or money.

3. Target markets: Another word for target markets is "publics," which can be defined as a distinct set of people or organizations who are linked to the organization via exchange relationships.[7]

The basic thrust of most of the current health care marketing literature has been to offer marketing concepts and practices as a means to "survival" in the new "competitive jungle" of health care.

Certainly it is clear that hospitals and other traditional health care institutions face competition never before experienced from new providers of health care entering the market and from hospitals in their patient care area. Such articles as "Marketing Health Care: Its Untapped Potential,"[8] "Introducing Marketing as a Planning and Management Tool,"[9] "Marketing Warfare in the 1980s,"[10] and "Marketing--A Tool for Survival"[11] are indicative of the flood of emphasis on marketing as a method for planning and management of health care institutions in the competitive marketplace of the 1980s.

While military hospitals do not face such a competitive environment, the basic tenet of marketing--i.e., determining service mix according to the needs of the patient population being served within the resources of the organization--is perceived by the researcher as being just as valid in the military health care setting as in the civilian health care marketplace.

A great deal of the current literature goes beyond the broad brush of just presenting marketing concepts and describes specific techniques for the application of marketing. Among these, some of the best books are Marketing for Nonprofit

Organizations[12] by Kotler, Marketing Health Care[13] by MacStravic, and Marketing Health and Human Services[14] by Rubright and MacDonald. In particular, Rubright and MacDonald present an excellent approach to building a marketing plan which was used by the researcher as a guide in developing a marketing plan for the Inpatient Pharmacy Branch.

A marketing plan cannot be built without first doing the necessary marketing research. There have been many excellent articles published in the recent literature which detail the research effort necessary to construct a marketing plan for health care organizations. Those most helpful to the researcher include articles by Berkowitz and Flexner,[15] Clarke and Skyavitz,[16] MacStravic,[17] Schlinger,[18] and Tucker.[19] All of these articles centered on the concept of the marketing audit as the primary research tool. These articles presented specific methods for conducting marketing audits which were used by the researcher to conduct a marketing audit of the Inpatient Pharmacy Branch.

Perhaps the one piece of literature most impacting on this research effort was an article by Katie M. White, "Laboratory Marketing."[20] This article presented the concept of using marketing for planning and management of those service departments integral to the operation of a hospital. The researcher was intrigued by this concept and stimulated to determine its application to another service department, the Inpatient Pharmacy, in the military health care setting.

Objectives of the Research

The objectives of the research project were to:

1. Conduct a marketing audit of the Inpatient Pharmacy Branch (IPB) which included:
   a. Analysis of the IPB's existing activities,
   b. Identification of the IPB's major publics
   c. Determination of the needs, wants, and desires of those major publics,
   d. Determination of the attitude and satisfaction level of each public toward the IPB,
   e. Identification and specification of problems or problem areas
   f. Identification and specification of the strengths of the IPB.
2. Determine the goals and objectives of the IPB;
3. Analyze the operations of the IPB through application of the marketing mix (price, place, promotion, and product) to the data derived from the marketing audit for the purpose of developing and analyzing marketing strategies for the IPB as part of the marketing plan; and
4. Develop a marketing plan for the Inpatient Pharmacy Branch, Pharmacy Service, DDEAMC.

Criteria

In order to judge the applicability of marketing as a planning and management methodology for the Inpatient Pharmacy Branch, criteria have been set against which the

results of the marketing plan can be evaluated. Implementation of the marketing plan and subsequent evaluation of its effectiveness will be conducted by the Inpatient Pharmacy Branch. The following criteria will be used by the Inpatient Pharmacy Branch to evaluate the effectiveness of the marketing plan:

1. The IPB must accomplish 75 percent of the stated objectives of the marketing plan

2. The plan must meet 80 percent of the identified needs of the major publics

3. The plan must raise the satisfaction levels of the major publics by an average of 10 percent. The questionnaires administered to the ward personnel, nursing staff, and physicians (Appendices E and F) will generate a baseline score for satisfaction levels prior to implementation of the marketing plan. One year after implementation of the marketing plan, these questionnaires will once again be administered. The plan will be considered successful if the Likert scale scores are raised by an average of 10 percent.

Research Methodology

The development of a marketing plan begins with the conduct of a marketing audit. The marketing audit is the research effort incorporated in the development of a marketing plan. Marketing audits are composed of two facets: an internal audit and an external audit. The internal audit focused on the operations and staff of the Inpatient Pharmacy Branch. The external audit focused on identification and analysis of the

major publics involved in exchange relationships with the Pharmacy.

The research methodology used to conduct the marketing audit (internal and external) incorporated three different processes. These processes were: (1) A quantitative descriptive study, (2) a qualitative interview study, and (3) a quantitative questionnaire study.

A quantitative descriptive study was conducted by gathering "marketing" information that was available from the MEDCEN and other agency resources. This information included:

1. Internal Audit
    a. Inpatient Pharmacy Branch staff
        (1) Aggregate number
        (2) By specialty MOS, SSI, or job description
        (3) By work site location
        (4) By shift
    b. Workload
        (1) By section
        (2) By source of origin (ward/medical department)
        (3) By time of year
    c. Pharmacy Budget
        (1) By section
        (2) By time of year (quarterly)
        (3) By customer (ward/medical department)

2. External Audit - Demographic Characteristics
    a. Inpatient Census Data
        (1) By gross number of inpatients
        (2) By sex (male/female)
        (3) By military status (active duty, dependents, retired, retired dependents, other)
        (4) By age distribution (0-19, 20-29, 30-39, 40-49, 50-59, over 59)
        (5) By medical service (Medicine, Surgery, Oncology, etc.)
    b. Physician Public - By Department
        (1) Number of staff physicians
        (2) Number of residents/interns
    c. Nursing Public - By Ward or Unit
        (1) Number of nurses
        (2) Number of ward personnel

The purpose of the quantitative descriptive study was to create a quantitative portrait of the Inpatient Pharmacy Branch at a point in time. This portrait created at the inception of the audit process provided the researcher a base of information which described the resources of the Inpatient Pharmacy Branch, the workload, and the environment creating the workload.

The second process in the research methodology was interview studies to determine perceptions, strengths, problems,

and unmet needs as identified by respondents judged to be representative of the major publics. Interviewees were selected through the technique of judgment sampling[21] where the researcher in conjunction with the Therapeutic Agents Board (TAB), a group knowledgeable in Inpatient Pharmacy Branch operations and the publics involved, selected key personnel as respondents. Key respondents identified by the researcher as representative of the two major publics (nurses and physicians) included the chief ward physicians, chief resident physicians, nursing supervisors, and head nurses. Sample sizes for the above-named respondents were as follows:

Chief Ward Physicians (100 percent)	= 13
Chief Residents (100 percent)	= 4
Nursing Supervisors (100 percent)	= 5
Head Nurses (100 percent)	= 15
TOTAL	37

The interview technique was a structured interview conducted by the researcher. The researcher asked each respondent the same list of questions which were structured to be open-ended questions allowing each respondent the freedom to answer from his/her own perspective. Responses were inferred to be indicative of the respondents' attitudes and opinions. The intent of this technique was to construct an evaluation of the Inpatient Pharmacy Branch from a selected group of respondents. This evaluation provided a unique,

in-depth perspective unobtainable in any other manner. The body of information generated provided the basis for construction of marketing objectives and the marketing plan to achieve those objectives. Because of the recognized limitations of this methodology, the third process in the research methodology--a quantitative questionnaire study--was used in conjunction with the qualitative study to support or deny the findings of the interview study.

The third process in the research methodology was a quantitative questionnaire study to determine perceptions, strengths, problems, and unmet needs as identified by the major publics. These publics were identified as the physician staff directly involved in inpatient care, the inpatient nursing staff, and the inpatient ward personnel. While the inpatient ward personnel cannot order or dispense medications, they do observe these processes and interact with the Inpatient Pharmacy Branch in the bulk drug orders and delivery of medications between the ward and the Inpatient Pharmacy Branch.

Because the populations of these publics were not large, 100 percent of each population was given the opportunity to respond to a questionnaire. The size of these populations is as follows:

Physician Staff - 150

Inpatient Nursing Staff - 120

Ward Personnel - 180

The purpose of the quantitative questionnaire methodology was to create a data base of measured perceptions from the major publics. The body of information generated was used in conjunction with the interview study to confirm or deny the findings of the interview study.

The objective of the quantitative questionnaire was to generate information which identified the following:

1. Perceived needs or wants of the publics
2. Publics' perception of the IPB (image/quality of service) to meet current perceived needs
3. Publics' perception of the communication process
4. Publics' knowledge/use of available services
5. Publics' perception of proper location for the IPB
6. Publics' perception of service hours and timely service

The information generated was used to construct marketing objectives and the marketing plan to achieve those objectives.

A different questionnaire was tailored for each public to generate the desired information based upon the above categories. To quantify perceptions it was necessary for the respondents to use a scale in answering the questions. The appropriate scale for these questionnaires is the Likert type, or Summated Rating Scale, where the subject responds with varying degrees of intensity on a scale ranging from extremes such as "strongly disagree" to "strongly agree," "strongly dislike" to "strongly like," or "poor" to "exceptional."[22] Analysis of the data was accomplished by

graphing out the data and identifying trends and clumps in the data.[23]

The second and third processes of the research methodology so far described concerned themselves entirely with an external audit of the Inpatient Pharmacy Branch. What the researcher developed was a cascade effect whereby the information generated from the interview process was used to augment the questionnaire process.

To complete the cascade effect, an interview study of the Inpatient Pharmacy Branch personnel (internal audit) was conducted. The object was to incorporate information generated from the interviews and the questionnaires into interviews of the Inpatient Pharmacy Branch personnel. Similar questions as those posed to the external publics were posed to the IPB staff to obtain input from their point of view.

Footnotes

[1]Jon G. Keith, "Marketing Health Care: What the Recent Literature is Telling Us," Hospital and Health Services Administration Special II (1981):67.

[2]Robert Rubright and Dan MacDonald, Marketing Health and Human Services (Rockville, MD: Aspen Systems Corporation, 1981), pp. 6-7.

[3]Patrick J. Kiley, "Marketing Mania: A Brief Look at What the Process is All About," Texas Hospitals (March 1980):8-9.

[4]William J. Stanton, Fundamentals of Marketing (New York: McGraw-Hill, Inc., 1975), p. 13.

[5]Ibid., p. 7.

[6]Philip Kotler, Marketing for Nonprofit Organizations (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1975), p. 5.

[7]Robin E. MacStravic, Marketing Health Care (Germantown, MD: Aspen Systems Corporation, 1977), p. 19.

[8]P. T. Garton, "Marketing Health Care: Its Untapped Potential," Hospital Progress (February 1978):46-50.

[9]Stephen L. Tucker, "Introducing Marketing as a Planning and Management Tool," Hospital and Health Services Administration (Winter 1977):37-45.

[10]Philip Kotler and Ravi Singh, "Marketing Warfare in the 1980s," Journal of Business Strategy (Winter 1981).

[11]Allen G. Herkimer, "Marketing--A Tool for Survival," Hospital Financial Management (September 1980):12-18.

[12]Kotler, Marketing for Nonprofit Organizations.

[13]MacStravic, Marketing Health Care.

[14]Rubright and MacDonald, Marketing Health and Human Services.

[15]Eric N. Berkowitz and William A. Flexner, "The Marketing Audit: A Tool for Health Service Organizations," Health Care Management Review (Fall 1978):51-57.

[16]Roberta N. Clarke and Linda Skyavitz, "Marketing Information and Market Research--Valuable Tools for Managers," Health Care Management Review (Winter 1981):73-77.

[17]Robin E. MacStravic, "The Health Care Market Audit," Hospital Progress (October 1978):63-65.

[18]Mary Jane Schlinger, "Marketing Audits for Health Organizations: A Practical Guide," Hospital and Health Services Administration Special II (1981):32-49.

[19]Stephen L. Tucker, "Marketing Research Tools for Hospital Management," Texas Hospitals 35 (March 1980):20-22.

[20]Katie M. White, "Laboratory Marketing," Hospitals (16 August 1982):104-110.

[21]Danney N. Bellenger and Barnett A. Greenberg, Marketing Research: A Management Information Approach (Homewood, IL: Richard D. Irwin, Inc., 1978), p. 192.

[22]Stephen Isaac and William B. Michael, Handbook in Research and Evaluation (San Diego, CA: Edits Publishers, 1981), p. 142.

[23]Interview with Richard A. Sherman, CPT, MSC, Chief, Psychophysiology Service, Department of Clinical Investigations, Dwight David Eisenhower Army Medical Center, February 1984. Interview discussed appropriate statistical techniques to analyze nonlinear scales. Specific analysis techniques were selected based upon the judgment of the expert personnel of the Department of Clinical Investigations.

THE DISCUSSION

Quantitative Descriptive Study

The following is a presentation of "marketing" information available from the MEDCEN and other agency resources. The purpose is to create a quantitative portrait of the Inpatient Pharmacy Branch at the inception of the marketing audit process. This portrait is a base of information categorized as an Internal Audit, which describes the resources of the IPB and the workload, and an External Audit, which describes the environment creating the workload.

Internal Audit

Inpatient Pharmacy Branch Staffing

The Inpatient Pharmacy Branch staff is composed as follows:

TABLE 1

IPB STAFF

Required	Authorized	On Hand	Position
2 - 04	1 - 04	1 - 03	Chief, IPB
3 - 03	1 - 03	1 - 03	Chief, Sterile Products Section
5 - GS11	5 - GS11	5 - GS11	Pharmacist
10	7	7	Pharmacist
1 - E7	1 - E7	1 - E7	NCOIC, IPB
9 - EM	8 - EM	7 - EM	91Q - Pharmacy Tech
2 - GS5	2 - GS5	2 - GS5	Pharmacy Tech
12	11	10	Pharmacy Tech

In addition to the staff shown in Table 1, the IPB receives assistance from one Red Cross Volunteer on the day shift. Staffing of the IPB is accomplished according to the following schedule:

TABLE 2

IPB STAFFING SCHEDULE

Weekdays

Shift	Staffing
Day (0730 - 1600)	2 Pharmacists, 4 Techs
Intermediate (1200 - 2030)	1 Pharmacist
Evening (1530 - 2400)	1 Pharmacist, 2 Techs
Night (2330 - 0730)	1 Pharmacist, 1 Tech

Weekends and Holidays

Day (0730 - 1600)	1 Pharmacist, 1 Tech
Evening (1530 - 2400)	1 Pharmacist, 1 Tech
Night (2330 - 0730)	1 Pharmacist, 2 Techs

The IPB is composed of four sections with staffing as follows:

Sterile Products	- 1 Pharmacist, 1 Tech
Unit Dose	- 1 Pharmacist, 1 Tech
Bulk Drug Orders	- 2 Techs
Vault	- 1 Tech

Besides the Inpatient Pharmacy, the IPB operates one satellite pharmacy, an Oncology Pharmacy, on the eighth floor Oncology Ward. This pharmacy is staffed by one GS11 pharmacist who works only a day shift; during the evening and night shifts, the oncology patients are supplied as required from the Inpatient Pharmacy.

Workload

Workload for a twenty-nine-month period from October 1981 through February 1984 is presented at Table 3. The workload is measured in terms of Uniform Chart of Accounts (UCA) work factors (WF) and has been tabulated for six work categories: night formulary prescriptions, oncology prescriptions, over-the-counter (OTC) night formulary and clinic issues, sterile products, unit dose, and bulk drug orders. A monthly total of work units by the IPB is presented along with the percentage of total Pharmacy Service work units accomplished by the IPB.

From the table the researcher obtained the following observations:

1. The oncology prescription workload, while still a small part of the total, has risen in the last two years to three times the workload of 1981-82

2. Since July 1983, OTC issues by the IPB have been reduced by one-half to one-third of previous levels

3. The workload in sterile products has steadily increased from a monthly average of 18,034 work units in 1982 to 21,434 over the last twelve months ending in February 1984; this is a monthly work unit increase of 3,400 which translates into an additional 1,700 sterile products produced monthly

4. The other two major workload components, unit dose and bulk drug orders, have remained at a relatively stable level for the last two years

TABLE 3

WORK UNITS BY UCA WORK FACTOR (WF)

Date	(WF 1.0) Night Formulary Prescriptions	(WF 1.0) Oncology Prescriptions	(WF .6) OTC Night Formulary & Clinic Issues	(WF 2.0) Sterile Products	(WF .15) Unit Dose	(WF 2.0) Bulk Issue	Total IPB Work Units	% of Pharmacy Service Work Units
Oct 81	1412	65	2614	19,158	7389	6294	36,932	43
Nov	1408	74	2642	14,012	7558	5890	31,584	40
Dec	1400	70	2600	15,556	6864	11,600	38,094	45
Jan 82	1439	61	1867	17,940	7014	12,070	40,391	46
Feb	1342	52	2379	16,910	8260	13,054	41,997	46
Mar	1640	63	1339	20,076	8246	5532	36,896	39
Apr	1507	73	2336	13,452	7553	5958	30,789	38
May	1661	58	1649	18,268	7876	5042	34,554	40
Jun	1502	66	1469	16,604	7661	5312	32,614	41
Jul	1956	74	2410	15,844	8479	6596	35,359	42
Aug	2125	67	1504	21,832	7916	7128	40,572	45
Sep	1202	62	1448	18,272	8259	6720	35,963	42
Oct	3342	83	2445	17,664	8971	6268	38,773	42
Nov	2342	60	1436	17,896	8234	6448	36,416	42
Dec	2642	83	1522	21,656	7688	6208	39,800	42

(table continues)

TABLE 3 (continued)

WORK UNITS BY UCA WORK FACTOR (continued)

Date	(WF 1.0) Night Formulary Prescriptions	(WF 1.0) Oncology Prescriptions	(WF .6) OTC Night Formulary & Clinic Issues	(WF 2.0) Sterile Products	(WF .15) Unit Dose	(WF 2.0) Bulk Issue	Total IPB Work Units	% of Pharmacy Service Work Units
Jan 83	1479	70	2375	24,138	8426	5932	42,420	43
Feb	1454	78	1921	17,208	8010	3826	32,497	40
Mar	1293	103	1768	26,904	8725	6770	45,563	46
Apr	964	92	1734	23,788	8415	5982	40,975	47
May	1072	116	2059	21,142	8421	7084	38,044	44
Jun	984	135	1741	20,086	7372	6064	36,382	44
Jul	1092	106	1367	15,038	6988	6630	31,221	42
Aug	996	212	673	24,298	7674	7674	41,327	49
Sep	1191	127	756	21,738	7381	6250	37,443	46
Oct	1214	150	949	20,918	8000	7840	31,871	49
Nov	1155	190	344	19,300	8440	8384	37,831	46
Dec	1499	181	376	21,288	7120	8086	38,550	49
Jan 84	1380	160	635	23,210	7704	9070	42,159	47
Feb	1006	171	468	19,476	7664	9764	38,549	47

The graph at Figure 1A depicts both total workload for the IPB over the twenty-four months from March 1982 to February 1984 and the percentage of the total Pharmacy Service workload accomplished by the IPB over the same time frame. From the graph the researcher obtained the following information:

1. Workload fluctuates in a random manner from month to month with no discernible monthly or quarterly or yearly pattern

2. Workload, while fluctuating month to month, has remained at a fairly constant level of between 32,000 and 40,000 work units for the past two years

3. Workload of the IPB as a percentage of the total workload of the Pharmacy Service has trended slowly upward from a position of 40-45 percent of the workload through 1982 to a position of 45-50 percent of the workload through the end of 1983 and into 1984

Through the Uniform Chart of Accounts, the researcher was able to determine IPB workload by source of origin. For the month of February 1982, workload originated from the medical departments as follows (Table 4):

Fig. 1A. Total workload for the Inpatient Pharmacy Branch and percentage of total Pharmacy Service workload accomplished by the Inpatient Pharmacy Branch for the period March 1982 through February 1984.

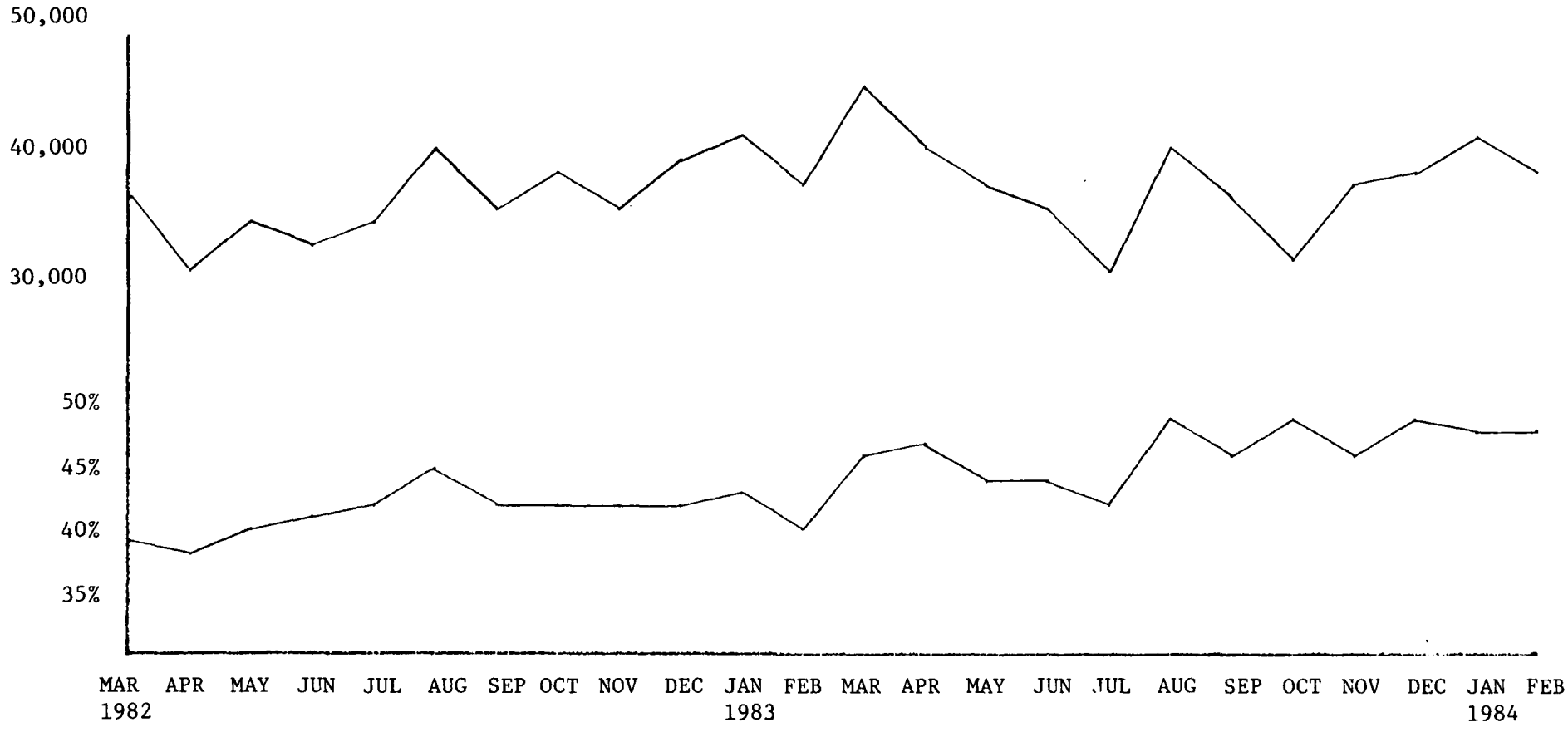


TABLE 4

WORKLOAD ORIGINATION

Department	Percentage
Medicine	45
Surgery	22
Obstetrics/Gynecology	8
Pediatrics	18
Psychiatry & Neurology	4
Ancillary Services and All Other Departments	3
TOTAL	100

Pharmacy Budget

Expenditures for total pharmacy operations have grown at a tremendous pace over the past three years. From Table 5 it is apparent that expenditures in the First Quarter of Fiscal Year 1984 are roughly double the expenditures in the First Quarter of Fiscal Year 1981. However, while expenditures have grown at an enormous pace, workload, as previously discussed, has remained fairly stable over this same time frame. Thus the performance factor or dollar cost per one work unit produced has dramatically risen from $2.29 for Fiscal Year 1981 to $3.38 for the last four quarters ending Second Quarter, Fiscal Year 1984. Such an increase is a result of both the increasing cost of pharmaceuticals and the increase of expensive and difficult procedures undertaken by the various medical departments.

TABLE 5

PHARMACY BUDGET

FY Quarter	Total Expenditures	Performance Factor (Expenditures ÷ by work units)
FY 81 - 1st Qtr	480,886	2.06
2nd Qtr	533,357	2.12
3rd Qtr	577,381	2.44
4th Qtr	643,398	2.53
FY 82 - 1st Qtr	668,099	2.61
2nd Qtr	647,000	2.35
3rd Qtr	808,725	3.24
4th Qtr	772,779	2.97
FY 83 - 1st Qtr	708,000	2.78
2nd Qtr	810,751	2.93
3rd Qtr	846,609	3.33
4th Qtr	685,982	2.85
FY 84 - 1st Qtr	951,366	3.93
2nd Qtr	890,000	3.4

Unfortunately, budgetary data is not kept which identifies expenditures by the two pharmacy branches, Inpatient and Outpatient. This negates the effectiveness of budgetary information for planning and management of the IPB. The medical departments' pharmacy expenditures are not identified between Inpatient and Outpatient Pharmacies. Thus it is difficult to determine the impact of any one department on the IPB.

The increased pharmacy expenditures, shown earlier, have placed great demands on the Pharmacy Service to assist in cost restraint; but without adequate budgetary information, this has been difficult to achieve on a department-by-department basis. In essence the Pharmacy Service and the IPB are entirely dependent upon the demands of the medical departments in budgetary matters. The Pharmacy's budget restraints are generally over-ridden by the medical departments when they exceed their budget restraints. When these are exceeded--and they often are--some of the burden to hold down costs falls to the Pharmacy Service. Lack of adequate expenditure information by the Pharmacy Service makes such cost containment services difficult to effect.

External Audit

Demographic Characteristics of the Population Served by DDEAMC

The population supported by DDEAMC geographically encompasses not only Fort Gordon, Georgia, but also Fort McPherson, Georgia; Fort Gillem, Georgia; and

Fort Buchanan, Puerto Rico. This population, by category, is depicted at Table 6. It is interesting to note from these figures that from Fiscal Year 1981 to December 1983, the following population changes occurred:

1. Total population supported increased by 13 percent
2. Retired increased by 18 percent
3. Dependents/Retired increased by 18 percent
4. Active Duty decreased by 4 percent
5. Dependents/Active Duty increased by 9 percent

The increase in retired, retired dependents, and active duty dependents in the population served is reflected in varying ways by inpatient census data. At the request of the researcher, the U.S. Army Patient Administration Systems and Biostatistics Activity, Fort Sam Houston, Texas, developed a profile of DDEAMC of dispositions by clinic service, age, and patient category for Calendar Year 1983. This report is at Appendix A. From this report the researcher determined that while retirees and their dependents comprised 42 percent of the 13,217 inpatients discharged during Calendar Year 1983, they comprised a much larger percentage for each of the following medical services (Table 7):

TABLE 6

DDEAMC POPULATION SUPPORTED

	FY 81 Average	FY 82 Average	FY 83 Average	As of 31 Dec 83
Active Duty	23,051	20,905	23,044*	22,218
Dependents/Active Duty	26,919	29,886	31,412	29,656
Retired	30,672	32,765	35,707	37,539
Dependents/Retired	61,690	65,274	71,517	75,078
TOTAL	142,332	148,830	161,680	164,491

Monthly figures include all categories above at Fort Gordon and Fort McPherson; Active Duty and Dependents of Active Duty categories at Fort Buchanan, Puerto Rico; and Active Duty personnel only at Fort Gillem, Georgia.

*The active duty figures for 1983 include Reserve Components at Fort Buchanan and "Other" active duty at Fort McPherson not counted in 1982.

TABLE 7

INPATIENTS BY PERCENTAGE OF
RETIREES AND THEIR DEPENDENTS

Service	Percentage
Internal Medicine	62
Cardiology	70
Gastroenterology	69
Oncology	86
Pulmonary/Upper Respiratory	76
General Surgery	55
Cardiothoracic Surgery	81
Peripheral Vascular Surgery	89
Family Practice Medical	77

These percentages are striking in that these services are resource intense, often requiring long hospital stays.

In looking at dispositions by age categories, those over fifty years old comprise the following percentages by medical service:

TABLE 8

INPATIENTS BY PERCENTAGE
OVER FIFTY YEARS OLD

Service	Percentage
Internal Medicine	49
Cardiology	60
Gastroenterology	45
Oncology	71
Pulmonary/Upper Respiratory	67
General Surgery	37
Cardiothoracic Surgery	69
Peripheral Vascular Surgery	86
Family Practice Medical	57

These figures clearly illustrate the aging population served by DDEAMC and the type of services required by this population.

Admissions data for the past three fiscal years indicate the same general trend of increased retired and retired dependents served at DDEAMC:

TABLE 9

ADMISSIONS BY CATEGORY

Category	FY81	FY82	FY83
Active Duty	40%	33%	30%
Dependents/Active Duty	28%	28%	27%
Retired Military	15%	19%	22%
Dependents/Retired Military	16%	19%	20%
Other	1%	1%	1%

Retired military increased by 7 percent from Fiscal Year 1981 to Fiscal Year 1983 while dependents of retired military increased by 4 percent and active duty decreased by 10 percent.

