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Comparison, Selection, and Implementation of an Improved Ambulatory Health Care Information System in Two St. Louis Community Health Centers

A. J. Henley
Lindenwood College

CULMINATING PROJECT

Comparison, Selection, and Implementation of an Improved Ambulatory Health Care Information System in Two St. Louis Community Health Centers

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A. J. Henley, Student

Health Care Administration

Faculty Sponsor - Wilbur Thomas, Jr.

Faculty Administrator - John McClusky

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CHAPTER I

INTRODUCTION

Purpose of Project

For several years two health centers in St. Louis (St. Louis Comprehensive and Yeatman/Union-Sarah) were dissatisfied with the quality and cost of their data processing service arrangements. Aware that opportunities existed for both improving the timeliness and accuracy of data and for reducing overall processing cost, the centers jointly agreed to study alternative data processing system approaches.

After initial meetings between the project directors and appropriate staff of each of the centers, the following objectives of the study were agreed upon:

1. Assess overall information processing needs and the appropriateness of current data processing expenditures.
2. Document alternative data processing systems and their associated cost for both joint and individual ventures by the centers.
3. Provide guidance in selecting amongst the various alternatives.
4. Develop a five-year plan for implementing data systems which reduce administrative costs and which support the

Centers' goals of improving the volume and quality of patient care delivered.

Background

The primary objective of the Ambulatory Health Care Information System is to supply administrators and medical directors of Ambulatory Health Care facilities with information needed to run their operations effectively and to provide high quality care. Toward this end, the health information system measures key characteristics of the families and patients being served and the services they receive. These measurements, or data, are recorded and processed using an integrated information approach so that a variety of users and functions can be served by just one system.

Problem Statement

Comprehensive neighborhood health centers have generally been established through Public Health Service Grants from the Department of Health, Education and Welfare (DHEW) for the purpose of providing health care to lower-income and inner city populations. These health centers, established in the late 1960's and early 1970's, have passed through an initial developmental phase and have matured and stabilized in terms of services offered, patient volume, and management. In this environment, management is able to more closely scrutinize the operation of the health center to

maximize the quality of health care provided and increase operating efficiencies. In order to achieve these objectives, management needs more accurate information provided on a timely basis to make the necessary decisions.

Electronic data processing has often proved to be a valuable tool for processing large volumes of data quickly and