The severity of illness of the patients admitted to DDEAMC can be determined from Nursing Patient Acuity Classifications (Table 10 depicts patient acuity for Fiscal Year 1983). The severity of illness of the DDEAMC patient population is clearly indicated by the fact that consistently about 70 percent of the inpatients are classified in either Category I or II.

One final note of interest concerning the patient population served by DDEAMC is the breakout of male versus female patients served. In Calendar Year 1983--of the 13,217

TABLE 10

NURSING PATIENT ACUITY

1ST QTR FY 84

(EXPRESSED AS A PERCENTAGE BY CATEGORY OF DAILY BEDS OCCUPIED)

PATIENT ACUITY	FY 83 1ST QTR	FY 83 2ND QTR	FY 83 3RD QTR	FY 83 4TH QTR	OCT	FY 84 CAT	NOV-DEC
% CATEGORY I	36	37	37	36	36	(1)	23
% CATEGORY II	35	35	32	34	35	(2)	36
% CATEGORY III	29	28	26	23	25	(3)	27
% CATEGORY IV	0	1	5	7	4	(4)	7
						(5)	2
						(6)	5

General Criteria for Classification According to Nursing Requirements which were used through the month of October 1983 are:

Category I: A patient who is totally dependent upon the nursing staff. Observations and assessment are required every 4 hours or more frequently.

Category II. A patient who is significantly dependent upon the nursing staff. Observation and assessment are required every 6 hours or QID.

Category III: A patient who requires only a limited amount of nursing care.

Category IV: A patient who requires minimal nursing care, supervision and health teaching.

Department of Nursing implemented a new Patient Classification System effective 1 November 1983. The new system uses measurement of direct nursing care time in combination with indirect nursing time to determine the nursing care hours required to provide quality care to a group of patients. An assigned point system based on critical indicators places the patient on one of six categories of care. The classification of categories are as follows:

TABLE 10 (continued)

CATEGORY	POINT RANGE	DESCRIPTION
I	0-12	Self Care
II	13-31	Moderate Care
III	32-63	Acute Care (One staff - three patients)
IV	64-95	Intensive Care (One staff - two patients)
V	96-145	Continuous Care (One staff - one patient)
VI	146+	Critical Care (two staff - one patient)

dispositions for that calendar year--7,270 were male and 5,947 were female. While troop populations are generally much more male than female, the lack of a large troop population and the increases in retirees and dependents of both retirees and active duty tend to even out the male/female ratio.

The Physician Public

One of the major publics interacting with the IPB is the physician staff. Because DDEAMC is a teaching hospital, this staff is composed of both house staff physicians and resident/intern physicians. The following shows the physician public by department:

TABLE 11

PHYSICIAN STAFF BY DEPARTMENT

Department	Staff	Residents	Interns	Total
MEDCEN Commander	1	0	0	1
Medicine	27	9	6	42
Surgery	20	21	4	45
Psychiatry & Neurology	13	11	3	27
Family Practice	13	23	9	45
Pathology	6	5	1	12
Pediatrics	6	0	0	6
Obstetrics/Gynecology	4	0	0	4
Primary Care & Community Medicine	5	0	0	5
Radiology	6	0	0	6
Clinical Investigations	1	0	0	1
Community Mental Health Activity	1	0	0	1
Preventive Medicine	1	0	0	1
TOTAL	104	69	23	196

Out of these 196 physicians, it should be noted that on a routine working basis, the IPB will interact with only about three-fourths of the physicians. Some departments such as Primary Care and Community Medicine are not concerned with inpatients. In other departments many of the physicians are working in outpatient clinics which deal with the Outpatient Pharmacy, thereby having little impact on the IPB.

The Nursing Public

The other major public interacting with the IPB is the nursing staff--both professional and paraprofessional, military and civilian. The Department of Nursing personnel are comprised as follows:

TABLE 12

NURSING STAFF BY SERVICE

	Professional		Paraprofessional		
Service	ANC	Civ RN	EM	Civ	Total
Chief Nurse's Office	13	0	9	5	27
Nursing Education & Training	12	0	3	0	15
Operating Room/Anesthesia/Central Material Supply	16	1	21	4	42
Primary Care & Community Medicine Nursing Service	5	0	35	3	43
Family Health Nursing Service	22	2	37	24	85
Medical Nursing Service	34	2	46	33	115
Surgical Nursing Service	37	2	36	27	102
Psychiatric Nursing Service	10	1	32	20	63
TOTAL	149	8	218	116	491

Again, it should be noted that the IPB will only interact with those nursing personnel dealing with inpatients. Clinic nursing personnel and those nursing personnel in such services as Nursing Education and Training have little daily interaction with the IPB.

Conclusions and Marketing Implications

Internal Audit

The staff of the IPB, while only one short of authorized strength, is five short of required strength to include three officer pharmacist positions. Although judicious use is made of the staff, it was the observation of the researcher that the staff is currently working at or near full capacity. This leaves little room to accommodate additional workload and reduces the effectiveness of the Chief, IPB, who must often fulfill a worker's role as opposed to a manager's role. This may severely constrain the scope or the implementation of a marketing plan for the IPB. In particular, the Chief, IPB, must be available to manage and implement the marketing plan.

From the workload data, it is clear that the satellite Oncology Pharmacy is growing into a successful service. Careful attention must be given to the long-term growth of this service and the staffing requirements additional workload will generate. As a true clinical pharmacy setting, the Oncology Pharmacy may be a model for similar pharmacy services within the MEDCEN.

The substantial growth in the sterile products service possibly indicates a shift in physician treatment methods toward intravenous (IV) medications. This is a labor intensive service and must be monitored to insure that the quality of the service does not suffer.

The IPB should be concerned with the distribution of personnel resources within the Pharmacy Service. As the IPB share of the total workload has grown, personnel resources should be shifted from the Outpatient Pharmacy Branch to the IPB. This would put the IPB in a better position to more fully meet the service needs of its publics.

Most striking is the source of origin of the workload of the IPB. This UCA data is brand new and should be rigorously followed by the IPB. This data definitely targets the Department of Medicine and the Department of Surgery as the two major "customers" of the IPB. The nursing staff on the Medicine and Surgery wards and the physicians of these two departments order and administer 67 percent of the services produced by the IPB.

The Pharmacy Service must implement a system of budgetary data which will identify expenditures by each medical department within the Inpatient and Outpatient Pharmacy Branches. One of the services the IPB is expected to provide is assistance and guidance in holding down expenditures for pharmaceuticals for all medical departments and particularly for those who are exceeding their budgets. Identification of departmental costs by the IPB is currently poor which also hampers future planning for proper budgeting of expensive treatment modalities.

External Audit

All of the data presented indicate growth both in the population served and in the inpatient population of retirees and their dependents. This is not surprising since DDEAMC has provided the services of a Medical Center since 1976. Many of the major medical services have inpatient populations that are 70 percent or more retirees and their dependents, with over 50 percent of these patients over fifty years old. What all of this means in terms of marketing is that the IPB must maintain dialog with the medical departments to ascertain the needs and services desired for an inpatient population that is older and demands medical care that is more intense. The IPB must be proactive in preparing for this population which will cause a marked increase in workload for the IPB.

The physician public

Because DDEAMC is a teaching hospital, unique demands are placed on the IPB. Residents and interns, through the learning process, create more medication change orders and order more different medications than staff physicians. The IPB must be aware of its role in the teaching process and compensate, in the services provided, for the additional workload created.

Awareness of the number of physicians in each department helps to target the departments toward which marketing efforts should be directed. Based upon the number of physicians

and workload generated by each department as previously discussed, the following is a ranking of departments by importance as a marketing target:

TABLE 13

MEDICAL DEPARTMENT MARKETING TARGETS

Ranking	Department
1	Medicine
2	Surgery
3	Pediatrics
4	Obstetrics/Gynecology
5	Psychiatry & Neurology
6	Family Practice

The nursing public

While it is physicians who generate the orders that drive the workload of the IPB, it is the nursing staff which carries out those orders. Therefore, it is this public with which the IPB has the most day-to-day interaction. Again, based upon the number of nursing staff personnel and the workload generated on each service, the following is a ranking of nursing services by importance as a marketing target:

TABLE 14

DEPARTMENT OF NURSING MARKETING TARGETS

Ranking	Service
1	Medical Nursing Service
2	Surgical Nursing Service
3	Family Health Nursing Service
4	Operating Room/Anesthesia/Central Material Supply
5	Psychiatric Nursing Service

Qualitative Interview Study

This second process in the research methodology was undertaken to determine perceptions, strengths, problems, and ummet needs identified by respondents judged to be representative of the major publics. Interviews were conducted with key personnel from the following major publics as identified by the researcher and the Therapeutic Agents Board:

Physician Public:	Chief Ward Physicians	- 13
	Chief Residents	- 4
Nursing Public:	Nursing Supervisors	- 5
	Head Nurses	- 15

The interview worksheet is at Appendix B.

Questions and responses have been categorized into four areas which represent the four attributes of marketing transactions, otherwise known as the marketing mix:

TABLE 15

THE MARKETING MIX

Price

Time cost
Stress cost
Budget constraints

Place

Delivery systems
Pharmacy location(s)
Pharmacy personnel on the wards

(table continues)

TABLE 15
(continued)

Promotion

Communication in all forms
Newsletters
In-services

Product

All current services
- Total unit dose system
- Sterile products (IVs)
- Bulk drug orders and delivery
- SPARK kit maintenance and management
- Controlled substance management
- Automatic replenishment of bulk IV ward stocks
- Drug information
- Nursing orientation and in-services
- Night formulary (Outpatient Pharmacy) during night shift
- IBP personnel coverage of Code 18's
- Oncology Pharmacy

Concept of "service" as a product in and of itself
Unmet service needs or wants

Discussion of Physician Responses

Out of the identified seventeen key respondents from the physician public, the researcher was able to conduct thirteen interviews--three with Chief Residents and ten with Chief Ward Physicians. A synopsis of responses and response frequencies, displayed on a content analysis worksheet, is at Appendix C.

Product Attributes

Most of the interview questions were product-oriented directed toward ascertaining physicians' knowledge of IPB

services currently provided and whether these meet perceived needs and satisfaction levels. From Questions 1 and 3, it is clear that most physician respondents see the provision of medications as the primary function of the IPB. The unit dose system was identified along with IV services and hyperalimentation services as the services with which respondents were most familiar. Drug information was the next most identified function and service of the IPB. This indicates that primarily physicians see the role of the IPB as a supply service and secondarily as an information resource. In answering Question 4, the respondents overwhelmingly stated that current IPB services are meeting their perceived needs and in Question 5 identified that they are very satisfied with these services.

Of concern to the IPB may be the lack of identified scope of services. These responses identified a narrow role of "storekeeper of pharmaceuticals" when in fact the IPB provides many more services in the way of quality control, education, and consultation.

Certainly the IPB should be pleased that the respondents are satisfied with the services provided and, as indicated in Question 6, see the quality of services as ranging from good to excellent.

In attempting to probe more into perceptions of the services (products) offered by the IPB, respondents were asked to identify new services that were started by the IPB in the

last five years (Question 12). The majority answer was "none" or "not aware of any." In fact, the IPB had started a newsletter, refined the unit dose system, started an in-service educational program, started sending an IPB staff member to codes, and implemented the SPARK kit program. When asked which service the respondents used the most (Question 15), almost all responded with the unit dose system or delivery of medications to the patient. Hyperalimentation, IV, and drug information services were also mentioned. These responses help to confirm the narrow scope of perceived functions to be performed by the IPB.

Asked if there were any services which were not understood, the majority answer was "none." However, there were just as many single responses which generally can be classified as "pet peeves" by these respondents. Responses such as "It is inconvenient to have to put all the physician information on the prescription" or "Requiring STAT orders to be filled out 'by the book'" are examples of such.

An attempt was made to assess unmet needs of the physicians. Question 11 asked about changes in perceived needs or in their pattern of practice over the last several years. While the majority of the answers was "none," there was some mention of increased use of hyperalimentation, increased possibility of drug interactions caused by increased numbers of new drugs, sicker patients, and the need for more drugs on the formulary. A possibly more important question

was Question 18 which asked which new services the IPB should offer. Again, the majority answer was "none"; but there were several responses which indicated that information services should be increased, particularly in the areas of drug information, drug incompatibilities, waste, and drug costs. The researcher also queried the respondents as to their desire for the pharmacist to be more directly involved with patient care as a team member with the physician. About 25 percent of the respondents were in favor of this concept, the majority were not sure, and only one respondent was negative.

Responses to the two questions just discussed indicate that the majority of physicians interviewed either feel all their needs are being met or had never really considered a scope of services beyond the routine services as previously discussed. There was some indication of need for increased services from the IPB in the way of hyperalimentation and drug information of various kinds. The researcher also perceived that while not enthusiastically supporting it, the respondents were open to more direct participation by pharmacists in patient care.

Promotion Attributes

Questions 7 through 10 were designed to assess the communication process between the IPB and the physician public. The respondents overwhelmingly identified the telephone as the method by which they communicate with the IPB and the IPB

communicates with them. Face-to-face communication occurs infrequently. Interestingly, the nursing staff was identified as both a method of communicating with the IPB and method of receiving feedback from the IPB. Most respondents felt they communicated with the IPB on a frequency of one to two times per month. A few communicated once per week and a very few, more often than that. Almost all of the respondents felt there were no communication barriers; however, one identified the nursing staff as a possible barrier and one felt there was no need to communicate with the IPB.

Price Attributes

Since the services of the IPB are not bought by the physicians, the only real price they pay is the time they invest in interacting with the IPB and the stress, or lack of stress, perceived by the physician in relationship to the IPB. Question 21 asked if services were available on an appropriate time schedule. The majority of respondents felt that 99 percent of the time services were available as required. Occasionally, hyperalimentation was identified as not being available. This is due to the extensive preparation time required and the daily cutoff time of 1400 hours for new hyperalimentation requests. From Questions 22 and 23, the IPB staff was identified as responsive and allowing few medication errors; only one respondent identified delays occurring between writing an order and the delivery of medications to a patient. This would indicate that the IPB extracts a minimal

time requirement from the physician staff and that the IPB is not a cause for stress, but in fact is responsive to the physicians' needs.

Place Attributes

Questions 19 and 20 were asked in order to identify if the IPB is appropriately located. All but two respondents felt the IPB is in the appropriate location. Responses to Question 20 indicate that in its current location, the IPB is central to the acute care units--the Surgical Intensive Care Unit (SICU), Operating Room, Recovery Room, and the Medical Intensive Care Unit (MICU). While a few respondents felt that relocating the IPB closer to the wards or creating satellite pharmacies would provide quicker response of medications to the patients, the majority felt that satellite pharmacies are not required because they cannot provide an extensive service and the hospital is simply not big enough to require satellite pharmacies. It was also noted that this would spread the assets of the IPB to the point that service would be degraded.

Strengths and Weaknesses

The respondents were pretty much in agreement that the strengths of the IPB center around the IPB staff in that they do their job well, are responsive, have a helpful attitude, and allow few medication errors. Drug information services were also identified as a strength.

There was consensus on problems or problem areas of the IPB on only one topic--communication. While not a majority, quite a few respondents identified poor communication on problems, medication errors, and IPB policies and procedures as a weakness of the IPB. Many other respondents identified a single area of concern to include: need for a more current formulary; need for more drugs available at different strength levels; too much concern with proper paperwork, resulting in a delay of medications to patients; inclusion of over-the-counter (OTC) drugs in the unit dose system, resulting in delay of these medications to patients; and the production of IVs in bulk which results in wasted IVs when the medication is changed.

Discussion of Nursing Staff Responses

Out of the identified twenty key respondents from the nursing staff public, the researcher was able to conduct fourteen interviews--three with Nursing Supervisors and eleven with Head Nurses. A synopsis of responses and response frequencies, displayed on a content analysis worksheet, is at Appendix D.

Product Attributes

From Questions 1 and 3, it is evident that the nurse respondents identified a much broader range of functions and services than the physicians as primary functions of the IPB. Again, the provision of medications was singularly recognized;

however, drug information, education, drug accountability, medication delivery, and nursing unit support were also identified as functions of the IPB. All of the following were strongly identified as key services: IV medications, unit dose, drug information, in-service education, the newsletter, drug interaction information, and distribution of medication to wards. This indicates that the nurses are much more aware of IPB services and see a much broader role for the IPB than do the physicians. From Questions 4 and 5, the respondents overwhelmingly stated that their perceived needs are met by the IPB services and that they are satisfied with these services. Additionally, the quality of services was described as good to excellent and showing continuous improvement.

When asked to identify new services started by the IPB in the last five years (Question 12), the nurses appeared very aware of such changes. Improvements in the delivery system such as a total unit dose system and separation of the unit dose drawers by medication were noted as well as communication efforts such as the newsletter for nurses and in-service education. In identifying which services they used the most, the nurse respondents identified the two primary services--unit dose and IV medications.

Question 17 asked the respondents to identify services not understood by the nursing staff. Almost all of the nurses stated that there were no services that were not understood.

One respondent complained that OTC drugs were no longer available without a doctor's order and another did not understand the mandatory use of SPARK kits when, in her opinion, they are ineffective for special care units.

In assessing the unmet needs of the nursing staff, Question 11 asked about changes in perceived needs or patterns of practice. While not identifying any specific needs, the respondents did identify a variety of changes in patterns of practice which have an impact on the IPB. Among these were: an increase in the number of medications available, an increase in the use of IV medications, an increase in use of the Oncology Pharmacy, an increase in the patient census, an increase in critically ill and sicker patients, and an increase in the number of dependents and retirees as inpatients. When asked which new services the IPB should offer (Question 18), the majority answer was "none"; however, there were a variety of single responses. Some of these were quite interesting in that they posed new roles for the IPB such as patient medication education as part of discharge planning, having the pharmacists pass medications, or having pharmacy technicians pass medications. These responses indicate at least an interest on the part of the nursing staff to have the IPB and the pharmacist more directly involved in patient care.

Promotion Attributes

In assessing the communication process (Questions 7 through 10), the majority of nurse respondents identified the

telephone or intercom system as the basic method of communication. However, unlike the physicians, the nurses identified face-to-face communication as a primary method of both initial contact and feedback. This probably stems from a much higher rate of communication. The nurse respondents indicated a communication frequency of anywhere between one and twenty times per day for a ward nurse. Also interesting was that the nurses viewed the delivery of medications as a feedback method. Most respondents indicated there were no communication barriers; however, a couple were identified that are worth mentioning. One perception is that there is one pharmacist with whom it is very difficult to communicate at times; another barrier is poorly written physicians' orders, while a third barrier is the battle that occurs over lost medications. The IPB insists that the ward nurse search further while the nurse wants a new medication delivered.

Price Attributes

As mentioned previously, the cost of services from the IPB is cost in terms of time spent interacting with the IPB and the stress, or lack thereof, perceived by the nursing staff in relationship to the IPB. In responding to Question 21, the nurses almost unanimously agreed that IPB services are offered on an appropriate time schedule. In fact, improved scheduling of medication times was identified as an improved service in the last five years. As was discussed earlier, the nurses also

identified hyperalimentation as a service occasionally not available when required.

From Questions 22 and 23, the IPB staff was strongly identified as responsive, courteous, and helpful to the nursing staff, while only one respondent felt that delivery times from the IPB to the ward were excessive. This again would indicate that the IPB attempts to minimize the time requirement imposed on the nursing staff and attempts to minimize the stress that could develop between such an active relationship as exists between the IPB and the nursing staff.

Place Attributes

Almost unanimously the nurse respondents concurred that the IPB is appropriately located within the MEDCEN. When asked to address the advantages or disadvantages of new or additional locations, respondents indicated that the IPB is currently central to most of the acute care services and that the MEDCEN is really not large enough to support satellite pharmacies. There was some feeling, however, that a more central location to the wards would be preferred. Satellite pharmacies would be useful if they provided quicker response time and if the pharmacist and/or pharmacy technicians were available for medication distribution to the patients.

Recognizing that the tube system is the single most used method of transmitting physicians' orders to the IPB and for rapid distribution of medications to the ward, the researcher questioned respondents about this system. An often heard response

was that in general the system works well; however, the ward frequently does not have tubes available to send orders to the IPB. This appears to be a universal problem and creates a source of conflict between the IPB and the wards. Conflict occurs because the wards hold orders until several are gathered instead of sending an order immediately upon receipt from a physician because only a few tubes are available. This dumps workload into the IPB in batches instead of a steady flow of work which would be easier for the IPB to manage.

Strengths and Weaknesses

The nurse respondents strongly felt that the major strength of the IPB is the personnel, both pharmacists and technicians. Responsive, helpful, courteous, and flexible were all attributes assigned to the IPB staff. Other strengths included: delivery of bulk IVs, delivery/exchange of unit dose carts, response to codes, quality assurance, and drug information services.

Interestingly, there was little consensus on problems or problem areas of the IPB. The only topic that seemed to run through the problems discussed concerned medications. Nurses desired more rapid response in filling and returning physicians' orders; periodically, they receive the wrong medications; and they have problems with access to vault medications on weekends. Other problems mentioned included the need for a better formulary, lack of patient education,

and lack of quality assurance with the unit dose system (when medications are not used, there appears to be no follow-up by the IPB).

Conclusions and Marketing Implications

Product Attributes

From the responses of both nurses and physicians, it is clear that both groups perceive that the current IPB services meet their needs and they are satisfied with these services. This is important because it indicates that the IPB has an excellent base of operations. Whole-scale changes are not required but rather, fine tuning of operations appears more appropriate.

The IPB may need to consider its image of operations as perceived by the physicians. If there is a desire or need to expand the scope of operations interacting with the physicians, then the IPB will have to broaden the physicians' perception beyond the narrow view as a "storekeeper of pharmaceuticals."

In attempting to ascertain unmet needs, the researcher was attempting to discover opportunities for the IPB to expand, add, or change services to better meet its customers' requirements. Both the physicians and the nurses identified changes in the population supported by DDEAMC and in treatment modalities which will have an impact on the services offered by the IPB.

As the MEDCEN evolves into more sophisticated treatment methods, it is attracting many more retirees, dependents, and a generally sicker inpatient population, a fact documented earlier in this study and reiterated by interview respondents. This means increased workload for the IPB and the possible introduction of many new drugs to the MEDCEN. This in turn places more emphasis on drug information and interaction services required by the physicians and nurses.

The physicians indicated a need for more information services. This could be met through a physician newsletter, in-services for physicians, or pharmacist participation in grand rounds. The physicians also are at least open to the idea of more pharmacist involvement in direct patient care. This role of clinical pharmacist is practiced by the single pharmacist in Oncology but nowhere else in the MEDCEN. Clinical pharmacy may be an appropriate area into which the IPB should expand its services.

The nurses' principal need appeared to be a lightening of their workload by pharmacy personnel. This was suggested in two ways: having the pharmacy staff pass medications and having the pharmacy staff conduct patient medication education. These functions are part of the role of clinical pharmacy and should be part of the consideration of expansion of services.

Promotion Attributes

It is evident that telephonic communication is the primary method of communication between the IPB and its publics.

While no serious problem was identified by the respondents, the IPB may want to consider classes for its personnel on telephone and interpersonal communications to prevent communication barriers from occurring. The IPB must remain aware that the nursing staff acts as a channel of communication between the IPB and the physicians. There is obvious potential for communication failures in this situation. When possible, the IPB staff should try to establish more direct communication with the physicians.

Other communication forms such as a newsletter and in-services are ongoing efforts of the IPB directed toward the nursing staff. This appears to be a valued service and one that enhances the image and working relationship of the IPB with the nursing staff. With the indication from physician respondents for more information services, a newsletter directed toward physicians would be appropriate. This could possibly enhance the relationship between the physicians and the IPB and educate the physician staff as to all the services available from the IPB.

Price Attributes

From the interviews it appears that the IPB is currently doing an excellent job of minimizing both the time requirement to interact with the IPB and the stress created in these working relationships. Any new services offered by the IPB must take into consideration the time and stress costs involved.

Place Attributes

Almost all respondents seemed to feel that the IPB is appropriately located within the MEDCEN. Service to the intensive care units was often cited as excellent due to location. The tube system overcomes some of the disadvantage of the IPB's being located on the third floor while wards are located on the fifth to the thirteenth floors. Tube management is a problem for the wards with serious implications for the IPB in managing workflow. In discussing the concept of satellite pharmacies with respondents, most felt that the concept was not practical in DDEAMC. Respondents identified space and personnel constraints as prohibitive to the introduction of satellite pharmacies. The Oncology Pharmacy was recognized as fulfilling a need for a very specialized group of patients. Given sufficient resources, this concept is applicable to other specialized patient groups as the need arises and should be considered as a possible expansion of services by the IPB in the future.

Strengths and Weaknesses

The IPB has a strongly identified strength in its personnel. Basic services such as unit dose, IV medications, and drug information services are also recognized strengths. It is important to build on these strengths because they are the heart of this service organization.

As mentioned previously, the primary problem area with the physicians is communication. While there was no consensus from the nurse respondents, daily problems with medications seemed to be an area of concern.

Quantitative Questionnaire Study

Methods of Analysis

The third process in the research methodology was the administration of quantitative questionnaires to the three identified major publics--the physician staff involved in inpatient care, the inpatient nursing staff, and the inpatient ward personnel. The purpose of this process was to create a data base of measured perceptions from these major publics. The objective was to generate information from groups large enough to be said to describe each public and to generate information which identifies the following:

1. Perceived needs or wants of the publics
2. Publics' perception of the IPB (image/quality of service) to meet current perceived needs
3. Publics' perception of the communication process
4. Publics' knowledge and use of available services
5. Publics' perception of proper location for the IPB
6. Publics' perception of service hours and timely service

The questionnaires used in this study are at Appendices E and F. A different questionnaire was tailored for each public to generate the desired information based upon the above categories. To quantify perceptions respondents used a Likert scale ranging from extremes such as "strongly disagree" to "strongly agree" to answer the questions.

Because the populations of the three publics are not large, questionnaires were prepared and distributed to 100 percent of each population. Due to temporary duty (TDY) absences, leaves, illness, and other reasons, 100 percent of each population was not available to respond to the questionnaire. Therefore, in the following table depicting questionnaire return rates, the potential respondents is an approximate figure.

TABLE 16

QUESTIONNAIRE RETURN RATES

Population	Potential Respondents	Actual Respondents	Percent
Staff Physicians	75	49	65
Resident Physicians	75	33	44
TOTAL	150	82	55
Army Nurse Corps	120	59	49
Civilian RNs	7	4	57
TOTAL	127	63	50
Enlisted Paraprofessionals	150	48	32
Civilian Paraprofessionals	105	21	21
TOTAL	255	69	27

Return rates for both the physicians and the nurses are judged to be quite good. Historically, according to Dr. Richard A. Sherman, Captain, Medical Service Corps, Chief, Psychophysiology Service, Department of Clinical Investigations, DDEAMC, it has been difficult to achieve high return rates from the professional staff at DDEAMC. In his opinion a 50-percent

return rate was a reasonable goal to achieve, and the responses can be said to describe each respective population.[1]

Return rates from the enlisted and civilian paraprofessional nursing staffs were not as good. Roughly, one-third of the enlisted returned the questionnaire while only one-fifth of the civilians returned the questionnaire. This indicates a general lack of interest on the part of the paraprofessionals. While the responses can certainly be said to describe that portion of the population which responded to the questionnaire, the general apathy of responses indicates to the researcher that this population is of lesser importance to the IPB than the physicians or the nurses.[2]

The raw data of responses from each public have been condensed into table format at Table 17. The raw data were first analyzed by graphing the data and visually analyzing the shapes of the distributions. The significance to be derived from Likert scale data is the response or responses most often generated by those individuals answering the questions. Graphing the data allows immediate recognition of the response most often generated. This is the modal response; and as long as the distribution of responses to any one question is monopolar and all groups show the same distribution when answering that question, the modal response is the best statistical indicator of the population response.[3] There was only one case in which the data were distributed in a bipolar rather than a monopolar distribution.

TABLE 17

QUESTIONNAIRE RESPONSES

Question	Response	Staff Physicians	Resident Physicians	Total	Army Nurse Corps	Civilian Registered Nurses	Total	Enlisted Para-Professional	Civilian Para-Professional	Total
1	1	1	1	2	4	0	4	2	1	3
	2	6	5	11	6	0	6	5	3	8
	3	12	8	20	11	3	14	14	6	20
	4	25	19	44	20	1	21	16	8	24
	5	4	0	4	2	0	2	1	1	2
2	1	1	1	2	2	0	2	1	0	1
	2	6	6	12	2	0	2	5	1	6
	3	16	9	25	8	1	9	10	8	18
	4	22	18	40	22	2	24	14	9	23
	5	2	1	3	7	1	8	5	0	5
3	1	0	3	3	2	0	2	0	0	0
	2	1	1	2	6	1	7	2	4	6
	3	13	14	27	10	0	10	14	5	19
	4	28	16	44	28	3	31	24	8	32
	5	0	1	1	7	0	7	4	0	4
4	1	0	0	0	0	0	0	0	2	2
	2	3	4	7	3	0	3	3	3	6
	3	10	8	18	13	1	14	10	4	14
	4	26	21	47	26	3	29	24	7	31
	5	3	3	6	18	0	18	9	5	14

(table continues)

TABLE 17 (continued)

Questionnaire Responses (continued)

Question	Response	Staff Physicians	Resident Physicians	Total	Army Nurse Corps	Civilian Registered Nurses	Total	Enlisted Para-Professional	Civilian Para-Professional	Total
5	1	0	0	0	1	0	1	0	1	1
	2	0	1	1	2	0	2	5	1	6
	3	9	11	20	12	1	13	19	7	27
	4	29	21	50	32	3	35	16	9	25
	5	1	2	3	8	0	8	6	2	8
6	1	0	1	1	1	0	1	1	0	1
	2	1	0	1	0	0	0	1	0	1
	3	8	6	14	8	0	8	4	5	9
	4	33	22	55	18	2	20	26	3	29
	5	7	7	14	17	1	18	11	5	16
7	1	0	1	1	0	0	0	0	0	0
	2	1	3	4	3	0	3	4	5	9
	3	6	7	13	11	0	11	13	6	19
	4	26	17	43	30	1	31	23	4	27
	5	3	1	4	9	3	12	6	2	8
8	1	2	1	3	1	0	1	0	0	0
	2	3	5	8	0	0	0	0	0	0
	3	13	8	21	6	0	6	8	2	10
	4	23	16	39	26	2	28	28	11	39
	5	2	0	2	21	2	23	7	2	9

(table continues)

TABLE 17 (continued)

Questionnaire Responses (continued)

Question	Response	Staff Physicians	Resident Physicians	Total	Army Nurse Corps	Civilian Registered Nurses	Total	Enlisted Para-Professional	Civilian Para-Professional	Total
9	1	0	1	1	0	0	0	0	2	2
	2	1	0	1	1	1	2	3	1	4
	3	5	12	17	11	0	11	12	6	18
	4	25	16	41	25	2	27	26	7	33
	5	3	4	7	15	1	26	3	1	4
10	1	3	1	4	2	0	2	3	1	4
	2	14	7	21	11	0	11	14	6	20
	3	21	5	41	19	1	20	18	3	21
	4	11	20	16	18	2	20	13	5	18
	5	0	0	0	8	1	9	2	1	3
11	1	0	1	1	0	0	0	0	1	1
	2	3	3	6	3	0	3	2	1	3
	3	21	13	34	19	2	21	22	7	29
	4	17	14	31	23	1	24	15	6	21
	5	2	0	2	7	1	8	1	1	2
12	1	0	0	0	0	0	0	0	0	0
	2	1	3	4	3	1	4	2	0	2
	3	21	14	35	20	0	20	19	7	26
	4	21	14	35	26	2	28	20	8	28
	5	1	0	1	3	1	4	1	0	1

(table continues)

TABLE 17 (continued)

Questionnaire Responses (continued)

Question	Response	Staff Physicians	Resident Physicians	Total	Army Nurse Corps	Civilian Registered Nurses	Total	Enlisted Para-Professional	Civilian Para-Professional	Total
13	1	0	0	0	0	0	0	1	0	1
	2	22	8	30	21	3	24	14	4	18
	3	13	12	25	8	0	8	17	4	21
	4	4	6	10	16	0	16	8	4	12
	5	0	2	2	2	1	3	0	3	3
14 - Not Applicable										
15	1	0	0	0	0	0	0	0	1	1
	2	2	1	3	2	0	2	1	1	2
	3	12	10	22	10	0	10	8	6	14
	4	26	21	47	31	2	33	31	9	40
	5	3	0	3	11	2	13	3	0	3
16a	1	0	0	0	0	0	0	1	0	1
	2	1	3	4	1	0	1	0	2	2
	3	19	10	29	15	2	17	16	5	21
	4	25	20	45	33	0	33	26	7	33
	5	0	0	0	5	2	7	1	0	1
16b	1	0	0	0	0	0	0	0	0	0
	2	3	3	6	0	0	0	5	1	6
	3	20	19	39	18	1	19	10	6	16
	4	21	13	34	30	1	31	25	6	31
	5	0	0	0	3	1	4	2	0	25

(table continues)

TABLE 17 (continued)

Questionnaire Responses (continued)

Question	Response	Staff Physicians	Resident Physicians	Total	Army Nurse Corps	Civilian Registered Nurses	Total	Enlisted Para-Professional	Civilian Para-Professional	Total
16c	1	0	0	0	0	0	0	1	0	1
	2	0	2	2	0	0	0	0	0	0
	3	14	8	22	13	2	15	14	6	20
	4	26	20	46	32	0	32	26	7	33
	5	0	1	1	5	2	7	1	0	1
17	1	0	0	0	3	0	3	1	0	1
	2	6	7	13	8	0	8	4	0	4
	3	20	12	32	16	2	18	12	3	15
	4	15	13	28	21	2	23	23	12	35
	5	0	0	0	6	0	6	4	0	4
18	1	0	0	0	0	0	0	0	0	0
	2	3	1	4	3	0	3	0	0	0
	3	18	15	33	13	1	14	19	6	25
	4	19	15	34	32	2	34	21	9	30
	5	0	0	0	3	1	4	3	0	3
19	1	0	0	0	0	0	0	0	1	1
	2	1	3	4	0	0	0	3	1	4
	3	10	7	17	12	1	13	9	5	14
	4	31	22	53	32	2	34	27	9	36
	5	3	0	3	12	1	13	4	1	5

(table continues)

TABLE 17 (continued)

Questionnaire Responses (continued)

Question	Response	Staff Physicians	Resident Physicians	Total	Army Nurse Corps	Civilian Registered Nurses	Total	Enlisted Para-Professional	Civilian Para-Professional	Total
20	1	5	1	6	12	1	13	15	3	18
	2	11	10	21	20	1	21	14	6	20
	3	18	17	35	10	1	11	13	6	19
	4	10	3	13	11	1	12	3	0	3
	5	3	2	5	1	0	1	1	0	1
21	1	2	0	2	1	0	1	3	0	3
	2	5	3	8	4	1	5	6	1	7
	3	16	14	30	12	1	13	19	4	23
	4	20	13	33	22	1	23	11	7	18
	5	5	3	8	17	1	18	5	2	7
22	1				0	0	0	0	0	0
	2				1	1	2	1	1	2
	3				5	0	5	15	3	18
	4				23	1	24	21	7	28
	5				29	2	31	7	3	10

(table continues)

TABLE 17 (continued)

Questionnaire Responses (continued)

Question	Response	Staff Physicians		Resident Physicians		Total		Army Nurse Corps		Civilian Registered Nurses		Total		Enlisted Para-Professional		Civilian Para-Professional		Total	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
22/23	1	14	31	8	15	22	23	14	31	0	4	14	35	10	27	6	6	16	33
	2	25	20	11	13	45	24	32	10	2	2	34	12	29	7	14	1	43	8
	3	25	20	15	9	45	24	32	16	3	1	35	17	28	11	9	4	37	15
	4	31	14	14	10	45	24	28	17	3	1	31	18	23	17	6	5	29	22
	5	25	18	15	10	40	28	32	12	3	1	35	13	25	13	12	2	37	15
	6	11	32	3	18	14	50	15	28	0	4	15	32	14	23	6	7	20	30
	7	17	26	11	13	28	39	29	15	3	1	32	16	21	22	8	3	29	25
	8	10	33	6	17	16	50	14	29	1	3	15	32	20	18	5	9	25	27
	9	20	23	11	13	31	36	35	9	3	0	38	9	26	10	10	3	36	13
	10	10	34	6	17	16	51	10	35	1	3	11	38	11	26	1	7	12	33

Through graphing, the data were also analyzed to determine if any significant differences in perception occurred among the three publics. If the graphs for each public paralleled one another, then a visual determination was deemed sufficient to say that there was no significant difference in perception among the publics. If the graphs for each public did not appear to parallel one another, then a Chi-square test was used to determine if the patterns of distribution of responses were significantly different among the publics.[4] An explanation of this procedure is at Appendix G.

The following discussion analyzes each graph through the modal response and other statistical techniques to describe each of the public's response on a question-by-question basis.

The graphs are presented in the body of the discussion rather than as appendices to facilitate comprehension of the analysis. While most of the questions were presented to all three publics, those that were not are specifically identified. Each question and its corresponding graph are identified numerically. In the analysis the modal response and the second most often given response are identified along with their respective percentage of respondents. Each public is identified by: PHY - physicians, NUR - nurses, and PP - paraprofessionals. On the graphs, each public is identified as follows: physicians - bold line (━━━); nurses - thin line (———); and paraprofessionals - broken line (-----).

Questionnaire Analysis

The following questions were addressed to physicians only.

1. Pharmacist involvement at this facility as a contributing member of the health care team is:

	PHY
Mode:	Good - 57%
Second:	Average - 20%

Physicians generally perceive the pharmacist as a "contributing member" in the delivery of health care.

2. Pharmacy Service drug information services are:

	PHY
Mode:	Good - 54%
Second:	Average - 26%

Physicians generally regard drug information services as satisfactory; however, there appears to be room for improvement as 26 percent felt this service was only average.

NOTE: On Figures 1 through 28, the vertical scale depicts the number of responses and the horizontal scale depicts the Likert scale for the corresponding question.

Fig. 1. Pharmacist involvement at this facility as a contributing member of the health care team is:

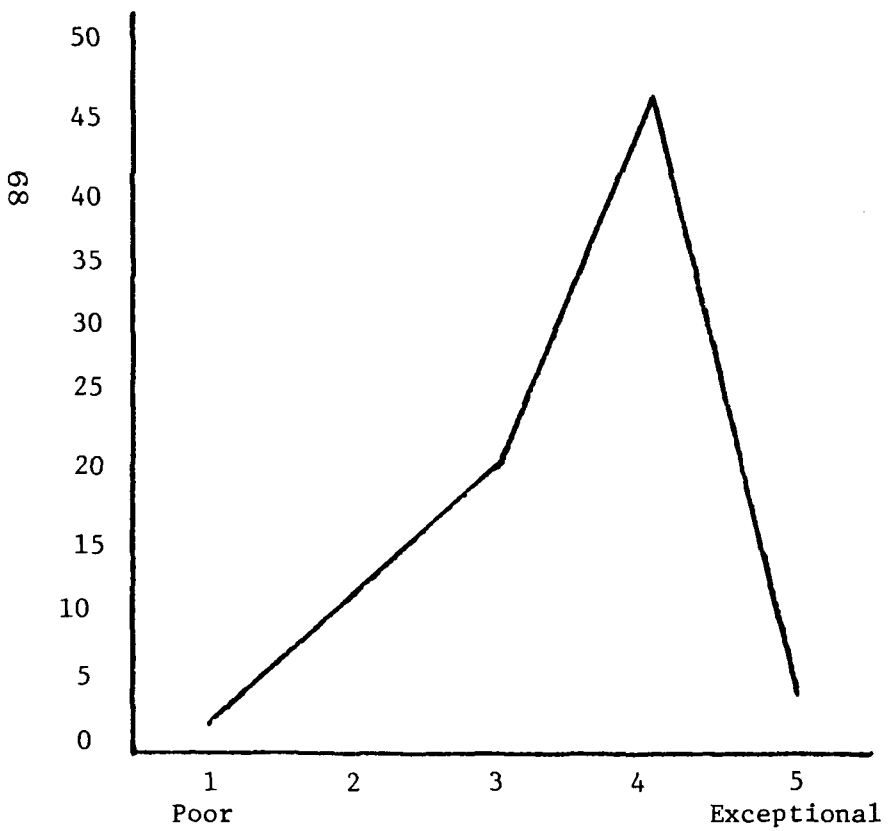
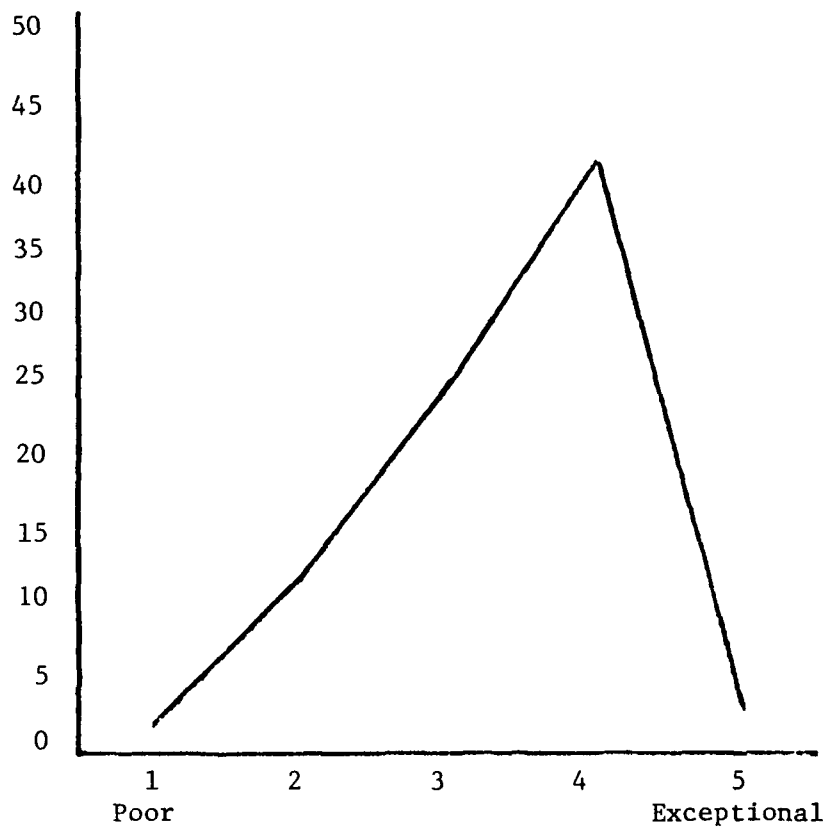


Fig. 2. Pharmacy Service drug information services are:



3. The quality of the pharmacy hyperalimentation preparation and distribution system is:

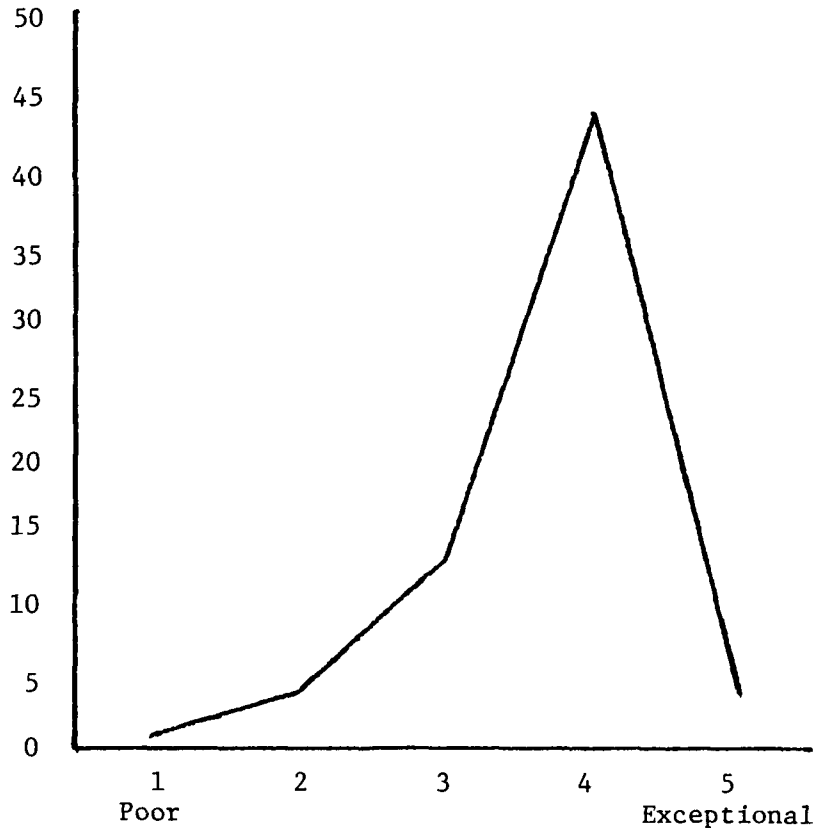
PHY

Mode: Good - 57%

Second: Average - 28%

The mode indicates recognition of a quality program, but the high percentage of average responses indicates room for improvement.

Fig. 3. The quality of the pharmacy hyperalimentation preparation and distribution system is:



The following questions were addressed to the nursing staff only.

4. My opinion of the pharmacy nursing orientation presented on initial inprocessing is:

	NUR		PP	
Mode:	Good	- 45%	Good	- 42%
Second:	Average	- 30%	Average	- 35%

Mode indicates general acknowledgment of a good program. However, less than 5 percent responded with "excellent"; this indicates a need for program improvement and/or increased program attendance.

5. The quality of pharmacy-sponsored nursing in-service programs is:

	NUR		PP	
Mode:	Good	- 53%	Good	- 43%
Second:	Average	- 20%	Average	- 34%

While both modes indicate a good in-service program, the nurses tended to rate the in-service program higher than the paraprofessionals. Of the nurses, 18 percent (as opposed to 9 percent for the paraprofessionals) rated the in-service programs as excellent.

Fig. 4. My opinion of the pharmacy nursing orientation presented on initial inprocessing is:

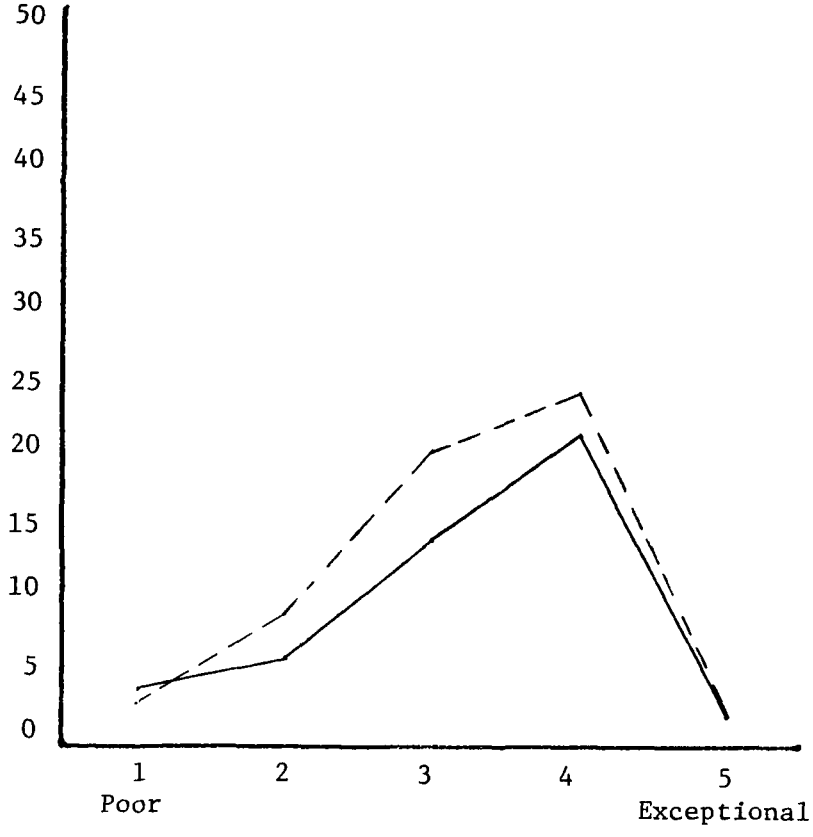
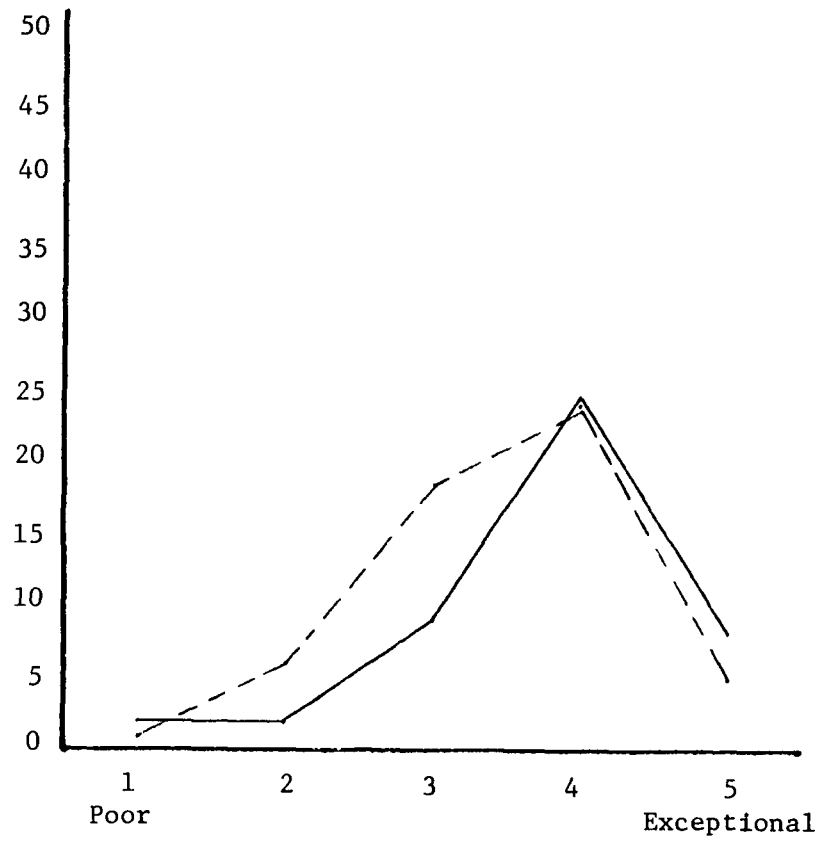


Fig. 5. The quality of pharmacy-sponsored nursing in-service programs is:



6. My participation in pharmacy-sponsored nursing in-service programs is:

	NUR	PP
Mode:	Seldom - 36%	Seldom - 33%
Second:	Never - 22%	Occasional - 31%

The modal response and response distribution indicate a serious problem for this program: 77 percent of the nurses and 94 percent of the paraprofessionals gave responses ranging from "never" to "occasional." The in-service program is an educational service designed for the nursing staff which, from the responses, is not reaching the vast majority of its intended audience.

7. Pharmacy response to routine patient medication orders is:

	NUR	PP
Mode:	Good - 59%	Average - 39%
Second:	Average - 22%	Good - 38%

The nursing staff indicated a much stronger belief that response times are good. The paraprofessionals' response was more toward average probably because they are the ones sent to pick up medications.

Fig. 6. My participation in pharmacy-sponsored nursing in-service programs is:

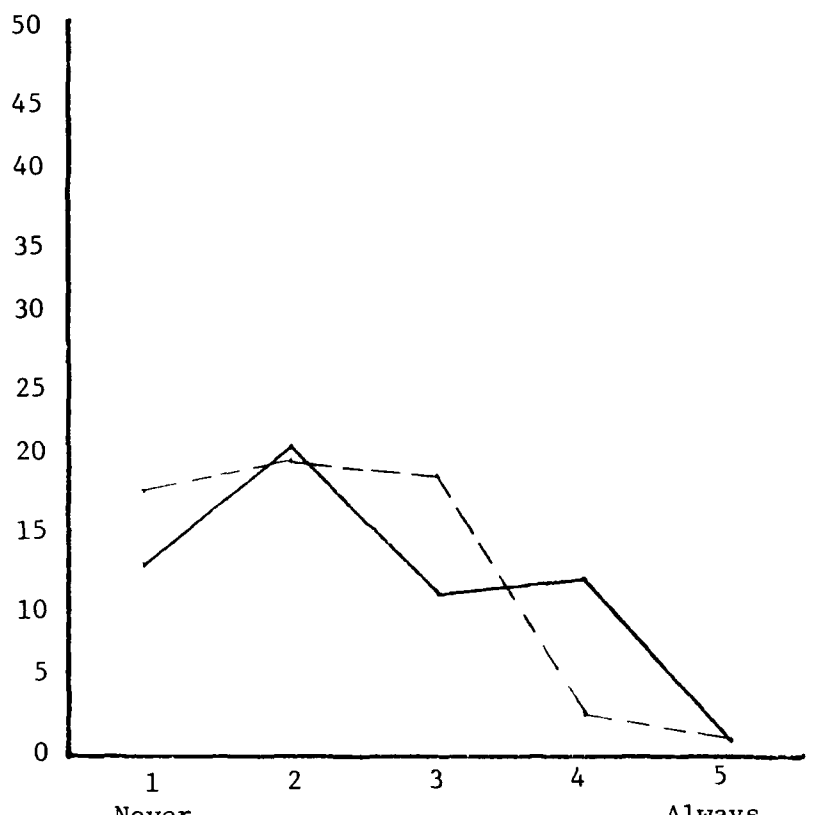
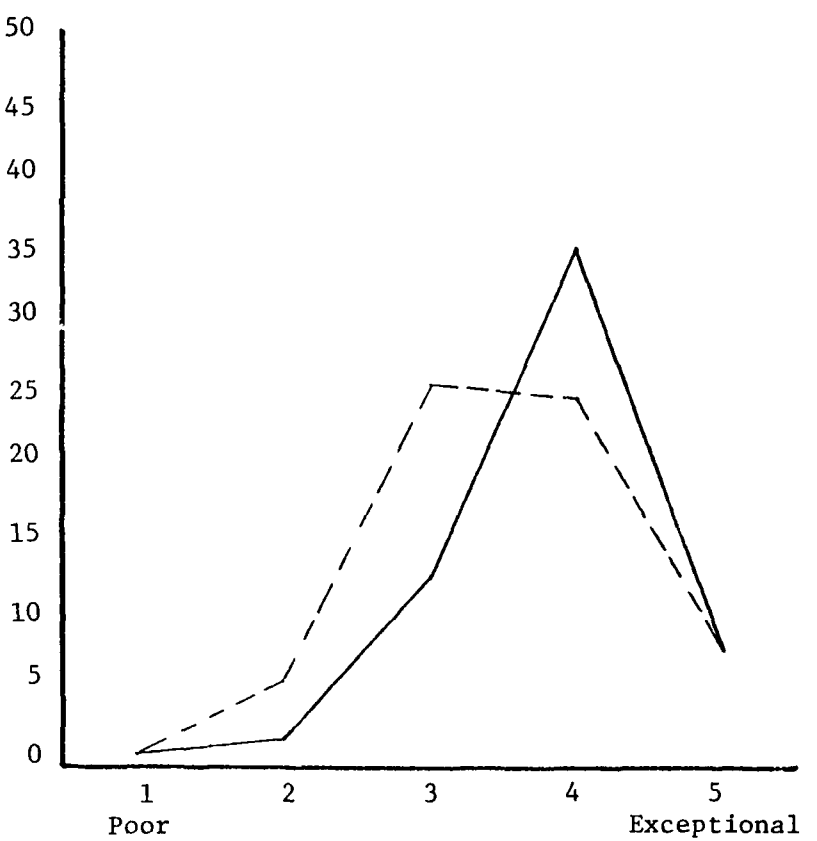


Fig. 7. Pharmacy response to routine patient medication orders is:



The following questions were addressed to all three publics: physicians, nurses, and paraprofessionals.

8. The present pharmacy unit dose drug distribution system is:

	PHY	NUR	PP
Mode:	Good - 57%	Good - 54%	Good - 52%
Second:	Average - 35%	Average - 17%	Average - 31%

The modal response indicates a general feeling of satisfaction with the unit dose system, but the high percentage of "average" ratings indicates need for improvement.

9. Pharmacy response to STAT (emergency) orders is:

	PHY	NUR	PP
Mode:	Good - 60%	Good - 45%	Good - 46%
Second:	Average - 23%	Exceptional - 28%	Exceptional - 21%

It is evident that while all the publics felt that response time is good, the nursing staff rates pharmacy response to STAT orders as bordering on exceptional. This is probably due to the close working relationship that exists between the nursing staff and the IPB.

Fig. 8. The present pharmacy unit dose drug distribution system is:

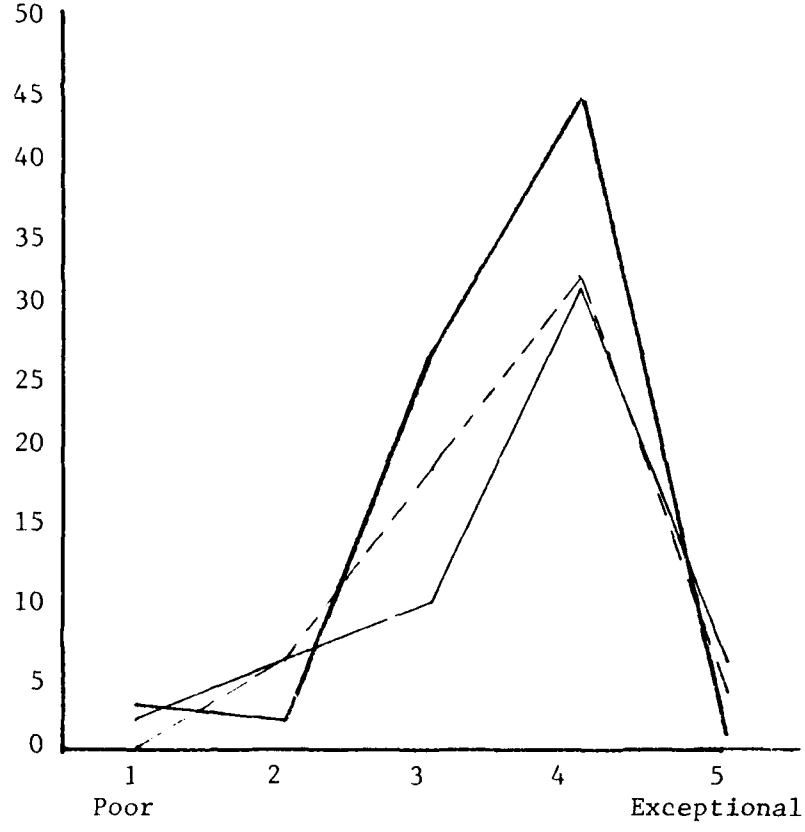
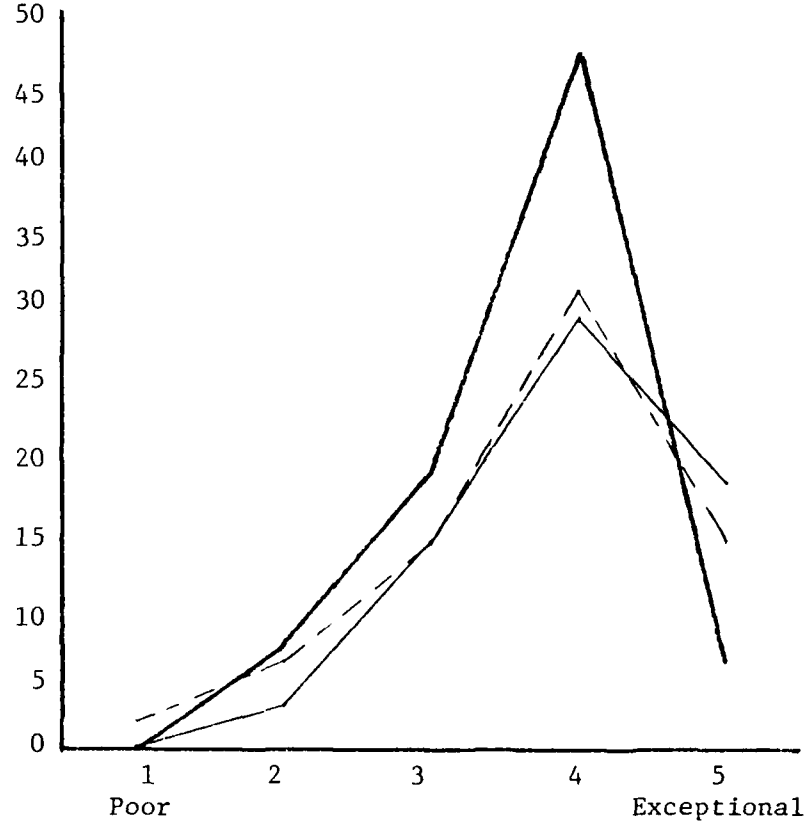


Fig. 9. Pharmacy response to STAT (emergency) orders is:



10. Pharmacy participation in and support of CPR (Code 18) is:

	PHY	NUR	PP
Mode:	Good - 61%	Good - 43%	Good - 52%
Second:	Average - 25%	Exceptional - 38%	Exceptional - 29%

While all groups rated this service as good, the nursing staff as a whole rated support of Code 18's far better than did the physician staff. From the graph it appears that the nurse responses are significantly higher than the physician responses. A Chi-square test revealed the following:

Response	PHY	NUR
1	2	2
2	2	0
3	25	17
4	61	43
5	10	38

$X^2_{c,4,.05} = 9.49$

$X^2 = 88.27$

$88.27 > 9.49$

From this test it can be said that nurse response frequencies are significantly different from the physician response frequencies. The nursing staff is probably more aware of the IPB role to provide an additional crash cart immediately to the site of any Code 18.

11. Pharmacists' response to drug information questions I may have is:

	PHY	NUR	PP
Mode:	Good - 65%	Good - 54%	Good - 51%
Second:	Exceptional - 15%	Exceptional - 21%	Average - 36%

Responses indicate that drug information services are highly regarded by the two publics--physicians and nurses--that are the principal users of this service.

Fig. 10. Pharmacy participation in and support of CPR (Code 18) is:

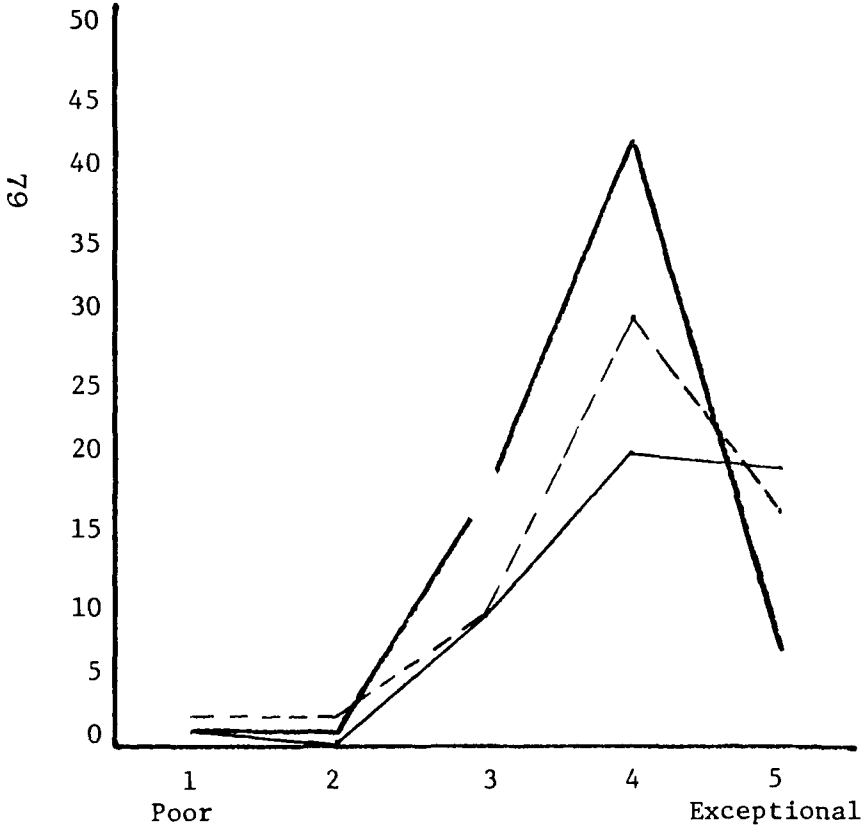
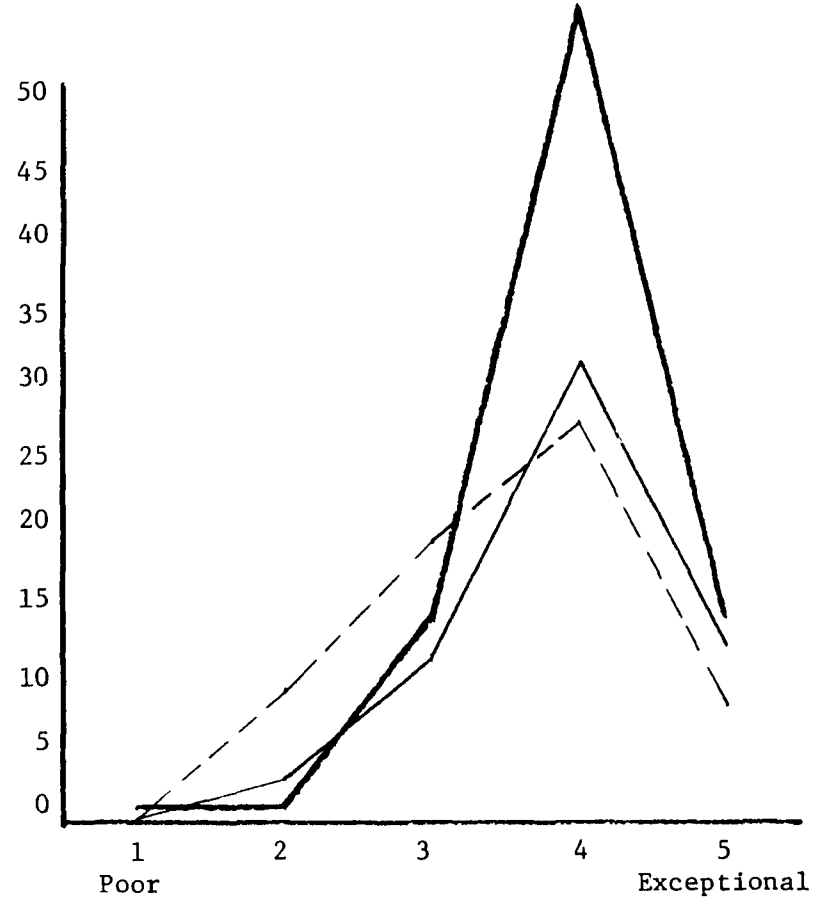


Fig. 11. Pharmacists' response to drug information questions I may have is:



12. The quality of the pharmacy sterile products (IV additive) program is:

	PHY	NUR	PP
Mode:	Good - 67%	Good - 48%	Good - 67%
Second:	Average - 27%	Exceptional - 40%	Average - 17%

While all publics gave the sterile products program a strong "good" rating, again the nurse response is markedly higher. A Chi-square test between the physician and nurse responses revealed the following:

Response	PHY	NUR
1	1	2
2	1	0
3	27	10
4	67	48
5	4	40

$X^2_c,4,.05 = 9.49$

$X^2 = 342.09$

$342.09 > 9.49$

The nurse response frequencies are significantly different from the physician response frequencies. This is probably because it is the nurse who most closely interacts with this service on a continuous basis. Generally, the physicians only order IV medications. It is the nurses who administer them.

13. Communication between the IPB staff and the physician staff (physician respondents)/ward and nursing staff (nurse and paraprofessional respondents) is:

	PHY	NUR	PP
Mode:	Good - 53%	Good - 49%	Good - 54%
Second:	Average - 29%	Exceptional - 29%	Average - 29%

These responses indicate that all the publics perceive that fairly good communication exists. However, as has already been brought out earlier in this study, the nurses perceive they have much better communication with the IPB than do the physicians.

Fig. 12. The quality of the pharmacy sterile products (IV additive) program is:

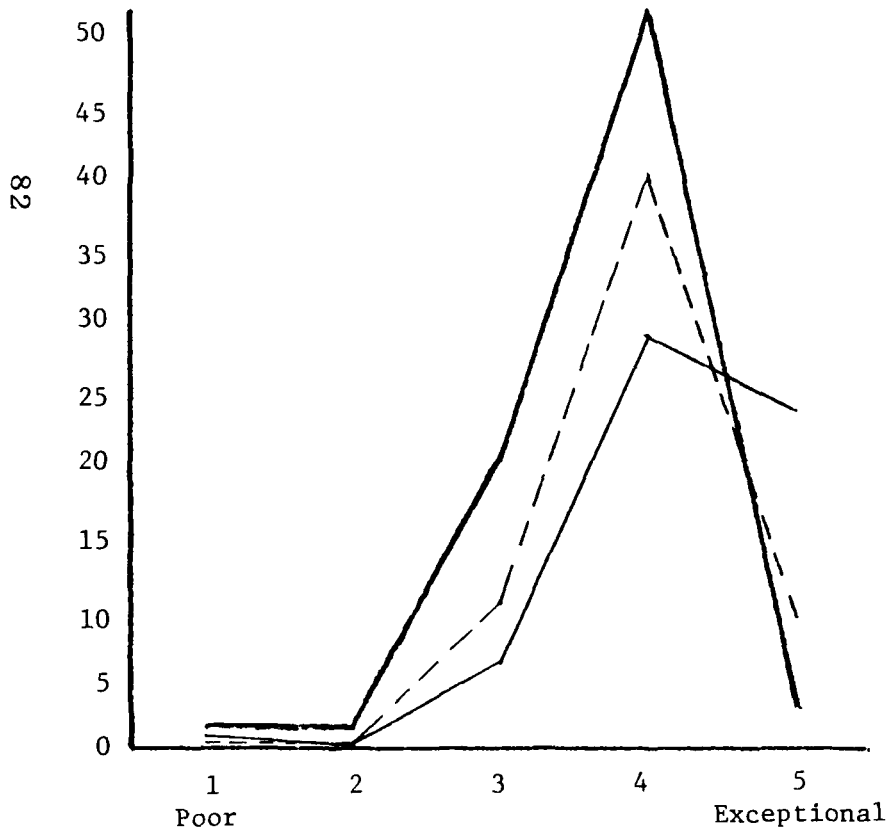
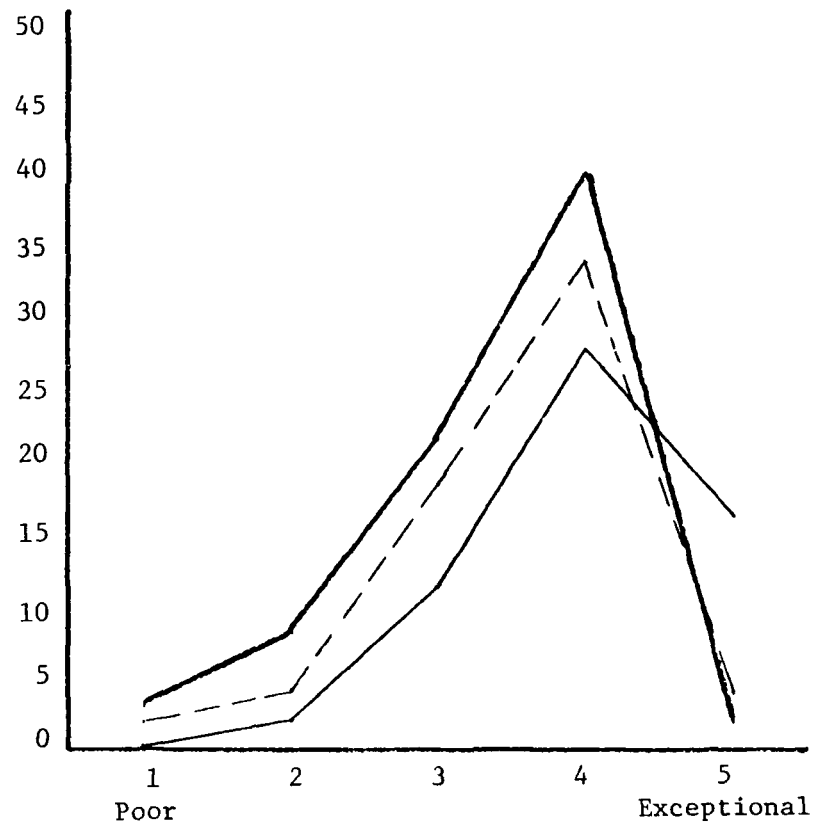


Fig. 13. Communication between the IPB staff and the physician staff (physician respondents)/ward and nursing staff (nurse and paraprofessional respondents) is:

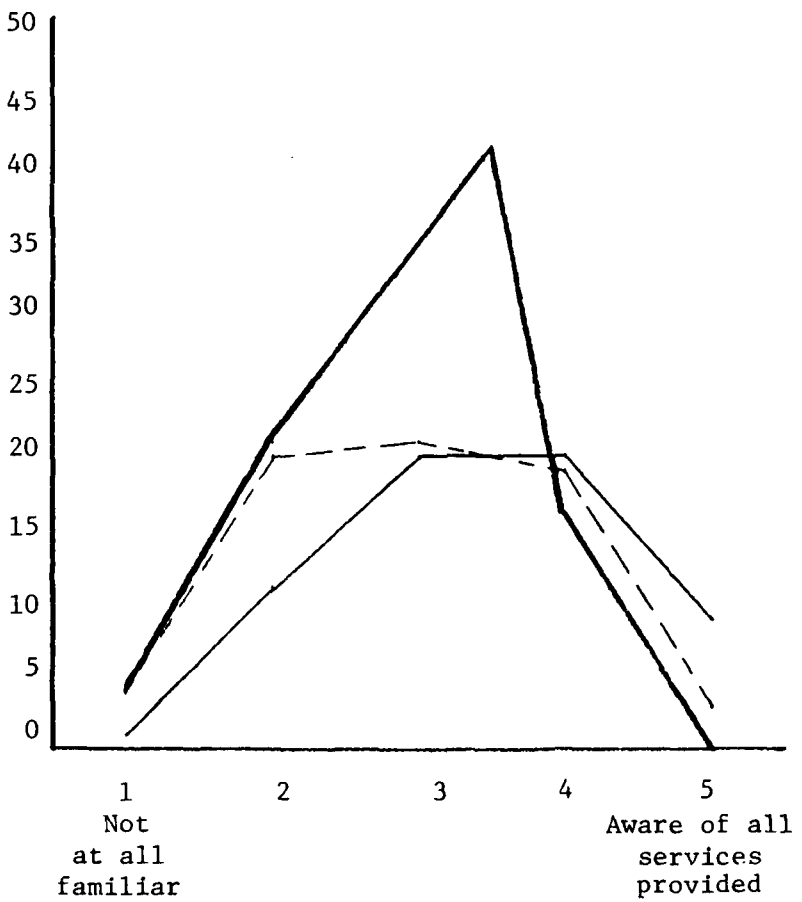


14. I am familiar with all services provided by the Pharmacy:

	PHY		NUR		PP	
Mode:	Moderately Familiar	- 50%	Familiar	- 32%	Moderately Familiar	- 32%
Second:	Somewhat Familiar	- 26%	Moderately Familiar	- 32%	Somewhat Familiar	- 30%

Responses indicate an education problem with the physicians registering the greatest lack of knowledge of the capabilities of the IPB.

Fig. 14. I am familiar with all services provided by the Pharmacy:



15. The IPB currently provides all of the services needed by the physician staff (physician respondents)/ward and nursing staff (nurses and paraprofessional respondents):

	PHY		NUR		PP	
Mode:	Agree Somewhat	- 46%	Agree	- 43%	Agree Somewhat	- 52%
Second:	Agree	- 42%	Agree Somewhat	- 37%	Agree	- 37%

While no public strongly endorsed this statement, the responses indicate general acknowledgment that most of the needs of each public are met by the IPB.

16. The IPB currently provides all of the services needed by the hospital patients:

	PHY		NUR		PP	
Mode:	Agree	- 47%	Agree	- 50%	Agree	- 50%
Second:	Agree Somewhat	- 47%	Agree Somewhat	- 36%	Agree Somewhat	- 46%

Again, no strong endorsement but general acknowledgment that the services needed by the hospital patients from the IPB are provided.

Fig. 15. The IPB currently provides all of the services needed by the physician staff (physician respondents)/ward and nursing staff (nurses and paraprofessional respondents):

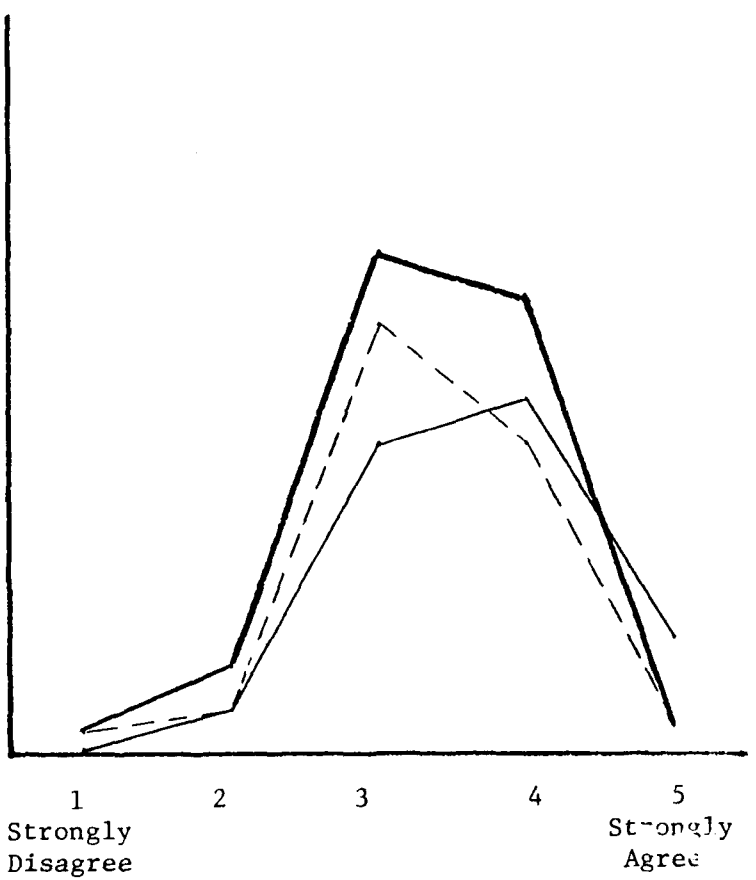
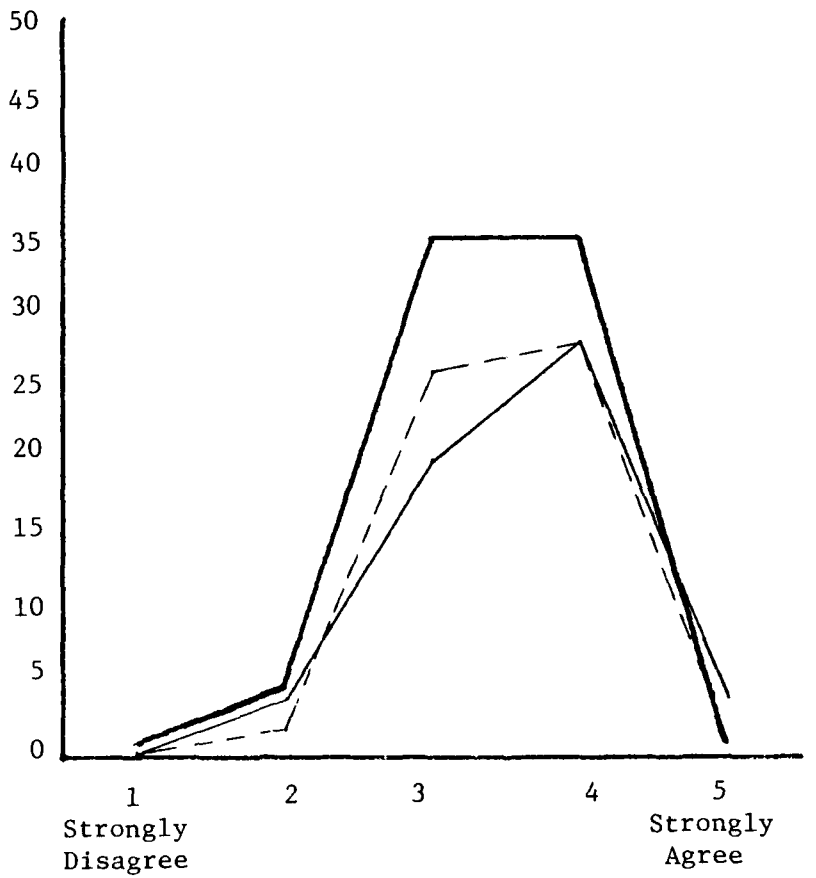


Fig. 16. The IPB currently provides all of the services needed by the hospital patients:



17. The number of inpatient pharmacy services provided should be expanded:

	PHY	NUR	PP
Mode:	Disagree - 45%	Disagree - 47%	Agree Somewhat - 38%
Second:	Agree Somewhat - 37%	Agree - 31%	Disagree - 33%

In light of the last two questions (15 and 16), the responses to this question are very interesting. All publics had a fairly large percentage who disagreed with Question 17. In the previous questions, the publics indicated no strong belief that all the necessary services were being provided by the IPB. Yet there is a fairly strong feeling that services should not be expanded. This confirms the researcher's opinion that most of the needs of the publics are being met by current services of the IPB.

The nurses' responses to this question are the only bipolar distribution in the study. Two obvious clumps of responses occurred, one group desiring expanded services and one group disagreeing with expanded services. Research into the raw data revealed that across the board, the nurses from each nursing section were split on the subject. This indicates some perceived service needs on the part of nurses which were hopefully identified by the following question.

18. If you agree to any extent that the number of IPB services should be expanded, list those services to be added.

As could be anticipated from Question 17, it was the nurses, particularly those in the Army Nurse Corps (ANC), who provided the most response to this question. Thirty-three nurses, nineteen physicians, and no paraprofessionals proposed a service or service enhancement in response to this question. The nurses primarily proposed increasing educational services both for the patients and for the nursing staff. More patient information, patient education concerning medications prior to discharge, drug information, drug interactions, and drug dose calculations were all suggested.

The physician focus was much different. Suggested service enhancements included a more direct patient care role such as consulting on the wards, creation of a hyperalimentation administration team, and the publication of a new, up-to-date formulary.

19. The quality of inpatient pharmacy services at present is:

	PHY	NUR	PP
Mode:	Good - 63%	Good - 57%	Good - 67%
Second:	Average - 29%	Exceptional - 22%	Average - 23%

Responses indicate general acknowledgment by all publics that good quality services are provided. Again, because of the closer working relationship, the nurses delivered a higher rating than the other publics.

Fig. 17. The number of inpatient pharmacy services provided should be expanded:

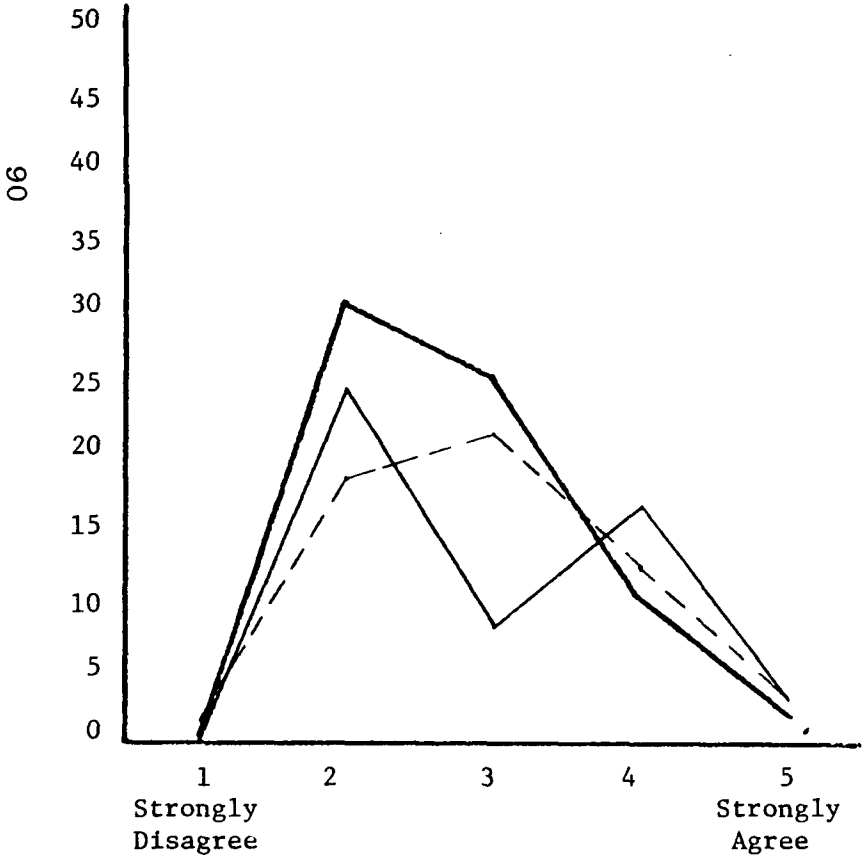
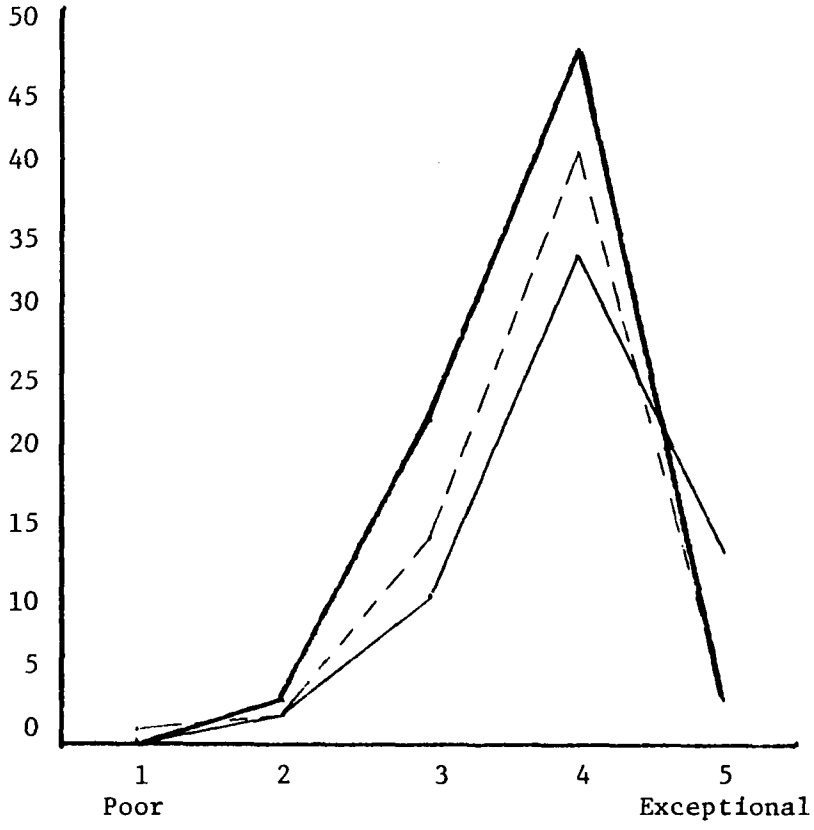


Fig. 19. The quality of inpatient pharmacy services at present is:



20. Rank what you believe is the satisfaction level of the physician staff in regard to the IPB services:

	PHY	NUR	PP
Mode:	Satisfied - 58%	Satisfied - 57%	Satisfied - 57%
Second:	Somewhat Satisfied - 37%	Somewhat Satisfied - 29%	Somewhat Satisfied - 36%

All three publics, to include physicians themselves, have an identical perception that the physician staff is generally satisfied with IPB services.

21. Rank what you believe is the satisfaction level of the ward/nursing staff in regard to the IPB services:

	PHY	NUR	PP
Mode:	Somewhat Satisfied - 49%	Satisfied - 57%	Satisfied - 56%
Second:	Satisfied - 43%	Somewhat Satisfied - 35%	Somewhat Satisfied - 29%

The ward/nursing staff response indicates general satisfaction with the IPB services. It is interesting that the physicians believe that the nursing staff is less than satisfied with the IPB services. Perhaps they perceive that it is the nursing staff who takes the brunt of any problems associated with the IPB and therefore the nursing staff would be less than satisfied.

Fig. 20. Rank what you believe is the satisfaction level of the physician staff in regard to the IPB services:

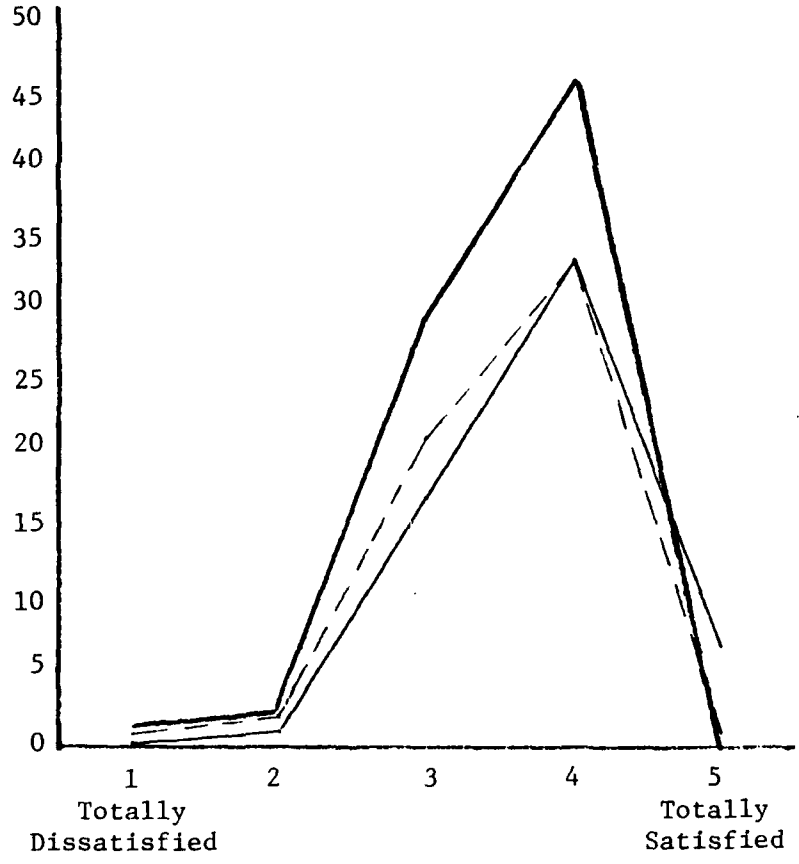
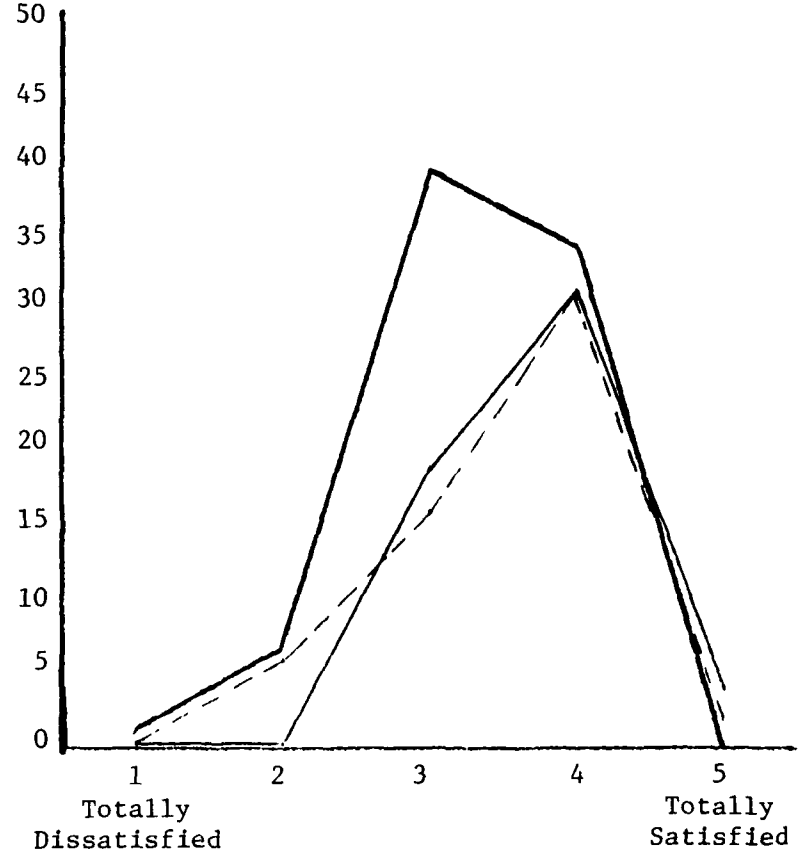


Fig. 21. Rank what you believe is the satisfaction level of the ward/nursing staff in regard to the IPB services:



22. Rank what you believe is the satisfaction level of the ward patients in regard to the IPB services:

	PHY	NUR	PP
Mode:	Satisfied - 65%	Satisfied - 59%	Satisfied - 60%
Second:	Somewhat Satisfied - 31%	Somewhat Satisfied - 28%	Somewhat Satisfied - 36%

This question was an attempt to measure perceived satisfaction of the ultimate consumer of the IPB services, the patient. All the publics strongly indicated that they believe the patients' needs are satisfied by the IPB services.

23. The current location of the IPB is the best possible location to serve the needs of the hospital staff:

	PHY	NUR	PP
Mode:	Agree Somewhat - 44%	Agree - 40%	Agree - 59%
Second:	Agree - 38%	Agree Somewhat - 31%	Agree Somewhat - 25%

The publics generally agreed that the IPB is appropriately located; however, they did not strongly support this statement.

Fig. 22. Rank what you believe is the satisfaction level of the ward patients in regard to the IPB services:

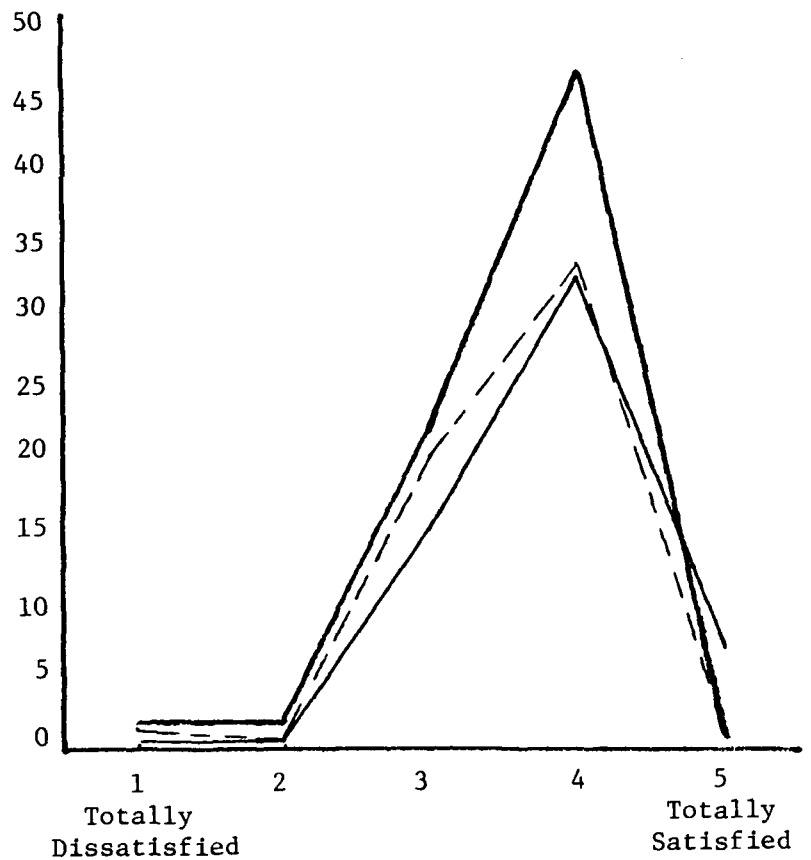
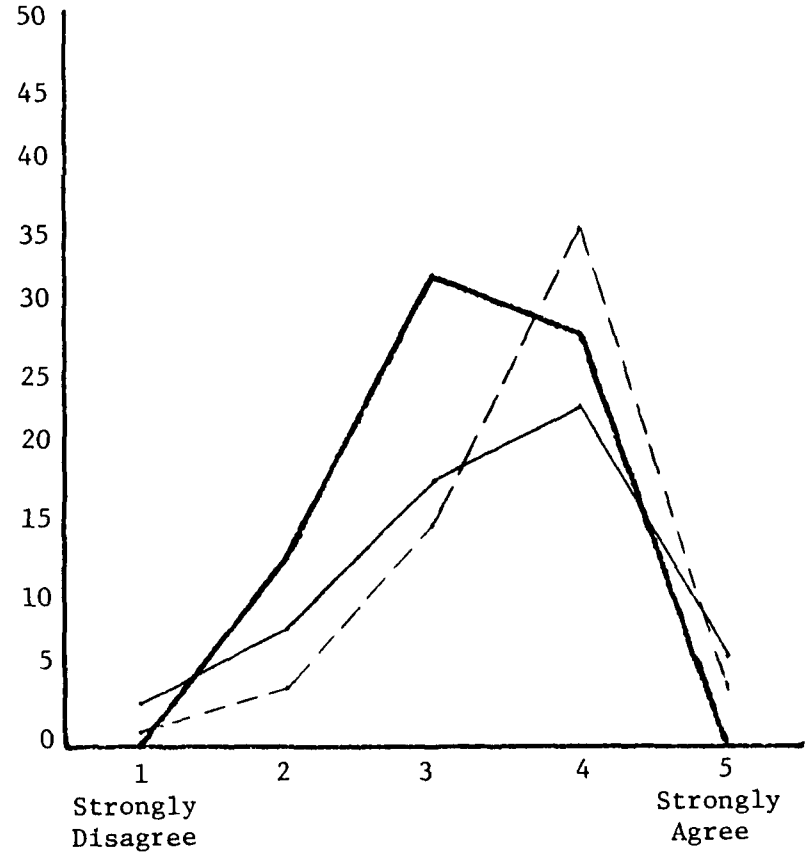


Fig. 23. The current location of the IPB is the best possible location to serve the needs of the hospital staff:



24. The IPB services are currently offered on a time schedule which best meets the needs of the hospital staff:

	PHY	NUR	PP
Mode:	Agree - 48%	Agree - 62%	Agree - 52%
Second:	Agree Somewhat - 46%	Agree Somewhat - 25%	Agree Somewhat - 43%

All the publics concurred that IPB services are offered on a schedule which meets the hospital staff's requirements.

25. My overall assessment of the Inpatient Pharmacy Branch and services provided is:

	PHY	NUR	PP
Mode:	Good - 69%	Good - 57%	Good - 60%
Second:	Average - 22%	Exceptional - 22%	Average - 23%

These responses indicate a strong perception that the IPB provides the right services to the right customers in the right place at the right time. This once again states that the IPB has an excellent base of operations which is functioning very well. It should be noted that once again the nurses provided the highest rating.

Fig. 24. The IPB services are currently offered on a time schedule which best meets the needs of the hospital staff:

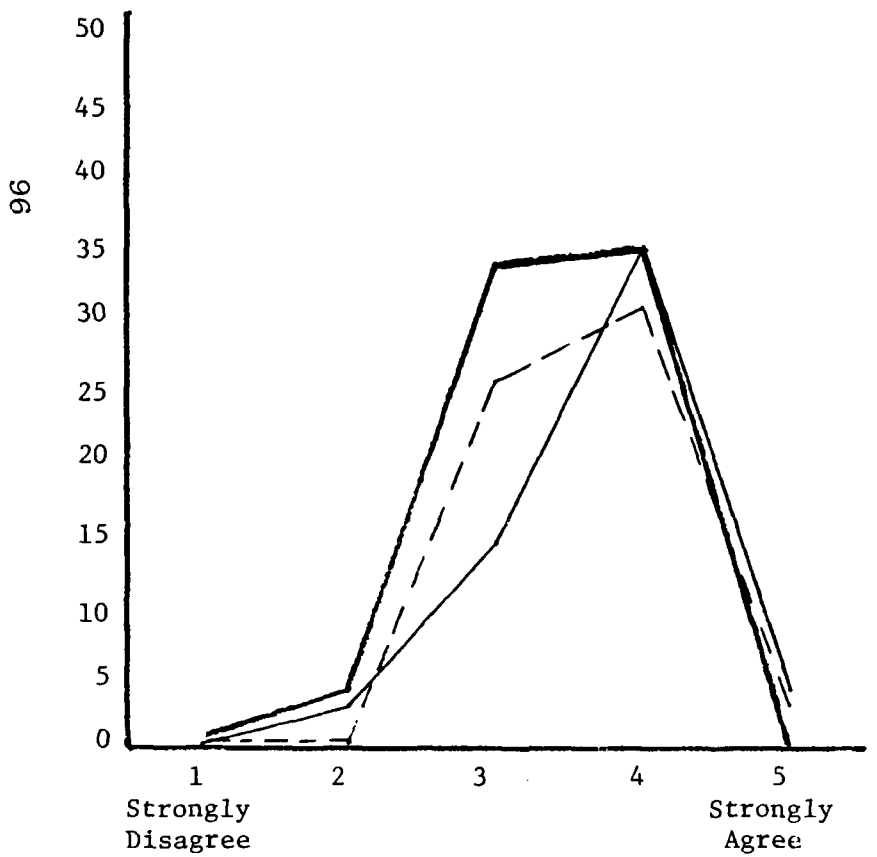
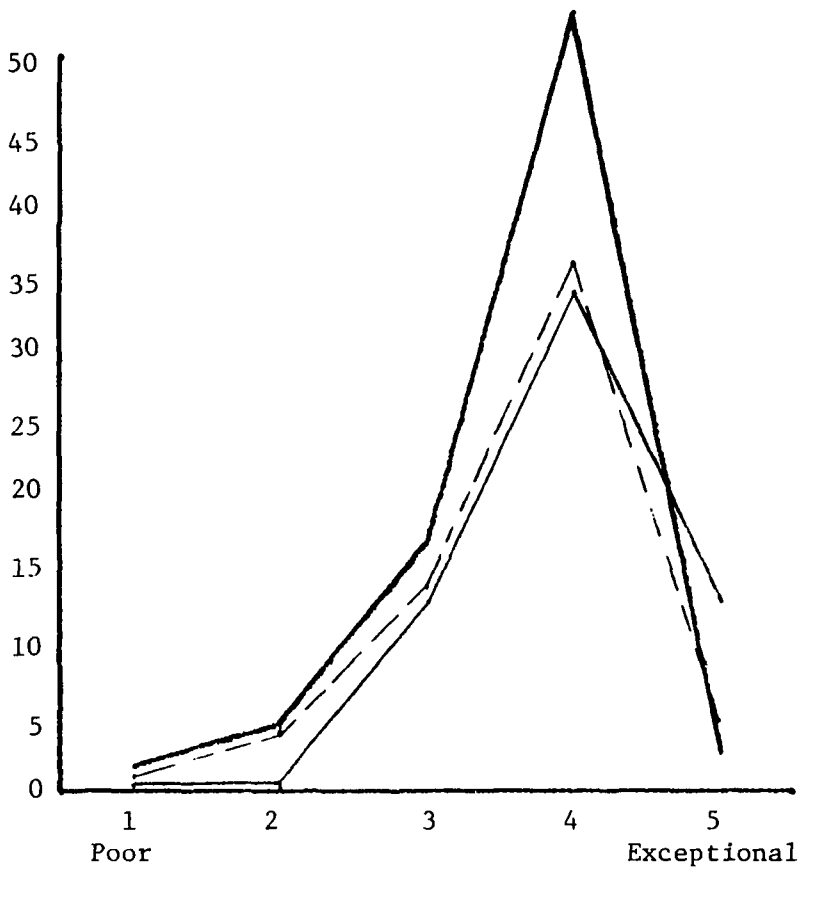


Fig. 25. My overall assessment of the Inpatient Pharmacy Branch and services provided is:



26. Pharmacists should be directly involved as team members with the physicians in day-to-day patient medication decisions:

	PHY		NUR		PP	
Mode:	Agree Somewhat	- 44%	Agree	- 38%	Agree Somewhat	- 40%
Second:	Disagree	- 26%	Strongly Agree	- 30%	Agree	- 31%

From the response distributions for each of the publics, it is obvious that the physicians and the nurses have significantly different opinions on this subject. A Chi-square test revealed the following:

Response	PHY	NUR
1	8	2
2	26	8
3	44	22
4	16	38
5	6	30

$X^2_{c},4,.05 = 9.49$

$X^2 = 154.21$

$154.21 > 9.49$

From this test it can be said that nurse response frequencies are significantly different from the physician response frequencies. This reinforces the observation, identified in the interview study, that the nurses desire to have the pharmacy staff more directly involved in patient care. It does not appear that the physicians

concur with that viewpoint. Their response is lukewarm at best with about one-third responding with "disagree" or "strongly disagree." This may be seen as an invasion of physician territory and not a proper function of the pharmacist. If the IPB decides to expand services to include more clinical pharmacy functions, it is apparent that communication and education with the physicians will have to occur first.

27. Pharmacists should be directly involved as team members in providing medication information and education as part of the discharge planning process:

	PHY		NUR		PP	
Mode:	Agree	- 41%	Strongly Agree	- 50%	Agree	- 48%
Second:	Agree Somewhat	- 37%	Agree	- 39%	Agree Somewhat	- 31%

In responding to the question, the nurses overwhelmingly supported this concept. Eighty-nine percent agreed or strongly agreed with involving pharmacists in the discharge planning process. The nurses have identified a real need for patient medication education which they feel inadequate to accomplish or are understaffed to accomplish. Both in fact may be true.

The physicians appeared to be more in favor of this function for the pharmacists than that posed in the previous question. However, their response is not nearly as supportive as the nurse response. A Chi-square analysis revealed the following:

Response	PHY	NUR
1	2	0
2	10	3
3	37	8
4	41	39
5	10	50

$X^2_c,4,.05 = 9.49$

$X^2 = 189.73$

$189.73 > 9.49$

From this test it can be said that nurse response frequencies are significantly different from the physician response frequencies. The response to this question indicates a service need that should be seriously considered by the IPB. This need was also identified in the interview study and in Question 18 of this study.

Fig. 26. Pharmacists should be directly involved as team members with the physicians in day-to-day patient medication decisions:

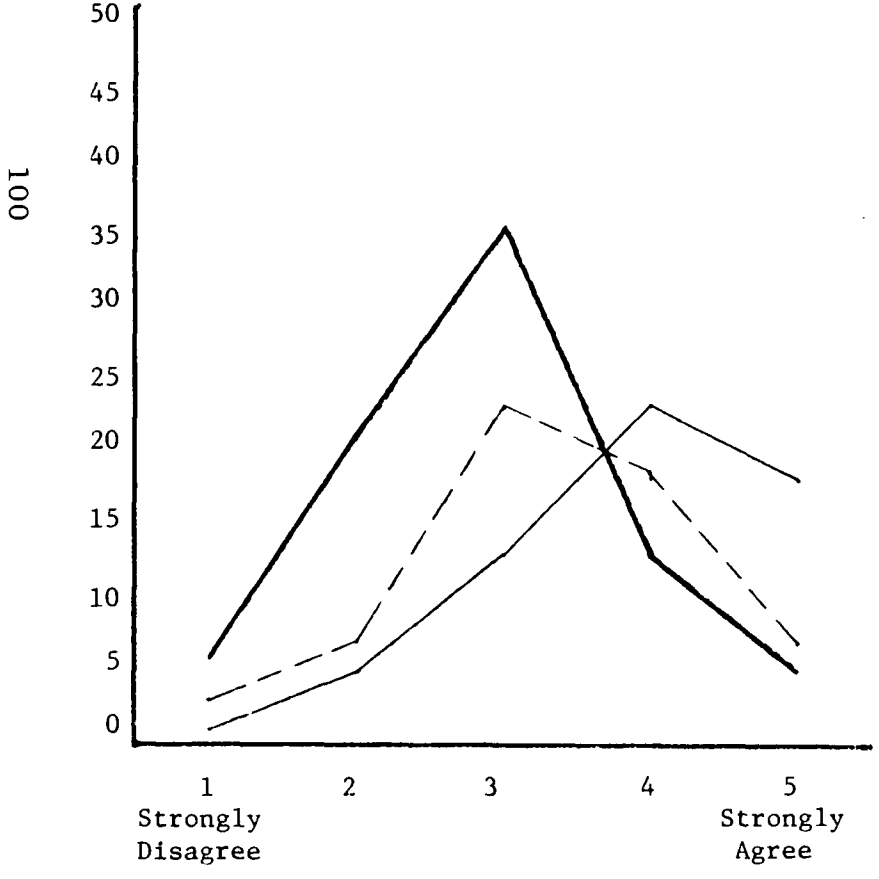
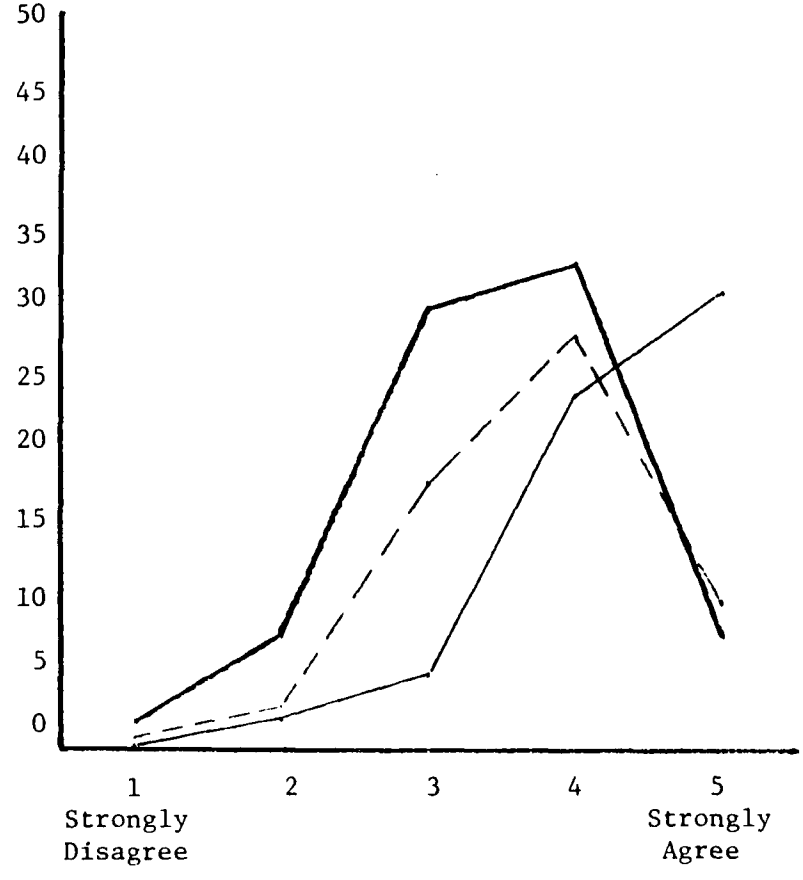


Fig. 27. Pharmacists should be directly involved as team members in providing medication information and education as part of the discharge planning process:



28. In relation to patients you cared for two or three years ago, the patients you are caring for now are (answer Yes or No for each category):

TABLE 18

PATIENT POPULATION CHARACTERISTICS

		PHY	NUR	PP
More active duty?	Yes	49%	29%	33%
	No	51%	71%	67%
More dependents?	Yes	65%	74%	84%
	No	35%	26%	16%
More retired?	Yes	65%	67%	71%
	No	35%	33%	29%
More retired dependents?	Yes	65%	63%	57%
	No	35%	37%	43%
Older?	Yes	59%	73%	71%
	No	41%	27%	29%
Younger?	Yes	22%	32%	40%
	No	78%	68%	60%
Sicker?	Yes	42%	67%	54%
	No	58%	33%	46%
Healthier?	Yes	24%	32%	48%
	No	76%	68%	52%
Require more medications?	Yes	46%	81%	73%
	No	54%	19%	27%
Require less medications?	Yes	24%	22%	27%
	No	76%	78%	73%

In responding to the first four questions, the respondents confirmed through their experience that DDEAMC is seeing an increased retired and dependents population while active duty are proportionally less. This confirms through observation what was statistically presented earlier in this study.

There was general agreement that the patient population is older and a strongly indicated belief that the patient population is not younger.

While the nurses felt that the patient population is sicker, the physicians disagreed. However, all the publics, with physicians leading the way, indicated a belief that the patient population is not as healthy as it was two or three years ago. This tracks with the growing capabilities of DDEAMC to care for a wider range of more serious illnesses as more sophisticated technologies and personnel (physicians) are brought on board.

The physicians, who prescribe all medications, appeared about evenly split as to whether or not patients today require more medications. This is in contrast to the nurses, who must administer most medications and who strongly felt that patients do require more medications. Certainly, the nurses have perceived an increase in their

workload which perhaps is not so apparent to the physicians. All the publics strongly believe that patients today do not require less medications.

Fig. 28. In relation to patients you cared for 2 or 3 years ago, the patients you are caring for now are (answer Yes or No for each category):

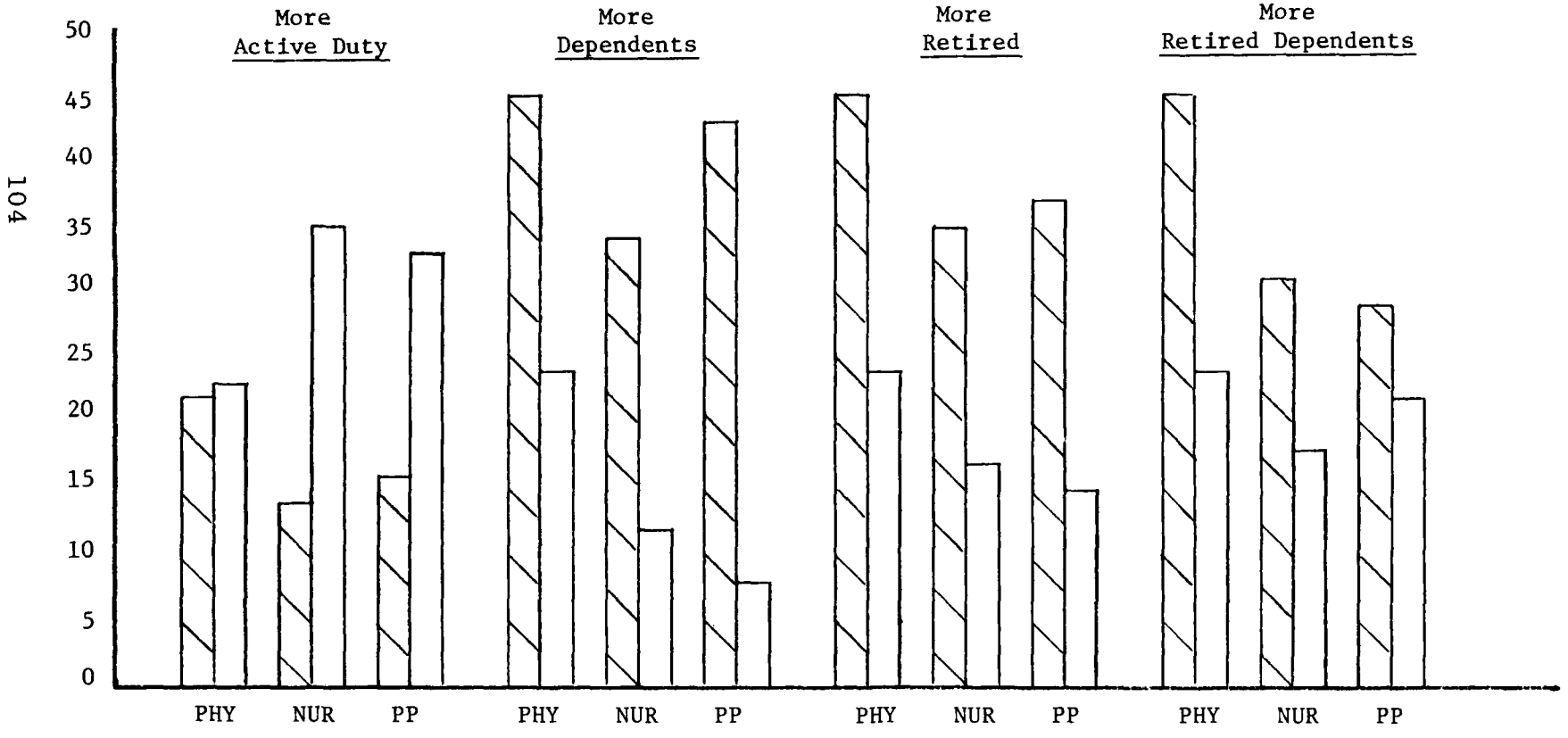


Fig. 28 (continued)

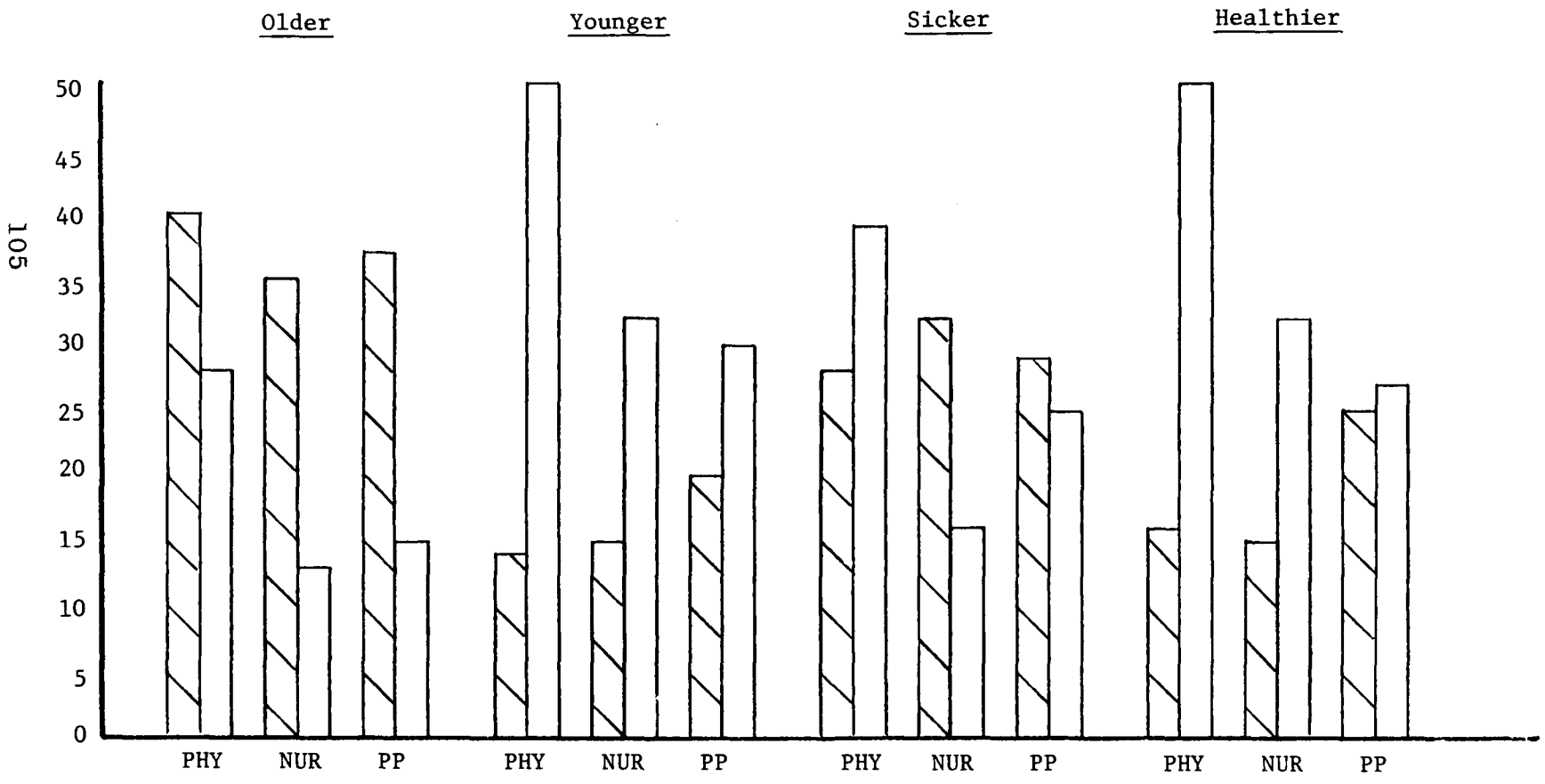
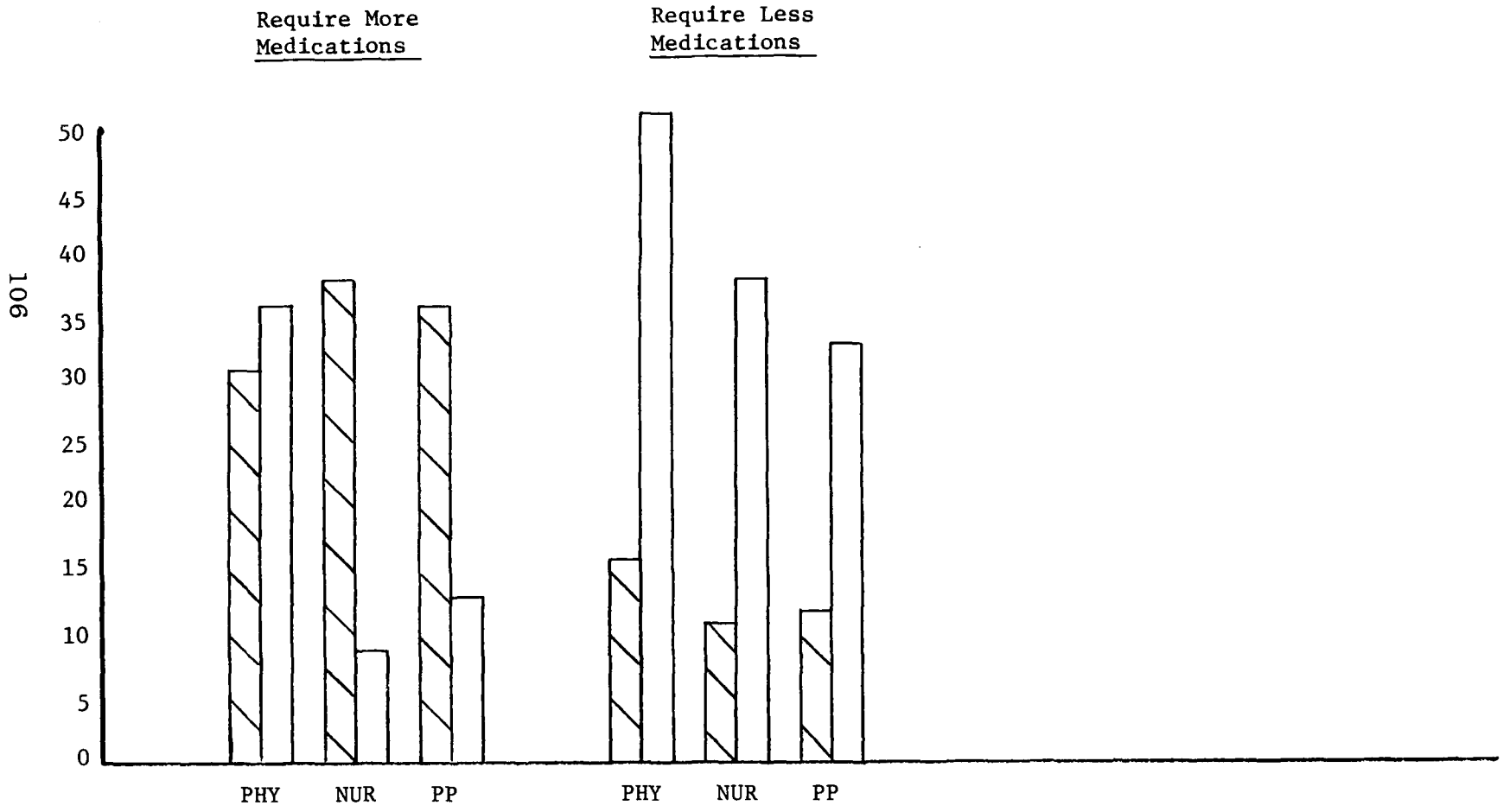


Fig. 28 (continued)



Conclusions and Marketing Implications

After analyzing the questionnaires, the researcher came to the conclusion that, on the whole, all of the respondents from each public were generally conservative in their responses. The general monopolar shapes of the graphs, with the distributions of responses centering toward the number 3 and 4 answers, indicate that the respondent had to have a very strong opinion to use the extremes of the scale. Taking such conservatism into account, the researcher concluded that there was no negative reflection if services were not rated "exceptional" or satisfaction levels were not rated "completely satisfied," etc. A rating of "good" or "satisfied," respectively, was taken to indicate that that respondent, and the public as a whole, chose a very positive response to the question.

Product Attributes

The majority of questions concerned the various services provided by the IPB. Questions 2, 3, 4, 5, 8, 10, 11, 12, 14, 15, 16, and 19 concentrated on the publics' knowledge, use, and perception of the IPB services.

Questions 14, 15, and 16 identified that not one of the publics considers itself confidently familiar with all of the services of the IPB. The physicians had the poorest response in terms of knowledge of available services. All of the publics indicated rather weak agreement that the IPB

provides all of the services each public needs or that are needed by the hospital patients. Lack of knowledge of the services offered means that the publics are not aware if the IPB is in fact providing all required services. To create better awareness of services, the IPB must engage in an information/education process directed toward each of the publics.

The publics were asked to rate their perception of many of the specific services offered by the IPB in Questions 2, 3, 4, 5, 8, 10, 11, and 12. These services included drug information, hyperalimentation, nursing orientation, nursing in-services, unit dose system, support of Code 18's, and the sterile products (IV) program. Of those just listed, drug information services, the sterile products (IV) program, and support of Code 18's were all rated very highly by the publics with many "exceptional" responses. Hyperalimentation services, nursing orientation, nursing in-services, and the unit dose system were all generally rated as "good."

These ratings indicate that the publics perceive that services offered by the IPB are of generally high quality. This is borne out by Question 19 where all the publics strongly acknowledged that good quality services are provided.

Two areas of concern to the researcher, however, are that the information and education programs offered to the nursing staff and the unit dose system were not rated higher. The unit dose system is the heart of the Pharmacy Service system.

It is the principal method by which medications are delivered to the patient through the nurses. The high percentage of "average" ratings indicates there is room for improvement in this system and the importance and high visibility of this system dictate that improvements be made.

The nursing orientation and in-service programs are two primary means of establishing a positive image and communication channels with the nursing staff. The extremely poor participation in these programs as identified in Question 6 is probably the primary reason these services were not rated higher. This is seen as a promotion problem and will be addressed later in the study.

Questions 20, 21, and 22 concentrated on the satisfaction levels of each of the publics in regard to IPB services. All of the publics expressed general satisfaction with the IPB services and in particular were satisfied that IPB services meet the needs of the patients. This indicates that the IPB has a solid base of services.

Responses to Question 17 reaffirmed that most of the needs of the publics are being met by current services of the IPB. A strong negative opinion was expressed by the publics against the need for expansion of IPB services. When asked to identify new services desired, the majority of responses proposed enhancements to current services (see Question 18). All of this suggests that the IPB should concentrate on the services it currently offers before adding on any new services.

Two questions (26 and 27) were added to the questionnaires after the interview study indicated information should be generated concerning expansion of the IPB services into more clinical pharmacy. The nurses and physicians were really split on the issue of whether or not pharmacists should be involved in day-to-day patient medication decisions. While nurses may believe it is a good idea, the negative physician response dictates that the IPB proceed cautiously. The IPB should study this concept as a future means of expanding services into a more clinical role, but a great deal of communication and education with the physicians will have to occur first.

The concept of expanding IPB services to include education and information services to the patients was more favorably supported. In particular the nurses thought this was a real need which could be met by the IPB. This concept was supported so often throughout the study that the researcher recommends an expansion of services into this arena.

Responses to Question 28 support the findings of the quantitative study discussed earlier in this paper. The IPB must maintain an awareness of the changing inpatient population and the subsequent demands that will be placed on the IPB. Management must develop a plan now to cope with increased workload, demands for more and complex medications, and the need for more drug information services.

Promotion Attributes

These questions were directed toward assessing either the image of the IPB or the communication process with the various publics. Questions 1, 19, and 25 were primarily concerned with image. The portrait drawn from responses to these questions shows that the IPB is perceived as a "contributing member of the health care team," being overall assessed as providing very good services and high quality services. This is a very positive image projected by the IPB, an image gained only through hard work and one that is easily lost. The IPB should continue to concentrate on its current services as they are generally very well received.

While from Question 13 it can be perceived that fairly good communication exists, especially with the nurses, there are communication problems. As has already been discussed in responding to Question 14, not one of the publics considers itself strongly familiar with all of the services of the IPB. This is a communication problem to be resolved through both information and education efforts. These should include newsletters, in-services, and participation in appropriate nursing and physician meetings.

Lack of participation in current nursing orientation and in-service classes is also a promotion/communication problem. The IPB will need to initiate communication with the Department of Nursing to determine the reason for lack of participation and to determine methods to resolve this problem.

Price Attributes

Questions 7, 9, and 24 were concerned with IPB response times and scheduling of services. Responses were generally positive and in some cases were recorded as "exceptional," indicating that the IPB extracts a minimal price for its services in terms of time spent interacting with the IPB and the stress experienced in the working relationship. Responding to customers' needs has been identified as a strength of the IPB and should be the object of continuous management attention.

Place Attributes

Responses to Question 23 indicated that all of the publics agreed, although not in a strong fashion, that the IPB is properly located. The interview study generated a better information base on this subject.

Footnotes

[1]Interview with Richard A. Sherman, CPT, MSC, Chief, Psychophysiology Service, Department of Clinical Investigations, Dwight David Eisenhower Army Medical Center, May 1984. The interview discussed appropriate techniques to analyze nonlinear scales. After reviewing the questionnaire responses and response distributions, Dr. Sherman advised the researcher on the specific analysis techniques described.

[2]Ibid.

[3]Ibid.

[4]Ibid.

Interview Study of Inpatient Pharmacy Branch Personnel

This final process in the research methodology was undertaken to determine perceptions, strengths, problems, and unmet needs as identified by the personnel of the IPB. Of the seventeen personnel currently working in the IPB, the researcher was able to conduct eleven interviews. Six of the seven pharmacists were interviewed and five of the ten pharmacy technicians were interviewed to include the NCOIC of the IPB. It is the opinion of the researcher that all key IPB personnel were interviewed. The interview worksheet is at Appendix H.

A synopsis of responses and response frequencies, displayed on a content analysis worksheet, is at Appendix I. Questions and responses have been categorized into the four attributes of marketing transactions--product, price, place, and promotion.

Discussion of IPB Staff Responses

Product Attributes

Responses to Question 1 indicate that the IPB personnel have a broad perspective of the mission of the IPB. Most responses centered around the concept of providing support through a variety of services to the wards, clinics, and inpatients. The unit dose system, sterile products, and bulk drug orders were identified as the core services which carry out the mission. All other services were mentioned,

but it is clear most of the attention of the staff is focused on basic services. Asked to identify the most popular services, again the answer was unit dose and sterile products.

The IPB staff identified the primary needs of the nurses as obtaining correct medication doses with on-time delivery and the need for drug information and assistance. The other primary need identified for the nurses was a need of self-centered attention and immediate response from the IPB. The IPB staff perceive the nurses as concerned only about their ward and acting as if their demands on the IPB are the only demands to be met. There is no appreciation of the "big picture."

The physicians' primary need was identified as drug information services.

The IPB staff generally feel that current services are meeting these needs (Question 7) and that the publics are satisfied with these services (Question 8). On the whole, they think the IPB services rate above average from good to very good.

There was no consensus, but the least understood service (Question 19) was identified as a recent reduction in floor stocks on the wards. This has evidently caused some problems. A very interesting response was the feeling by the IPB staff that nurses and physicians lack understanding of the scope of services, the intense workload, and the resulting pressure put on the IPB. There is some feeling this pressure

is increasing due to the unit dose system. The nurses are now more dependent than ever on this medication delivery system which puts pressure on the IPB to constantly meet their demands (Question 15).

In assessing new services the IPB should offer, most responses concerned expanding the role of the pharmacists into clinical pharmacy services, to include patient information and education, and into satellite pharmacies. When presented more directly with whether or not the IPB pharmacists should be involved in clinical pharmacy, the resounding response was "yes" (Questions 27 and 28).

Question 29 was added to the interviews to assess the needs of the IPB staff. While the IPB personnel do receive paychecks for their work, it was perceived by the researcher that they may have unmet needs on the job which they would like accommodated. Almost all responses involved the nursing staff. The overwhelming response was to get the nursing staff to send orders to the IPB in a timely manner and reduce STAT requests. This was followed by a desire for the nurses to stop losing medications or to at least look for them before calling for replacements. There seems to be a real need to get the nursing staff to understand the workload of the IPB and to do their jobs in a manner that will help reduce the IPB workload, not increase it.

Promotion Attributes

Questions 11 through 14 were designed to assess the communication process between the IPB and the various publics as viewed by the IPB staff. Their responses concurred with the publics' responses in identifying the telephone as the most frequent communication method. A great deal of face-to-face communication was also identified, especially with the nursing staff.

The frequency of communication is of some concern. The nurses identified a communication rate of several times per day. However, when one is on the receiving end, this adds up to near constant communication. The researcher's own observation was that at all times at least one pharmacist or a technician is on the telephone to nursing personnel. This is a tremendous drain on the productivity of the IPB staff.

A wide variety of communication barriers were identified, most of which centered on communication problems between physicians and the IPB. Problems occur because the physician is not aware of the IPB capabilities or there is a lack of time to communicate or the physician assumes the pharmacist understands what he means. Personalities and the self-centered attitude of the nurses were also mentioned as communication barriers.

In assessing the image of the IPB, the IPB staff think they are competent, flexible, responsive, and concerned

about doing the best possible job (Question 24). They believe that the nurses perceive the IPB as doing a good job and that the nurses are satisfied and appreciative of the services provided. Physicians are also seen to be generally satisfied with the IPB (Question 9).

Price Attributes

All of the IPB staff believe that their services are offered on appropriate time schedules (Question 23). The IPB is open twenty-four hours a day, seven days a week; and only hyperalimentation services and bulk drug orders have daily time requirements by which orders must be submitted. Exceptions are made for these services on a case-by-case basis. The attitude of the IPB staff of concern, flexibility, and responsiveness means that the IPB minimizes the cost of service to the publics.

Place Attributes

The majority of the IPB staff feel the IPB is appropriately located. Easy access to the intensive care units was cited as the primary benefit of the current location. The main benefit to be gained from relocating the IPB would be increased working space.

Strengths and Weaknesses

The IPB staff identified themselves as one of the principal strengths of the IPB. Quality control and the basic

services--unit dose and sterile products--were also seen as strengths. Finally, leadership from Captain Heath was identified by the staff as a strength of the IPB. Of the problem areas identified, the principal ones were inadequate staffing levels, poor follow-up on medications returned in the unit dose carts, and the belief that pharmacists are not an integral part of the patient care team at DDEAMC.

A final problem area is that the IPB staff does not have a known common set of goals and objectives which the IPB is striving to achieve. The workload intensity may be a factor, in that simply accomplishing the day's work is seen as a major objective. This is short range, however, and is also reflected in such stated goals as "accuracy" and "quality assurance." Only the Chief, IPB, and the NCOIC had concepts of long-range goals. It did not appear that the staff was aware of these or was involved in formulation of long-range goals.

Conclusions and Marketing Implications

The focus of the IPB staff on the basic, or core, services of the IPB which carry out the mission once again emphasizes the strength of these services. Due to the workload, it is understandable that the staff concentrates its efforts on the basic services since that is largely the extent of capabilities at current staffing levels. Until staffing is increased, the IPB should primarily concentrate on improving services that are already functioning well.

The feeling offered by almost every IPB staff member--that the nurses are self-centered, placing demands on the IPB and desiring immediate response without appreciation for the scope of workload of the IPB--is a real concern. The positive service attitude of the IPB staff may change without some change in nursing staff attitude. This is clearly an information and education problem. A suggestion by the IPB NCOIC to rotate IPB staff to the wards and nursing staff to the IPB would be an excellent means of providing such education for both staffs.

Lack of understanding of IPB capabilities and the scope of the workload was identified as a problem area concerning the physicians. This further documents the need for increased communication with the physician staff for information and education purposes.

It is apparent that the pharmacists are interested in expanding their role into clinical pharmacy services. This would be a major change for the IPB and as noted previously would have to be carefully coordinated with the physician staff. Currently, the lack of staff prohibits this expansion; but this should not prohibit planning for clinical pharmacy services. The benefits of better patient care by working directly with the patient, physician, and nursing staff and the increased communication and cooperation with the physicians and nurses are all observable on the Oncology Ward. Other benefits would include potential reduction in medication costs, enhancement of the MEDCEN teaching programs, and better patient

medication compliance. Suggestions for implementation from various IPB staff included satellite pharmacies where the pharmacist works on the ward, a cart system where carts would take the place of satellite pharmacies, and a roving pharmacist available for consultation, administration of medications, and education.

What all this suggests is that while staffing levels prohibit full implementation of clinical pharmacy services, the need exists, the desire to provide it exists, and therefore planning and imaginative implementation should begin.

The constant communication with nursing staff is both good and bad. It is a serious drain on the productivity of the IPB staff; however, it also creates the image of a willingness to help and be responsive to nursing demands. To reduce the amount of communication and still maintain the image will be difficult. Any attempt to reduce communication will be taken in a very negative manner by the nursing staff. It is the opinion of the researcher that this communication level is excessive and the IPB could reduce it to regain productivity without seriously damaging relationships with the nursing staff. Such a step should be eased into as a request or suggestion through information and education channels to minimize stress caused by this decision.

That the IPB staff identified themselves as a principal strength of the IPB only reiterates what was stated by all of

the publics. The importance of the staff cannot be over-emphasized and is the basis of any service-oriented marketing program.

It must be noted that the IPB is already engaged in marketing activities. The friendly, courteous, helpful, caring attitude generally expressed and certainly acknowledged by the publics is the best promotion the IPB will ever have. The marketing plan must reflect efforts to continue this attitude. The newsletter to the nursing staff is another excellent promotion tool. In-services to the nursing staff are a product expansion as well as an outstanding promotion tool. These marketing activities are carried out, however, not as a concerted management plan but as independent activities. The proposed marketing plan will attempt to pull the IPB activities into a unified effort directed toward achieving specific goals and objectives.

THE MARKETING PLAN

The marketing plan is the researcher's recommendation for planning and management of the IPB for a one-year time frame based upon the data accumulated from the marketing audit.

To develop a marketing plan, goals and objectives were first established. Then marketing strategies encompassing the four marketing attributes of product, promotion, price, and place were developed to achieve the stated objectives. Finally, these strategies were pulled together to form a coherent marketing plan with specific achievement milestones.

Goals and Objectives

From the marketing audit--in conjunction with the Chief, IPB--the researcher established the following overall marketing goals and objectives.

There are two overall marketing goals: (1) To raise the perceived satisfaction levels of the major publics by an average of 10 percent, and (2) to meet 80 percent of the identified needs of the major publics.

To achieve these goals, two primary objectives with subobjectives have been established. These are:

1. To develop a communication program within the Inpatient Pharmacy Branch to inform and educate the users of the IPB of the services available

2. To develop improvements, enhancements, or changes to current services and to develop new services to meet the publics' needs

Subobjectives of the two primary marketing objectives are:

Objective 1: Develop communication program

Subobjectives

1A - Increase publics' knowledge of IPB services

1B - Maintain current positive image of IPB staff and basic services

1C - Increase information services to the physician staff

1D - Increase information feedback to the IPB as to the publics' changing needs

1E - Improve participation in nursing in-service and orientation programs

1F - Increase the availability of communication tubes

1G - Decrease the rate of telephonic communication with the nursing staff

Objective 2: Improve current services and develop new services

Subobjectives

2A - Maintain current excellence of basic services

2B - Increase staffing for the IPB

2C - Improve the unit dose system

2D - Develop information services for physicians

2E - Decrease lost medication problems with the nursing staff

2F - Develop clinical pharmacy information and education service for patients awaiting discharge

2G - Develop a planning process to cope with changes in the inpatient population and treatment modalities

2H - Explore avenues to offer clinical pharmacy services to the physicians and inpatients

2I - Explore the potential for another satellite pharmacy similar to the Oncology Pharmacy for a specific patient group

Marketing Targets

Early on in the research process, three primary targets (publics) were identified. These were physicians (staff and residents and interns), nurses, and the para-professionals on the nursing staff. Every phase of the research confirmed that these are indeed the targets on which the IPB should focus its attention. The quantitative study further identified subcategories of these targets. In order of importance, they are:

Physicians	Nursing Staff
Medicine Department	Medicine Service
Surgery Department	Surgery Service
Pediatrics Department	Family Health Service
Obstetrics-Gynecology Department	Operating Room/Anesthesia/ Central Material Supply Service
Psychiatry & Neurology Department	Psychiatry Service
Family Practice Department	

When implementing the marketing plan, the IPB should concentrate its efforts for each public on a department or

service basis. This will maximize the benefit realized, especially if efforts are concentrated on the Medicine and Surgery Departments and Services, respectively.

The other marketing targets identified during the research process are the inpatient population and the teaching programs at DDEAMC. Both of these targets are currently secondary targets, but each could grow into a major public for the IPB to consider in expansion of services.

This initial marketing plan will principally address the two primary targets, the physicians and the nursing staff (nurses and paraprofessionals). After implementation and subsequent evaluation of the marketing plan (approximately one year), serious consideration should be given to secondary targets.

Marketing Strategies for the Inpatient Pharmacy Branch

Two basic marketing strategies were used to develop the marketing plan.

1. Market penetration: Through various programs designed to reach the physicians and the nursing staff, the IPB will increase knowledge and awareness of IPB services and raise publics' perceived satisfaction levels by 10 percent

2. Product or service development: Various programs will be implemented to improve current services and develop new services to ensure that as a minimum, 80 percent of each public's needs are met

The various marketing attributes or marketing mix were applied to each of the two basic strategies to develop overall marketing strategies by public (target).

Marketing Strategy for the Physician Staff

Market Penetration

	Deadline
1. Develop a newsletter for the physicians to be published monthly or quarterly	Aug 84
a. Monitor distribution and acceptance among physicians	Sep 84 - Jun 85
b. Determine changes to be made	Jun 85
2. Develop short in-service programs to be given to physician staff with focus on IPB capabilities, current services, and future plans and on developing feedback as to the needs and future needs of the physician staff	Sep 84
a. Coordinate scheduling with department chiefs	Sep 84
b. Implement	Oct 84
c. Evaluate effectiveness and changes to be made	Jun 85
3. Schedule a physicians' open-house in the IPB	Nov 84
a. Develop publicity	Sep 84

	Deadline
b. Prepare staff	Oct 84
c. Evaluate success of event	Dec 84
4. Promote the IPB as an information source on drugs, drug incompatibilities, costs, and drug availability through the newsletter, in-services, and daily contact with physicians	Aug 84 - May 85
a. Measure success in terms of increased physician information requests	Jun 85
b. Change program as required	Jun 85
5. Establish a liaison pharmacist to work more closely with the physician staff	
a. Identify pharmacist	Sep 84
b. Attend department staff meetings	Oct 84 - May 85
c. Accompany physicians on grand rounds	Oct 84 - May 85
d. Provide consultation as required	Oct 84 - May 85
e. Evaluate success of program and determine changes to be made	Jun 85

Product or Service Development

	Deadline
1. Increase IPB staffing by one pharmacist from the Outpatient Pharmacy as documented by workload breakout between the IPB and the Outpatient Pharmacy	Jul 84
2. Increase information services to the physicians through methods described in Strategy 4, Market Penetration	Aug 84 - May 85
3. Improve budgetary information system to provide increased cost information/ cost containment services	Nov 84
a. Capture cost by medical department broken out between IPB and OPB	Oct 84
b. Monthly identify significant cost items or trends	Oct 84
c. Publish in newsletter and distribute to the TAB and to department chiefs	Nov 84 - May 85
d. Evaluate effectiveness of the program and make changes as required	Jun 85
4. Develop plans to offer clinical pharmacy services to the physicians (initial plan should encompass Strategy 5, Market Penetration)	Jan 85

	Deadline
a. Implement plan	Feb 85
b. Evaluate effectiveness and determine changes as required	Jun 85

5. Develop a process to plan for changes in the inpatient population and treatment modalities

a. Identify changes and trends through demographic data, observation, and feedback from the patient care staffs	Quarterly
b. Identify service needs to cope with such changes	Mar 85
c. Identify resources required to implement new services or service changes	Apr 85
d. Plan for acquisition of these resources	May 85
e. Plan to implement services	Jul 85

Marketing Strategy for the Nursing Staff

Market Penetration

	Deadline
1. Increase participation in nursing in-service and orientation programs currently offered	Oct 84

	Deadline
a. Coordinate with the Chief, Nursing Education and Training, to determine reasons for lack of participation and methods to generate publicity and better attendance	Aug 84
b. Plan, publicize, and conduct programs	Oct 84 - May 85
c. Evaluate participation and effectiveness and determine changes as required	Jun 85

2. *Continue monthly* newsletter for the nursing staff, ensuring complete distribution — Monthly

3. Develop plans to decrease the rate of telephonic communication between the nursing staff and the IPB

a. Discuss problem with Chief Nurse, Nursing Supervisors, Head Nurses, and the Chief, Nursing Education and Training, to determine possible solutions	Sep 84
b. Develop plans to include alternate forms of communication if required	Dec 84

	Deadline
c. Implement plans	Feb 85
d. Monitor feedback from the nursing staff as to acceptance	May 85
e. Evaluate program and determine changes as required	Jun 85

4. Provide more tubes for the tube system on the wards

a. Evaluate current system to determine cause(s) of tube problem	Jul 84
b. If possible, resolve problems	Jul 84
c. Procure additional tubes if required	Sep 84
d. Implement solution(s)	Oct 84
e. Evaluate program and determine changes as required	Dec 84

5. Establish rotations of pharmacy personnel and nursing personnel between the IPB and the wards

a. Develop rotation program for participants	Aug 84
b. Implement program	Oct 84
c. Monitor program through feedback from participants	Oct 84 - May 85
d. Evaluate program and determine changes as required	Jun 85

	Deadline
6. Schedule a nursing staff open-house in the IPB	Oct 84
a. Develop publicity	Aug 84
b. Prepare staff	Sep 84
c. Evaluate success of event	Nov 84

Product or Service Development

	Deadline
1. Improve the unit dose system	
a. Increase education about the system through the newsletter and in-services, highlighting current problems and solutions	Aug 84 - May 85
b. Develop feedback from the nursing staff on changes they would like	Sep 84
c. Implement reasonable changes	Nov 84
d. Establish a routine, systematic monitoring program of the carts upon daily return to the IPB for missed medications	Oct 84
e. Evaluate the program and determine further changes as required	Jun 85

	Deadline
2. Decrease lost medications	
a. Increase nursing service awareness of the magnitude of the problem through the newsletter, in-services, and other forms of communication	Aug 84 - May 85
b. Enlist nursing staff cooperation in reducing these errors	Oct 84
c. Establish a clearly identified single point for delivery of medications on every ward	Oct 84
d. Evaluate program and determine changes as required	Dec 84

Marketing Strategy for the Inpatient Population

From the research, one service need was determined which impacts directly on the inpatient population. That need is to develop a clinical pharmacy service to inform and educate patients about their medications. This service is required at the time of discharge from the MEDCEN. The IPB should:

	Deadline
Develop a plan to implement information and education services to patients on discharge	May 85

		Deadline
a.	Determine the scope of the service requirement	Oct 84
b.	Determine the resources required	Nov 84
c.	Use current resources or acquire resources	Mar 85
d.	Coordinate the service with the nursing staff and medical staff	Apr 85
e.	Implement the service	May 85
f.	Evaluate and determine changes as required	Nov 85

Marketing Strategy for the Teaching Programs

The medical teaching programs at DDEAMC are an integral part of the health care delivery system. The impact of these programs on the IPB has already been discussed. However, in a marketing sense, the impact of the teaching programs could be used by the IPB to justify increased services and the required personnel resources to provide these services as illustrated below:

1. Expansion of services into clinical pharmacy services would not only provide better patient care but would also enhance the teaching programs at DDEAMC

2. Conducting in-services for the physician staff would also enhance the teaching programs at DDEAMC

The IPB in developing these services and attempting to "market" them to the recipients needs to include the teaching programs

in the marketing strategy. The teaching programs can help justify these services which accomplishes two purposes: Needed services are provided to the publics and the IPB is better able to compete for resources to accomplish the mission.

Marketing Plan Evaluation

There are two overall marketing goals: to raise satisfaction levels by 10 percent and to meet 80 percent of the identified needs of the major publics.

While not easily quantifiable, it is the opinion of the researcher--from the interviews and questionnaire responses--that the IPB is currently meeting 80 percent of the identified needs of the major publics. Certainly, the researcher discovered some unmet needs; however, these were few in number compared to the multitude of service needs the IPB currently accommodates. If the IPB adopts the marketing plan and implements the proposed strategies which meet identified unmet service needs, then the researcher is confident that well over 80 percent of the identified needs of the major publics will be met.

A complete evaluation of the marketing plan at the end of the first year should be accomplished in the following manner:

1. Evaluate each recommended strategy, considering implementation achievement according to the milestones and whether or not the desired outcomes were achieved for each strategy

2. Determine changes to be made to the strategies

3. Determine new strategies based upon current perceived needs of the IPB publics

4. Administer the questionnaires at Appendices E and F to generate satisfaction level scores post-marketing-plan implementation, and compare scores to the scores generated in Figures 1 through 28; the plan is considered successful if the Likert scale scores are raised by an average of 10 percent

5. Develop and implement second-year phase of the marketing plan

APPENDIX A

NUMBER OF DISPOSITIONS BY CLINIC SERVICE, AGE, AND PATIENT CATEGORY

DDEAMC, CY 83

DEPARTMENT OF THE ARMY
PATIENT ADMINISTRATION SYSTEMS AND BIOSTATISTICS ACTIVITY
FORT SAM HOUSTON, TEXAS 78234

REPLY TO ATTENTION OF:

4 APR 1984

HSHI-QBS

SUBJECT: Number of Dispositions by Clinic Service, Age, and Patient Category, DDEAMC, CY 83

Commander
Dwight David Eisenhower Army Medical Center
ATTN: HSHF-N/Ms. Melton
Ft Gordon, GA 30905

1. Reference FONECON between Mrs. Terri Beam, this activity, and Ms. Jennie Melton, your office, 2 Apr 84, SAB.

2. The attached will confirm data furnished by telephone 2 Apr 84.

1 Incl
as

JAMES R. YOUNG
COL, MSC
Commanding

NUMBER OF DISPOSITIONS BY CLINIC SERVICE,
AGE AND PATIENT CATEGORY
DDEAMC, CY 83

EXPLANATORY NOTES:

1. DATA EXCLUDE CARDED FOR RECORD ONLY (CRO) CASES AND ACTIVE DUTY ARMY PERSONNEL IN AN ABSENT SICK STATUS FOR ENTIRE PERIOD OF HOSPITALIZATION (IN A NON-MILITARY HOSPITAL). OUTPATIENT DATA ARE NOT INCLUDED.

2. ABBREVIATIONS:

CLINIC SERVICE

PUL/UP RESP	PULMONARY/UPPER RESPIRATORY
SURG	SURGERY
CARDIO/THORAC	CARDIOVASCULAR/THORACIC
VAS	VASCULAR
PED	PEDIATRIC
FP	FAMILY PRACTICE

PNT-CAT PATIENT CATEGORY

AD MIL	ACTIVE DUTY ARMY, NAVY, AIR FORCE AND MARINE CORPS PERSONNEL (ALSO INCLUDES CADETS AND RESERVE/NATIONAL PERSONNEL)
RET MIL	RETIRED ARMY, NAVY, AIR FORCE AND MARINE CORPS PERSONNEL
D A/DMIL	DEPENDENTS OF ACTIVE DUTY ARMY, NAVY, AIR FORCE AND MARINE CORPS PERSONNEL
D R/DMIL	DEPENDENTS OF RETIRED/DECEASED MILITARY PERSONNEL
OTHER	ALL OTHER PATIENT CATEGORIES NOT LISTED ABOVE

3. LIVE BIRTHS ARE INCLUDED IN "UNDER 20" AGE GROUP.

4. CLINIC SERVICE/AGE/PATIENT CATEGORY COMBINATIONS WITH ZERO FREQUENCY DO NOT APPEAR ON THE REPORT.

SOURCE: INDIVIDUAL PATIENT DATA SYSTEMS (IPDS)

PREPARED BY:
Department of the Army
US Army Patient Administration Systems
and Biostatistics Activity
HSHI-QBS

3 APR 1984

PCN: RUF-093

PAGE 1 NUMBER OF DISPOSITIONS BY CLINIC SERVICE,
AGE AND PATIENT CATEGORY,
DDEAMC, CY 83

		PNT-CAT					
CLINIC SERVICE	AGE	AD MIL	RET MIL	D A/DMIL	D R/DMIL	OTHER	TOTAL
INTERNAL MEDICINE	UNDER20	135	0	5	11	0	151
INTERNAL MEDICINE	20-29	166	18	23	3	1	211
INTERNAL MEDICINE	30-39	42	16	30	13	6	107
INTERNAL MEDICINE	40-49	12	74	8	43	2	139
INTERNAL MEDICINE	50-59	6	137	9	90	4	246
INTERNAL MEDICINE	OVER 59	0	202	1	122	3	328
CARDIOLOGY	UNDER20	2	0	29	4	0	35
CARDIOLOGY	20-29	20	1	9	1	0	31
CARDIOLOGY	30-39	63	5	8	4	1	81
CARDIOLOGY	40-49	86	73	3	39	1	204
CARDIOLOGY	50-59	30	199	9	52	1	291
CARDIOLOGY	OVER 59	0	165	2	71	2	240
DERMATOLOGY	UNDER20	4	0	0	0	0	4
DERMATOLOGY	20-29	7	0	1	0	0	8
DERMATOLOGY	30-39	6	0	2	0	0	8
DERMATOLOGY	40-49	1	0	1	2	0	4
DERMATOLOGY	50-59	0	2	0	0	0	2
DERMATOLOGY	OVER 59	0	3	0	5	0	8
ENDOCRINOLOGY	UNDER20	2	0	0	2	0	4
ENDOCRINOLOGY	20-29	8	3	8	0	0	19
ENDOCRINOLOGY	30-39	3	2	0	0	0	5
ENDOCRINOLOGY	40-49	2	3	0	4	0	9
ENDOCRINOLOGY	50-59	0	2	0	3	0	5
ENDOCRINOLOGY	OVER 59	0	7	1	10	0	18
GASTROENTEROLOGY	UNDER20	3	0	2	3	0	8
GASTROENTEROLOGY	20-29	18	3	5	1	0	27
GASTROENTEROLOGY	30-39	21	3	17	8	2	51
GASTROENTEROLOGY	40-49	3	28	4	24	1	60
GASTROENTEROLOGY	50-59	0	39	2	19	3	63
GASTROENTEROLOGY	OVER 59	0	33	0	23	0	56
HEMATOLOGY	UNDER20	0	0	0	2	0	2
HEMATOLOGY	20-29	5	1	3	0	0	9
HEMATOLOGY	30-39	5	1	2	0	0	8
HEMATOLOGY	40-49	1	2	0	1	0	4
HEMATOLOGY	50-59	0	6	0	3	0	9
HEMATOLOGY	OVER 59	0	3	0	13	0	16
NEPHROLOGY	UNDER20	3	0	1	0	0	4
NEPHROLOGY	20-29	11	0	2	0	0	13
NEPHROLOGY	30-39	3	4	1	1	0	9
NEPHROLOGY	40-49	2	0	0	7	0	9
NEPHROLOGY	50-59	0	3	0	4	0	7
NEPHROLOGY	OVER 59	0	5	0	1	0	6
NEUROLOGY	UNDER20	12	0	3	2	0	17
NEUROLOGY	20-29	66	0	18	2	1	87
NEUROLOGY	30-39	36	3	6	10	0	55
NEUROLOGY	40-49	13	15	4	8	0	40
NEUROLOGY	50-59	1	23	1	14	0	39
NEUROLOGY	OVER 59	0	25	1	16	2	44
ONCOLOGY	UNDER20	0	0	7	5	0	12

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PAGE 7 NUMBER OF DISPOSITIONS BY CLINIC SERVICE, AGE AND PATIENT CATEGORY, DDEAMC, CY 83

CLINIC SERVICE	AGE	PNT-CAT AD MIL	RET MIL	D A/DMIL	D R/DMIL	OTHER	TOTAL
ONCOLOGY	20-29	10	23	10	0	0	43
ONCOLOGY	30-39	4	25	5	2	0	36
ONCOLOGY	40-49	11	15	8	31	2	67
ONCOLOGY	50-59	2	114	8	72	0	196
ONCOLOGY	OVER 59	1	120	2	67	6	196
PUL/UP RESP DISEASE	UNDER20	1	0	0	0	0	1
PUL/UP RESP DISEASE	20-29	10	1	5	1	0	17
PUL/UP RESP DISEASE	30-39	7	0	3	2	0	12
PUL/UP RESP DISEASE	40-49	5	4	1	8	0	18
PUL/UP RESP DISEASE	50-59	0	30	2	11	1	44
PUL/UP RESP DISEASE	OVER 59	0	38	0	17	0	55
RHEUMATOLOGY	UNDER20	1	0	0	1	0	2
RHEUMATOLOGY	20-29	3	5	2	0	0	10
RHEUMATOLOGY	30-39	1	0	1	1	1	4
RHEUMATOLOGY	40-49	3	3	0	1	0	7
RHEUMATOLOGY	50-59	0	1	0	4	0	5
RHEUMATOLOGY	OVER 59	0	0	1	5	0	6
ALLERGY-IMMUNOLOGY	UNDER20	1	0	0	0	0	1
INFECTIOUS DISEASE	UNDER20	312	0	0	1	0	313
INFECTIOUS DISEASE	20-29	238	1	1	0	0	240
INFECTIOUS DISEASE	30-39	22	0	1	0	0	23
INFECTIOUS DISEASE	40-49	3	1	0	0	0	4
INFECTIOUS DISEASE	50-59	0	3	0	3	0	6
INFECTIOUS DISEASE	OVER 59	0	3	0	2	0	5
SURG-GENERAL	UNDER20	55	0	88	53	1	197
SURG-GENERAL	20-29	156	3	42	14	4	219
SURG-GENERAL	30-39	71	5	49	18	0	143
SURG-GENERAL	40-49	46	57	22	91	0	216
SURG-GENERAL	50-59	5	121	1	90	3	220
SURG-GENERAL	OVER 59	1	136	9	82	6	234
SURG-CARDIO/THORAC	UNDER20	0	0	1	0	0	1
SURG-CARDIO/THORAC	20-29	3	0	1	0	0	4
SURG-CARDIO/THORAC	30-39	3	0	1	0	0	4
SURG-CARDIO/THORAC	40-49	2	4	0	8	0	14
SURG-CARDIO/THORAC	50-59	2	20	1	1	0	24
SURG-CARDIO/THORAC	OVER 59	0	19	0	9	0	28
SURG-NEUROLOGIC	UNDER20	3	0	4	4	0	11
SURG-NEUROLOGIC	20-29	42	0	1	3	1	47
SURG-NEUROLOGIC	30-39	57	4	8	4	0	73
SURG-NEUROLOGIC	40-49	14	20	4	16	0	54
SURG-NEUROLOGIC	50-59	2	21	1	20	1	45
SURG-NEUROLOGIC	OVER 59	0	16	0	15	0	31
SURG-ORAL	UNDER20	44	0	41	32	1	118
SURG-ORAL	20-29	112	1	19	9	0	141
SURG-ORAL	30-39	24	1	5	5	0	35
SURG-ORAL	40-49	7	9	6	5	0	27
SURG-ORAL	50-59	0	7	0	4	0	11
SURG-ORAL	OVER 59	0	3	0	3	0	6
SURG-PEDIATRIC	UNDER20	0	0	1	0	0	1

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PAGE 3 NUMBER OF DISPOSITIONS BY CLINIC SERVICE,
AGE AND PATIENT CATEGORY,
DDEAMC, CY 83

CLINIC SERVICE	AGE	PNT-CAT AD MIL	RET MIL	D A/DMIL	D R/DMIL	OTHER	TOTAL
SURG-PLASTIC	UNDER20	2	0	35	13	0	50
SURG-PLASTIC	20-29	33	0	13	7	0	53
SURG-PLASTIC	30-39	9	0	27	4	0	40
SURG-PLASTIC	40-49	4	6	8	31	0	49
SURG-PLASTIC	50-59	0	9	1	33	0	43
SURG-PLASTIC	OVER 59	0	10	0	14	0	24
UROLOGY	UNDER20	15	0	49	17	1	82
UROLOGY	20-29	77	0	4	1	0	82
UROLOGY	30-39	51	4	5	5	2	67
UROLOGY	40-49	15	28	4	11	1	59
UROLOGY	50-59	2	46	1	10	0	59
UROLOGY	OVER 59	0	100	2	8	1	111
SURG-HAND	UNDER20	0	0	1	0	0	1
SURG-PERIPHERAL VAS	20-29	1	0	0	0	0	1
SURG-PERIPHERAL VAS	30-39	4	0	1	0	0	5
SURG-PERIPHERAL VAS	40-49	4	6	0	4	0	14
SURG-PERIPHERAL VAS	50-59	1	29	1	14	0	45
SURG-PERIPHERAL VAS	OVER 59	0	53	1	17	2	73
GYNECOLOGY	UNDER20	18	0	16	10	1	45
GYNECOLOGY	20-29	86	2	172	20	2	282
GYNECOLOGY	30-39	25	0	119	32	0	176
GYNECOLOGY	40-49	0	0	17	79	0	96
GYNECOLOGY	50-59	0	0	1	37	0	38
GYNECOLOGY	OVER 59	0	0	0	17	1	18
OBSTETRICS	UNDER20	13	0	126	18	0	157
OBSTETRICS	20-29	107	1	450	13	25	596
OBSTETRICS	30-39	15	0	116	10	2	143
OBSTETRICS	40-49	0	0	1	3	0	4
OBSTETRICS	50-59	0	0	1	0	0	1
PEDIATRICS	UNDER20	0	0	350	58	5	413
NURSERY (NEWBORN)	UNDER20	0	0	787	16	77	890
ADOLESCENT PED	UNDER20	0	0	2	1	0	3
FP-MEDICAL	UNDER20	1	0	26	26	0	53
FP-MEDICAL	20-29	14	2	25	15	0	56
FP-MEDICAL	30-39	15	0	35	15	0	65
FP-MEDICAL	40-49	14	40	13	38	2	107
FP-MEDICAL	50-59	0	102	2	75	0	179
FP-MEDICAL	OVER 59	0	109	2	77	0	188
FP-SURGICAL	20-29	1	0	0	0	0	1
FP-SURGICAL	30-39	1	0	0	0	0	1
FP-SURGICAL	40-49	0	0	0	2	0	2
FP-SURGICAL	50-59	0	3	0	0	0	3
FP-SURGICAL	OVER 59	0	2	0	1	0	3
FP-OBSTETRICS	UNDER20	0	0	13	7	0	20
FP-OBSTETRICS	20-29	21	0	86	8	1	116
FP-OBSTETRICS	30-39	2	0	34	4	1	41
FP-OBSTETRICS	40-49	0	0	0	1	0	1
FP-OBSTETRICS	OVER 59	0	0	0	1	0	1
FP-GYNECOLOGY	UNDER20	0	0	0	2	0	2

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3 APR 1984

PGN: RUF-093

PAGE 4 NUMBER OF DISPOSITIONS BY CLINIC SERVICE,
AGE AND PATIENT CATEGORY,
DDEAMC, CY 83

CLINIC SERVICE	AGE	PNT-CAT AD MIL	RET MIL	D A/DMIL	D P/DMIL	OTHER	TOTAL
EP-GYNECOLOGY	20-29	0	0	4	0	0	4
EP-GYNECOLOGY	30-39	0	0	3	0	0	3
EP-PEDIATRICS	UNDER20	0	0	65	14	0	79
EP-ORTHOPEDICS	30-39	1	0	0	0	0	1
EP-ORTHOPEDICS	40-49	0	0	0	2	0	2
EP-ORTHOPEDICS	50-59	0	0	0	1	0	1
EP-ORTHOPEDICS	OVER 59	0	1	0	0	0	1
ORTHOPEDICS	UNDER20	63	0	89	73	0	225
ORTHOPEDICS	20-29	393	6	36	15	3	453
ORTHOPEDICS	30-39	161	7	27	11	2	208
ORTHOPEDICS	40-49	60	41	7	45	0	153
ORTHOPEDICS	50-59	5	77	2	67	2	153
ORTHOPEDICS	OVER 59	0	82	5	82	1	170
PODIATRY	UNDER20	6	0	0	2	0	8
PODIATRY	20-29	24	0	2	1	0	27
PODIATRY	30-39	24	0	10	3	0	37
PODIATRY	40-49	6	4	1	15	0	28
PODIATRY	50-59	0	5	0	10	0	15
PODIATRY	OVER 59	0	5	1	8	0	14
PSYCHIATRY	UNDER20	61	0	6	9	2	78
PSYCHIATRY	20-29	225	4	30	5	1	265
PSYCHIATRY	30-39	94	3	27	13	1	138
PSYCHIATRY	40-49	11	13	6	19	0	49
PSYCHIATRY	50-59	1	20	1	12	0	34
PSYCHIATRY	OVER 59	0	8	0	7	0	15
OPHTHALMOLOGY	UNDER20	2	0	36	6	0	44
OPHTHALMOLOGY	20-29	24	0	7	1	0	32
OPHTHALMOLOGY	30-39	8	0	6	1	0	15
OPHTHALMOLOGY	40-49	7	9	1	3	1	21
OPHTHALMOLOGY	50-59	2	34	6	13	0	55
OPHTHALMOLOGY	OVER 59	1	63	1	49	0	114
OTORHINOLARYNGOLGY	UNDER20	18	0	15	4	0	38
OTORHINOLARYNGOLGY	20-29	58	1	6	2	0	67
OTORHINOLARYNGOLGY	30-39	31	2	0	0	0	33
OTORHINOLARYNGOLGY	40-49	5	1	1	5	0	12
OTORHINOLARYNGOLGY	50-59	0	19	0	6	0	25
OTORHINOLARYNGOLGY	OVER 59	0	12	0	11	0	23
	TOTAL	3928	2912	3532	2651	194	13217

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SUMMARIZED REPORT

PCN: RUF-093

PAGE 3 NUMBER OF DISPOSITIONS BY CLINIC SERVICE,
AGE AND PATIENT CATEGORY,
DDEAMC, CY 83

CLINIC SERVICE	AGE UNDER20	20-29	30-39	40-49	50-59	OVER 59	UNKNOWN	TOTAL
INTERNAL MEDICINE	151	211	107	139	246	328	0	1182
CARDIOLOGY	35	31	81	204	291	240	0	882
DERMATOLOGY	4	8	6	4	2	8	0	34
ENDOCRINOLOGY	4	19	5	9	5	18	0	60
GASTROENTEROLOGY	8	27	51	60	63	56	0	265
HEMATOLOGY	2	9	8	4	9	16	0	48
NEPHROLOGY	4	13	9	9	7	6	0	48
NEUROLOGY	17	87	55	40	39	44	0	282
ONCOLOGY	12	43	36	67	196	196	0	550
PUL/UP RESP DISEASE	1	17	12	13	44	55	0	147
RHEUMATOLOGY	2	10	4	7	5	6	0	34
ALLERGY-IMMUNOLOGY	1	0	0	0	0	0	0	1
INFECTIOUS DISEASE	313	240	23	4	6	5	0	591
SURG-GENERAL	197	219	143	215	220	234	0	1229
SURG-CARDIO/THORAC	1	4	4	14	24	28	0	75
SURG-NEUROLOGIC	11	47	73	54	45	31	0	261
SURG-ORAL	118	141	35	27	11	6	0	338
SURG-PEDIATRIC	1	0	0	0	0	0	0	1
SURG-PLASTIC	50	53	40	49	43	24	0	259
UROLOGY	82	82	67	59	59	111	0	460
SURG-HAND	1	0	0	0	0	0	0	1
SURG-PERIPHERAL VAS	0	1	5	14	45	73	0	138
GYNECOLOGY	45	282	176	96	33	18	0	655
OBSTETRICS	157	596	143	4	1	0	0	901
PEDIATRICS	413	0	0	0	0	0	0	413
NURSERY (NEWBORN)	880	0	0	0	0	0	0	880
ADOLESCENT PED	3	0	0	0	0	0	0	3
FP-MEDICAL	53	56	65	107	179	188	0	648
FP-SURGICAL	0	1	1	2	3	3	0	10
FP-OBSTETRICS	20	116	41	1	0	1	0	179
FP-GYNECOLOGY	2	4	3	0	0	0	0	9
FP-PEDIATRICS	79	0	0	0	0	0	0	79
FP-ORTHOPEDICS	0	0	1	2	1	1	0	5
ORTHOPEDICS	225	453	208	153	153	170	0	1362
PODIATRY	8	27	37	28	15	14	0	129
PSYCHIATRY	78	265	138	49	34	15	0	579
OPHTHALMOLOGY	44	32	15	21	55	114	0	281
OTORHINOLARYNGOLGY	38	67	33	12	25	23	0	198
TOTAL	3060	3161	1627	1473	1864	2032	0	13217

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SUMMARIZED REPORT

PCN: RUF-093

PAGE 6 NUMBER OF DISPOSITIONS BY CLINIC SERVICE,
AGE AND PATIENT CATEGORY,
DDEAMC, CY 83

CLINIC SERVICE	PNT-CAT AD MIL	RET MIL	D A/DMIL	D R/DMIL	OTHER	TOTAL
INTERNAL MEDICINE	361	447	76	282	16	1182
CARDIOLOGY	203	443	60	171	5	882
DERMATOLOGY	18	5	4	7	0	34
ENDOCRINOLOGY	15	17	9	19	0	60
GASTROENTEROLOGY	45	106	30	78	6	265
HEMATOLOGY	11	13	5	19	0	48
NEPHROLOGY	19	12	4	13	0	48
NEUROLOGY	128	66	33	52	3	282
ONCOLOGY	28	297	40	177	8	550
PUL/UP RESP DISEASE	23	73	11	39	1	147
RHEUMATOLOGY	8	9	4	12	1	34
ALLERGY-IMMUNOLOGY	1	0	0	0	0	1
INFECTIOUS DISEASE	575	8	2	6	0	591
SURG-GENERAL	334	322	211	346	14	1229
SURG-CARDIO/THORAC	10	43	4	18	0	75
SURG-NEUROLOGIC	118	61	18	62	2	261
SURG-ORAL	187	21	71	58	1	338
SURG-PEDIATRIC	0	0	1	0	0	1
SURG-PLASTIC	48	25	84	102	0	259
UROLOGY	160	178	65	52	5	460
SURG-HAND	0	0	1	0	0	1
SURG-PERIPHERAL VAS	10	88	3	35	2	138
GYNECOLOGY	129	2	325	195	4	655
OBSTETRICS	135	1	694	44	27	901
PEDIATRICS	0	0	350	58	5	413
NURSERY (NEWBORN)	0	0	787	16	77	880
ADOLESCENT PED	0	0	2	1	0	3
FP-MEDICAL	44	253	103	246	2	648
FP-SURGICAL	2	5	0	3	0	10
FP-OBSTETRICS	23	0	133	21	2	179
FP-GYNECOLOGY	0	0	7	2	0	9
FP-PEDIATRICS	0	0	65	14	0	79
FP-ORTHOPEDICS	1	1	0	3	0	5
ORTHOPEDICS	682	213	166	293	8	1362
PODIATRY	62	14	14	39	0	129
PSYCHIATRY	392	48	70	65	4	579
OPHTHALMOLOGY	44	106	57	73	1	281
OTORHINOLARYNGOLGY	112	35	23	28	0	198
TOTAL	3928	2912	3532	2651	194	13217

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APPENDIX B

INPATIENT PHARMACY BRANCH PUBLICS

INTERVIEW WORKSHEET

INPATIENT PHARMACY BRANCH PERSONNEL

INTERVIEW WORKSHEET

1. What do you perceive as the function or mission of the Inpatient Pharmacy Branch (IPB)?

2. What services are offered by the IPB to carry out its function?

a.

b.

c.

d.

e.

3. Who do you interact with on a daily basis to perform your job?

a.

b.

c.

d.

e.

4. With whom or with what groups of people does the IPB interact on a routine basis to carry out its function?

a.

b.

c.

d.

e.

7. How do you communicate your needs and wants to the IPB?

a.

b.

c.

d.

e.

8. How often does this occur?

a.

b.

c.

d.

e.

9. How does the IPB provide feedback to you?

a.

b.

c.

d.

e.

10. What barriers exist that disrupt effective communication?

a.

b.

c.

d.

e.

11. What changes or shifts in your needs or desired service patterns have you noticed in the last two years?

a.

b.

c.

d.

e.

12. What new services have been started in the last five years by the IPB?

a.

b.

c.

d.

e.

13. What has been the success of these services?

a. Service 1

b. Service 2

c. Service 3

d. Service 4

e. Service 5

14. Which IPB services do you like the best and why?

a.

b.

c.

d.

e.

15. Which IPB services do you use the most and why?

a.

b.

c.

d.

e.

16. Which IPB services do you use the least and why?

a.

b.

c.

d.

e.

17. Which IPB services do you not understand and why?

a.

b.

c.

d.

e.

18. What new services should the IPB offer?

a.

b.

c.

d.

e.

19. Are the IPB services provided at the appropriate location within the MEDCEN?

Yes____ No____

20. What would be the advantages to a different or additional location?

a.

b.

c.

d.

e.

21. Are the IPB services offered on an appropriate time schedule?

    a. Service 1

    b. Service 2

    c. Service 3

    d. Service 4

    e. Service 5

22. What are some of the strengths of the IPB?

    a.

    b.

    c.

    d.

    e.

23. What are some of the weaknesses of the IPB?

    a.

    b.

    c.

    d.

    e.

APPENDIX C

CONTENT ANALYSIS WORKSHEET

PHYSICIAN PUBLIC RESPONSES

CONTENT ANALYSIS WORKSHEET

Physician Public Responses

1. Function/Mission

   a. Provide medications - 11

   b. Drug information - 4

   c. Controlled drug management - 1

   d. Provide medications in a timely manner - 3

2. Services desired: This question was deleted due to its similarity to Question 18.

3. Services offered

   a. Unit dose - 11

   b. Computer data - 2

   c. Drug information - 4

   d. IV services - 7

   e. In-services - 1

   f. Delivery of medications - 1

   g. Hyperalimentation - 9

   h. Therapeutic Agents Board (TAB) - 1

   i. Newsletter - 1

   j. SPARK kits - 1

4. Meeting needs

   Yes - 11
   Other: For the most part - 1
   Frustrated with paperwork (orders) = not totally responsive - 1

5. Satisfaction with services

   Yes - 11
   Other: Adequate - 1
   Moderately satisfied - 3

CONTENT ANALYSIS WORKSHEET - Physician Public
(continued)

6. Quality of services
    a. Good - 5
    b. Infrequent prescription error - 2
    c. Outstanding/excellent - 1
    d. Very good - 4
    e. No mistakes - 1
    f. Adequate/okay - 2
    g. Depends on pharmacist - 1
    h. Night service: occasional delays - 1
7. Communication methods
    a. Phone - 10
    b. Through nurses - 2
    c. Orders - 3
    d. Intercom - 5
    e. Face to face - 2
    f. None - 1
8. Communication frequency
    a. 1-2 times per month - 6
    b. 3 times per week - 1
    c. 2 times per week - 2
    d. 1 time per week - 3
9. Feedback methods
    a. Phone - 11
    b. Through nurses - 4

CONTENT ANALYSIS WORKSHEET - Physician Public
(continued)

c. Tube - 1

d. Paging - 3

10. Communication barriers

a. None - 12

b. Nursing staff is possible barrier - 1

c. No need to communicate - 1

11. Needs or service pattern changes

a. None - 6

b. Increased hyperalimentation - 2

c. Sicker patients - 1

d. Need drugs not on formulary - 1

e. Changing drug requirements; formulary must be flexible - 1

f. Increased number of drugs = increased drug interactions - 1

12. New services started in last five years

a. TAB Top 40 - 1

b. Drug information interactions - 1

c. Night formulary - 1

d. Drug protocol studies - 1

e. None or not aware of any - 9

f. Respond to codes - 1

g. SPARK kit - 1

h. Computer system - 1

CONTENT ANALYSIS WORKSHEET - Physician Public
(continued)

13. Success of new services: Generally considered successful.

14. Services best liked and why: This question was deleted as responses were identical to responses to Question 15.

15. Services used the most and why

    a. Drug information - 2

    b. Unit dose/medications to patient - 10

    c. All - 1

    d. Hyperalimentation - 3

    e. IV - 1

16. Services used the least and why: Respondents not able to identify which service is least used.

17. Services not understood and why

    a. None - 7

    b. Lack of bulk drugs on wards - 1

    c. Unit dose philosophy (wasteful packing costs) - 1

    d. Requirement for all physician information on prescriptions (inconvenience) - 1

    e. Mix medications with too much fluid - 1

    f. Have wards mix certain IVs due to changing orders - 1

    g. Policy that one can't use a medication because of cost without first going through Department Chief - 1

    h. Wasteful medications, especially IVs - 1

    i. Strictness in not responding to STAT without documented order written "by the book" - 1

18. New services IPB should offer

    a. More information sheets on drug noncompatibility, waste, cost, and drug information - 3

    b. New formulary in booklet form - 1

CONTENT ANALYSIS WORKSHEET - Physician Public
(continued)

c. Drugs put in solution with highest concentration - 1

d. None - 8

e. Allow physician to fill personal prescription at IPB - 1

f. Patient medication instruction/information - 1

19. Appropriate location

a. Yes - 12

b. No - 1

c. Other: needs to be closer to wards - 1

20. New/additional location advantages/disadvantages

a. Spread assets thin - 1

b. Cut down nursing time to pick up IVs - 1

c. Medications to floors quicker - 2

d. Need better signs for night formulary from Emergency Room to IPB - 1

e. Central to acute services - 1

f. Satellite pharmacy not required - 3

g. Satellite pharmacy cannot be extensive enough - 1

h. Hospital not big enough for satellite pharmacy - 6

21. Appropriate time schedule

a. Hyperalimentation: occasional problems - 2

b. Okay 99% of the time - 8

c. Night shift: occasional delays - 1

d. Narcotics must be reordered every 2-3 days - 1

CONTENT ANALYSIS WORKSHEET - Physician Public
(continued)

22. Strengths

a. Do their job well - 5

b. Few medication errors - 6

c. Oncology pharmacy - 1

d. Helpful attitude - 4

e. Education program - 1

f. Drug information - 5

g. Good pharmacists - 2

h. Good technicians - 1

i. Responsive - 3

j. Catch physician errors - 1

k. Unit dose system - 1

l. Communication excellent - 2

23. Weaknesses

a. More current formulary - 1

b. More drugs with different strengths on formulary - 1

c. Direct physician notification of generic substitutes - 1

d. Too concerned with proper filling out of forms = delay to patient - 1

e. None - 3

f. Unit dose too extensive (includes OTC drugs) = waste of time - 1

g. Poor communication on policy and procedure - 2

h. Delay between writing an order and patient receiving medications - 1

i. Not aware of all services available - 1

CONTENT ANALYSIS WORKSHEET - Physician Public
(continued)

j. More communication needed on problems or errors - 3

k. Waste of product: make up series of IVs and then medication is changed - 1

APPENDIX D

CONTENT ANALYSIS WORKSHEET

NURSING STAFF PUBLIC RESPONSES

CONTENT ANALYSIS WORKSHEET

Nursing Staff Public Responses

1. Function/Mission

   a. Provide all medications (IV, bulk, hyperalimentation, etc.) - 11

   b. Education - 2

   c. Drug information - 3

   d. Provide medications in timely manner - 3

   e. Fill physician prescriptions - 1

   f. Check on ward accountability - 2

   g. Deliver - 2

   h. Stock for emergency - 1

   i. Provide accurate medications - 2

   j. Support nursing units - 2

2. Services desired: This question was deleted due to its similarity to Question 18.

3. Services offered

   a. IV - 11

   b. Unit dose - 14

   c. Drug information - 11

   d. In-services - 5

   e. Newsletter - 4

   f. Night formulary - 1

   g. Distribution (delivery) to wards - 5

   h. SPARK kit - 1

   i. Fill bulk orders - 2

CONTENT ANALYSIS WORKSHEET - Nursing Staff Public
(continued)

j. Hyperalimentation - 2

k. Coordination with physicians when there are problems - 1

l. Checking for drug interactions - 5

m. Monitor drug expiration - 2

n. Code support - 2

o. Standard times for medications throughout hospital - 1

p. Fill prescriptions for Ambulatory Surgery patients - 1

4. Meeting needs

Yes - 13
Other: Pretty much - 1

5. Satisfaction with services: Yes - 14

6. Quality of services

a. Excellent - 6

b. Continuous improvement - 2

c. Good - 7

d. Pretty good - 1

e. Few medication errors - 3

7. Communication methods

a. Physician orders - 3

b. Executone - 7

c. Phone - 7

d. Face to face - 6

e. Tube - 1

CONTENT ANALYSIS WORKSHEET - Nursing Staff Public
(continued)

8. Communication frequency

    a. 2-3 times per week - 2

    b. 1-3 times per day - 2

    c. 4-5 times per day - 4

    d. 5-20 times per day - 3

    e. 1-2 times per month - 2

9. Feedback methods

    a. Executone - 2

    b. Medications delivered through tube - 5

    c. Face to face - 7

    d. Phone - 5

    e. Medications delivered in person - 2

10. Communication barriers

    a. One pharmacist is at times not helpful - 3

    b. None - 6

    c. Evening and night shifts do not use Executone - 1

    d. Questioning by pharmacy (have you looked or checked for a medication?) - 1

    e. Physician's order not written clearly or correctly - 1

11. Needs or service pattern changes

    a. Increased medical capabilities at DDEAMC - 1

    b. Increased cath procedures - 1

    c. Increased number of medications available - 6

    d. Increase in use of IVs - 4

    e. Increase in dependents - 2

CONTENT ANALYSIS WORKSHEET - Nursing Staff Public
(continued)

f. Increase in retired personnel - 4

g. Oncology pharmacy/ward - 3

h. Increased use of nursing care plan - 1

i. Increase in use of hyperalimentation - 1

j. Increase in number of codes - 1

k. Increase in critically ill or difficult diagnoses - 2

l. Sicker patients/stay longer - 3

m. Increased census - 4

n. Teaching programs (on changing medications) - 1

o. Rapid patient turnover - 1

12. New services started in last five years

a. Newsletter - 5

b. In-services - 5

c. Total unit dose system - 4

d. None - 3

e. Patient education for insulin - 1

f. SPARK kit - 3

g. Mixing of IVs - 1

h. Improved delivery system/schedules - 2

i. Separating unit dose drawers - 4

j. Oncology pharmacy - 1

k. Increased availability of pharmacists to nursing staff - 1

13. Success of new services: Generally successful.

CONTENT ANALYSIS WORKSHEET - Nursing Staff Public
(continued)

14. Services best liked and why: This question was deleted as responses were identical to responses to Question 15.

15. Services used the most and why

    a. Drug information - 3

    b. Postoperative medications for Ambulatory Surgery patients - 1

    c. Unit dose - 10

    d. IV additive - 8

16. Services used the least and why: Respondents not able to identify which service is least used.

17. Services not understood and why

    a. None - 11

    b. Nurse cannot order basic OTC drugs for ARD patients (doctor always forgets to order) - 1

    c. SPARK kits are ineffective - 1

18. New services IPB should offer

    a. Assist wards in developing standing orders for physicians - 1

    b. None - 6

    c. Patient education as part of discharge planning - 1

    d. Complete unit dose to include preops - 1

    e. Respond to codes at <u>all</u> times (weekends) - 1

    f. Drug information cards with normal dosages - 1

    g. Pharmacists pass medications - 2

    h. Pharmacy technicians pass medications - 1

    i. Increased education on drugs - 1

CONTENT ANALYSIS WORKSHEET - Nursing Staff Public
(continued)

19. Appropriate location

Yes - 11
No - 1

20. New/additional location (advantages/disadvantages)

a. None - 1

b. Middle of building for better access to wards - 3

c. Current location convenient to SICU/MICU - 4

d. Hospital too small for satellite pharmacy - 4

e. Satellite pharmacy for MICU for quicker response - 1

f. Satellite pharmacy useful if pharmacist is passing medications - 1

21. Appropriate time schedule

Yes - 12
Other: Hyperalimentation (changing order or new orders) - 2

22. Strengths

a. Code team - 3

b. SPARK kit - 1

c. Delivery/exchange of unit dose carts - 2

d. Delivery of IVs - 4

e. Twenty-four hour service - 1

f. Responsive - 13

g. Location - 1

h. Notes to Nurses - 1

i. Flexible, respond to nursing needs - 1

j. Hyperalimentation program - 1

k. Standard hours for q4/q6 medications - 1

CONTENT ANALYSIS WORKSHEET - Nursing Staff Public
(continued)

l. Helpful/courteous people - 9

m. Quality assurance - 4

n. In-services - 1

o. Drug information - 4

p. Medications in drawers on unit dose carts - 1

23. Weaknesses

a. Access to vault drugs on weekends - 2

b. None - 1

c. Formulary: [illegible]at is confusing and outdated - 1

d. Problems with transfer orders: lose track of patients, IPB doesn't know where to send medications - 1

e. In responding to codes, evening and night shifts are sporadic due to lack of personnel - 1

f. SPARK kits not responsive to needs in SICU/MICU - 1

g. Control of unit dose system: acts of omission (i.e., checking medications versus drawer and follow-up); could use NETS - 2

h. Desire greater/quicker responsiveness, recognizing lack of staffing - 4

i. Deliver medications before 5 a.m. on night shift - 1

j. Periodic wrong medications - 1

k. One-hour standard for medication delivery is too long (should be 30 minutes) - 1

l. Larger formulary, especially for Pediatrics - 1

m. Lack of patient education

APPENDIX E

PHYSICIAN STAFF QUESTIONNAIRE

PHYSICIAN STAFF QUESTIONNAIRE

Please select the one response to each question which best expresses your evaluation of the service in question.

1. Pharmacist involvement at this facility as a contributing member of the health care team is

1	2	3	4	5
poor	fair	average	good	exceptional

2. Pharmacy Service drug information services are

1	2	3	4	5
poor	fair	average	good	exceptional

3. The present pharmacy unit-dose drug distribution system is

1	2	3	4	5
poor	fair	average	good	exceptional

4. Pharmacy response to STAT (emergency) orders is

1	2	3	4	5
poor	fair	average	good	exceptional

5. The pharmacy sterile products (IV additive) program is

1	2	3	4	5
poor	fair	average	good	exceptional

6. Pharmacists' response to drug information questions I may have is

1	2	3	4	5
poor	fair	average	good	exceptional

7. The quality of the pharmacy hyperalimentation preparation and distribution system is

1	2	3	4	5
poor	fair	average	good	exceptional

8. Communication between the IPB staff and the physician staff is

1	2	3	4	5
poor	fair	average	good	exceptional

9. Pharmacy participation in and support of CPR (Code 18) is

1	2	3	4	5
poor	fair	average	good	exceptional

10. I am familiar with all services provided by the Pharmacy.

1	2	3	4	5
not at all familiar	somewhat familiar	moderately familiar	familiar	aware of all services provided

11. The IPB currently provides all of the services needed by the physician staff.

1	2	3	4	5
strongly disagree	disagree	agree somewhat	agree	strongly agree

12. The IPB currently provides all of the services needed by the hospital patients.

1	2	3	4	5
strongly disagree	disagree	agree somewhat	agree	strongly agree

13. The number of inpatient pharmacy services provided should be expanded.

1	2	3	4	5
strongly disagree	disagree	agree somewhat	agree	strongly agree

14. If you agree to any extent that the number of IPB services should be expanded, list those services to be added.

a.

b.

c.

d.

e.

15. The quality of inpatient pharmacy services at present is

1	2	3	4	5
poor	fair	average	good	exceptional

16. Rank what you believe is the satisfaction level of each of the following in regard to the IPB services.

a. Physician Staff

1	2	3	4	5
totally dissatisfied	dissatisfied	somewhat satisfied	satisfied	completely satisfied

b. Ward/Nursing Staff

1	2	3	4	5
totally dissatisfied	dissatisfied	somewhat satisfied	satisfied	completely satisfied

c. Ward Patients

1	2	3	4	5
totally dissatisfied	dissatisfied	somewhat satisfied	satisfied	completely satisfied

17. The current location of the IPB is the best possible location to serve the needs of the hospital staff.

1	2	3	4	5
strongly disagree	disagree	agree somewhat	agree	strongly agree

18. The IPB services are currently offered on a time schedule which best meets the needs of the hospital staff.

1	2	3	4	5
strongly disagree	disagree	agree somewhat	agree	strongly agree

19. My overall assessment of the Inpatient Pharmacy Branch and services provided is

1	2	3	4	5
poor	fair	average	good	exceptional

20. Pharmacists should be directly involved as a team member with the physician in day-to-day patient medication decisions.

1	2	3	4	5
strongly disagree	disagree	agree somewhat	agree	strongly agree

21. Pharmacists should be directly involved as a team member in providing medication information and education as part of the discharge planning process.

1	2	3	4	5
strongly disagree	disagree	agree somewhat	agree	strongly agree

22. In relation to patients you cared for 2 or 3 years ago, the patients you are caring for now are (answer Yes or No for each category)

	Yes	No
More active duty	___	___
More dependents	___	___
More retired	___	___

	Yes	No
More retired dependents	___	___
Older	___	___
Younger	___	___
Sicker	___	___
Healthier	___	___
Require more medications	___	___
Require less medications	___	___

23. My current position at DDEAMC is

____Intern

____Resident

____Staff Physician

24. I am assigned to the Department of _____.

APPENDIX F

WARD/NURSING STAFF QUESTIONNAIRE

WARD/NURSING STAFF QUESTIONNAIRE

Please select the one answer which best expresses your evaluation of the service in question.

1. My opinion of the pharmacy nursing orientation presented on initial inprocessing is

1	2	3	4	5
poor	fair	average	good	exceptional

2. The quality of pharmacy-sponsored nursing in-service programs is

1	2	3	4	5
poor	fair	average	good	exceptional

3. The present pharmacy-managed unit-dose drug distribution system is

1	2	3	4	5
poor	fair	average	good	exceptional

4. Pharmacy response time to STAT (emergency) orders is

1	2	3	4	5
poor	fair	average	good	exceptional

5. Pharmacy response to routine patient medication orders is

1	2	3	4	5
poor	fair	average	good	exceptional

6. Pharmacy participation and support in CPR (Code 18) is

1	2	3	4	5
poor	fair	average	good	exceptional

7. Pharmacy drug information services are

1	2	3	4	5
poor	fair	average	good	exceptional

8. The quality of the pharmacy sterile products (IV additive) program is

1	2	3	4	5
poor	fair	average	good	exceptional

9. Communication between the IPB staff and the ward/nurses is

1	2	3	4	5
poor	fair	average	good	exceptional

10. I am familiar with all services provided by the Pharmacy.

1	2	3	4	5
not at all familiar	somewhat familiar	moderately familiar	familiar	aware of all services provided

11. The IPB currently provides all of the services needed by the ward/nursing staff.

1	2	3	4	5
strongly disagree	disagree	agree somewhat	agree	strongly agree

12. The IPB currently provides all of the services needed by the hospital patients.

1	2	3	4	5
strongly disagree	disagree	agree somewhat	agree	strongly agree

13. The number of inpatient pharmacy services provided should be expanded.

1	2	3	4	5
strongly disagree	disagree	agree somewhat	agree	strongly agree

14. If you agree to any extent that the number of IPB services should be expanded, list those services to be added.

a.

b.

c.

d.

e.

15. The quality of inpatient pharmacy services at present is

1	2	3	4	5
poor	fair	average	good	exceptional

16. Rank what you believe is the satisfaction level of each of the following in regard to the IPB services.

a. Ward/Nursing Staff

1	2	3	4	5
totally dissatisfied	dissatisfied	somewhat satisfied	satisfied	completely satisfied

b. Physician Staff

1	2	3	4	5
totally dissatisfied	dissatisfied	somewhat satisfied	satisfied	completely satisfied

c. Ward Patients

1	2	3	4	5
totally dissatisfied	dissatisfied	somewhat satisfied	satisfied	completely satisfied

17. The current location of the IPB is the best possible location to serve the needs of the hospital staff.

1	2	3	4	5
strongly disagree	disagree	agree somewhat	agree	strongly agree

18. The IPB services are currently offered on a time schedule which best meets the needs of the hospital staff.

1	2	3	4	5
strongly disagree	disagree	agree somewhat	agree	strongly agree

19. My overall assessment of the Inpatient Pharmacy Branch and services provided is

1	2	3	4	5
poor	fair	average	good	exceptional

20. My participation in pharmacy-sponsored nursing in-service programs is

1	2	3	4	5
never	seldom	occasional	frequent	always

21. Pharmacists should be directly involved as a team member with the physician in day-to-day patient medication decisions.

1	2	3	4	5
strongly disagree	disagree	agree somewhat	agree	strongly agree

22. Pharmacists should be directly involved as a team member in providing medication information and education as part of the discharge planning process.

1	2	3	4	5
strongly disagree	disagree	agree somewhat	agree	strongly agree

23. In relation to patients you cared for 2 or 3 years ago, the patients you are caring for now are (answer Yes or No for each category)

	Yes	No
More active duty	___	___
More dependents	___	___
More retired	___	___
More retired dependents	___	___
Older	___	___
Younger	___	___
Sicker	___	___
Healthier	___	___
Require more medications	___	___
Require less medications	___	___

24. My current position is

____Army Nurse Corps

____Enlisted Personnel

____Civilian RN

____Civilian Paraprofessional

25. I work on the following ward or unit:_____.

APPENDIX G

CHI-SQUARE TEST

CHI-SQUARE TEST

The concept in using the Chi-Square Test was to analyze deviations between the frequency of responses generated by each public. To perform the test, the responses from one public were established as the expected values (E) while responses from another public were established as the observed values (O). Calculation of the Chi-square statistic uses the formula:

$$\sum \frac{(O - E)^2}{E}$$

The Chi-square (X^2) statistic is distributed with $\underline{k} - \underline{r}$ degrees of freedom, where $\underline{k}$ is the number of intervals involved and $\underline{r}$ is the number of restrictions in the analysis.

For this analysis the number of restrictions is one and the level of significance is established at .05. Therefore, the calculated X^2 values will be compared with critical X^2 values at the .05 level. If the calculated X^2 is less than the critical X^2, then it can be said that there is no significant difference between the frequency of responses of the two publics tested. If the calculated X^2 is greater than the critical X^2, then it can be said that there is a significant difference between the frequency of responses of the two publics tested.

APPENDIX H

INPATIENT PHARMACY BRANCH PERSONNEL

INTERVIEW WORKSHEET

INPATIENT PHARMACY BRANCH PERSONNEL

INTERVIEW WORKSHEET

1. What do you perceive as the function or mission of the Inpatient Pharmacy Branch (IPB)?

2. What services are offered by the IPB to carry out its function?

a.

b.

c.

d.

e.

3. Who do you interact with on a daily basis to perform your job?

a.

b.

c.

d.

e.

4. With whom /ith what groups of people does the IPB interact on a routine basis to carry out its function?

a.

b.

c.

d.

e.

5. You mentioned

a.

b.

c.

d.

e.

6. What are the needs each of these is seeking to satisfy?

a.

b.

c.

d.

e.

7. How is the IPB fulfilling the needs of each public?

a.

b.

c.

d.

e.

8. Do you believe these publics are satisfied with the services received from the IPB?

Yes____ No____ Other_____

9. Describe the attitude toward the IPB on the part of each public you mentioned.

a.

b.

c.

d.

e.

10. Describe the quality of service provided by the IPB.

11. How does each public communicate its needs and wants to the IPB?

a.

b.

c.

d.

e.

12. How often does this occur?

a.

b.

c.

d.

e.

13. How do you provide feedback to each public?

a.

b.

c.

d.

e.

14. What barriers exist that disrupt effective communication?

a.

b.

c.

d.

e.

15. What changes or shifts in the needs or service patterns of each public have you noticed in the last two years?

a.

b.

c.

d.

e.

16. What new services have been started in the last five years?

a.

b.

c.

d.

e.

17. What has been the success of those services?

a. Service 1

b. Service 2

c. Service 3

d. Service 4

e. Service 5

18. Which services seem to be the most popular?

a.

b.

c.

d.

e.

19. Which services seem to be the least understood?

a.

b.

c.

d.

e.

20. What new services should the IPB offer?

a.

b.

c.

d.

e.

21. Are you providing services at the appropriate location(s) within the MEDCEN?

Yes____ No____ Other_____

22. What would be the advantages to a different or additional location?

a.

b.

c.

d.

e.

23. Are the IPB services offered on an appropriate time schedule?

a. Service 1

b. Service 2

c. Service 3

d. Service 4

e. Service 5

24. What are some of the strengths of the IPB?

a.

b.

c.

d.

e.

25. What are some of the weaknesses of the IPB?

a.

b.

c.

d.

e.

26. What are some of the specific goals or objectives you are trying to achieve in the IPB?

a.

b.

c.

d.

e.

27. Should Pharmacists be directly involved as a team member with the physician in day-to-day patient medication decisions?

28. Should Pharmacists be directly involved as a team member in providing medication information and education as part of the discharge planning process?

APPENDIX I

CONTENT ANALYSIS WORKSHEET

INPATIENT PHARMACY BRANCH PERSONNEL

CONTENT ANALYSIS WORKSHEET

Inpatient Pharmacy Branch Personnel

1. Function/Mission

   a. Provide Inpatient Pharmacy Branch (IPB) support to wards/clinics/inpatients - 6

   b. Provide medications - 3

   c. Drug information source - 1

   d. Support Nursing Department - 1

   e. Drug store/warehouse for the hospital - 1

2. Services

   a. Rapid response - 1

   b. Total unit dose - 10

   c. Sterile products (IV) - 10

   d. Bulk drug orders - 7

   e. SPARK kit management - 1

   f. Controlled substance management - 3

   g. Delivery of medications - 1

   h. Automatic bulk IV replacement - 1

   i. Drug information services - 3

   j. Nursing in-services - 2

   k. Night formulary - 4

   l. Code 18 response - 2

   m. Oncology pharmacy - 1

3. Personal interactions

   a. Chief Nurse - 1

   b. Ward nursing personnel - 7

CONTENT ANALYSIS WORKSHEET - IPB Personnel
(continued)

c. Physicians - 7

d. Logistics - 2

e. Patients - 4

f. IPB staff - 8

g. Clinic personnel - 1

h. Nurses - 6

4. IPB interactions

a. Patients - 3

b. Physicians - 7

c. Nurses - 10

d. Ward personnel - 5

5. No responses - duplication of Question 4.

6. Needs

a. Nurses: Correct doses/on time - 5
Self-centered attention - 2
Drug information and assistance - 5
Missing doses - 2
Controlled substances - 1
Bulk drug orders - 2
Physicians' orders - 1
Immediate delivery of medications - 3

b. Physicians: Drug information - 5
Formulary questions - 1
Flexible formulary - 1

c. Patients: Night formulary prescriptions - 1
Information - 1

7. How fulfilling needs: Current services - 9

8. Satisfied: Yes - 10

CONTENT ANALYSIS WORKSHEET - IPB Personnel
(continued)

9. Attitudes

   a. Nurses: Frustrated with paperwork - 1
   Appreciative - 2
   Very good - 1
   Good - 2
   Desire instant response - 2
   Satisfied - 3

   b. Physicians: Good - 1
   Average - 2
   Satisfied - 2
   Appreciative - 1

   c. Patients: Good - 1

10. Quality descriptions

   a. Above average - 2

   b. Very good - 3

   c. Good - 5

   d. Responsive - 1

   e. Concern for quality - 2

11. Publics' communication

   a. Nurses: Telephone - 10
   Face to face - 9
   Tube system - 3

   b. Physicians: Telephone - 8
   Some face to face - 3
   Through committees - 1
   Through nurses - 1

   c. Patients: Face to face - 2

12. Communication frequency

   a. Nurses: Constant - 10

   b. Physicians: Several per hour - 1
   Two to three times per day - 1
   One time per day - 2
   Four to five times per day - 2
   Infrequent - 2

CONTENT ANALYSIS WORKSHEET - IPB Personnel
(continued)

c. Patients: Infrequent - 1

13. Feedback methods

a. Nurses: Telephone - 10
Face to face - 5
Newsletter - 1
Deliver the medication - 1
Tube - 2

b. Physicians: Telephone - 7
Face to face - 1
Note - 1
TAB - 1

c. Patients: Face to face - 2

14. Barriers:

a. Misunderstanding of orders by pharmacists - 2

b. Lack of information on physician's orders - 1

c. Assumption by physician that pharmacist can read his mind - 1

d. Physicians' lack of knowledge of IPB capabilities - 1

e. Lack of time to communicate = second-guessing on both sides - 1

f. Committee process is slow - 1

g. Personalities - 2

h. None - 1

i. Lost medications - 2

j. Concern of nurses for their ward and no other - 3

15. Needs or service pattern changes

a. Nurses: More dependent on IPB for quality control - 1
Increased dependence on IPB drug distribution - 1
Use of unit dose system - 1

CONTENT ANALYSIS WORKSHEET - IPB Personnel
(continued)

Decreased floor stocks = increased requests for medications without orders - 1
None - 5

b. Physicians: Less knowledgeable about IPB - 1
Increased medication errors - 1
Increase in number of medications per patient - 1

16. New services started in last five years

a. Automatic stop orders on certain medications - 2

b. Expanded unit dose system to include OTC drugs - 2

c. Restricted self medications - 1

d. Outpatient hyperalimentation - 1

e. SPARK kit management - 2

f. Computer system - 1

g. Oncology pharmacy - 1

h. In-services - 1

i. Newsletter - 1

j. Code 18 response - 1

k. None - 6

17. Success of new services: Not sure OTC drugs in unit dose system are worth the effort - 1

18. Popular services

a. Unit dose - 5

b. Drug information - 1

c. Night formulary - 1

d. IV medications - 2

e. Drug delivery systems: cart exchange and IV delivery - 1

f. None - 1

CONTENT ANALYSIS WORKSHEET - IPB Personnel
(continued)

19. Least understood services

    a. Reduction in floor stocks of the wards - 3

    b. Lack of understanding of the scope of services, workload, and pressure on the IPB staff - 3

    c. Waiting time for medications - 2

    d. Unit dose system - 2

20. New services IPB should offer

    a. Clinical pharmacy services - 5

    b. Satellite pharmacies - 4

    c. Better delivery systems - 1

    d. More frequent face-to-face contact on the wards - 1

    e. Patient information and education - 2

    f. None - 3

21. Appropriate location(s)

    a. Yes - 7

    b. No - 3: Central pharmacy more efficient - 1
       Co-locate with Logistics - 1
       In the middle of the MEDCEN - 1

22. New/additional location advantages

    a. Satellite to service MICU and Pediatrics/Obstetrics-Gynecology - 1

    b. Reduced delivery times - 2

    c. Increased pharmacy space - 4

23. Appropriate time schedule: Yes - 10

24. Strengths

    a. Communication - 1

    b. Attitude, concern for the job - 4

CONTENT ANALYSIS WORKSHEET - IPB Personnel
(continued)

c. Competent staff - 4

d. Computer, but not fully realized - 1

e. Quality control - 5

f. Good equipment - 1

g. Flexible and responsive - 2

h. IV service - 4

i. Unit dose system - 2

j. CPT Heath's leadership - 2

25. Weaknesses:

a. Communication - 1

b. Inability to control workload - 1

c. Lack of knowledge of what goes on on the wards - 1

d. Lack of training for IPB staff - 1

e. Waste from changed orders, IVs, abuse of unit dose carts - 1

f. Providing too much support/supply functions for wards - 1

g. Staffing levels - 3

h. Computer system inefficient - 1

i. Poor follow-up on returned medications in unit dose carts - 3

j. Pharmacists not part of the patient care team - 2

26. Goals/objectives

a. Personal: Reduce waste - 1
Get BS degree - 1
Do a good job - 3
To get out - 1
None - 2

CONTENT ANALYSIS WORKSHEET - IPB Personnel
(continued)

b. IPB: Clinical pharmacy - 1
Complete unit dose, no ward stocks - 2
Accuracy - 4
Timely delivery - 1
Get the job done - 3
Improved work area - 1
Quality assurance - 3
Increased productivity - 2
Reorganize physical layout - 1
Increase contacts on the wards - 2
Bring physicians/nurses into the pharmacy - 2
Make IVs on all three shifts - 1
None - 1

27. Pharmacists involved in day-to-day patient medication decisions

Yes - 8
No - 1
Maybe - 1

28. Pharmacists involved with patient information and education

Yes - 9
No - 1

29. What would you like nurses or physicians to do for you?

a. Send orders in a timely fashion - 5

b. Insure order is sent before calling for medications - 1

c. Stop losing medications/look for medications before calling - 3

d. Write down missing doses - 1

e. Recognize the workload of the IPB - 2

f. Call less frequently - 1

g. Reduce STAT orders - 1

h. Physicians increase communication with IPB - 2

i. Establish a receiving box on every ward for IPB deliveries - 3

j. Follow schedule of pick-up of bulk drug orders - 1

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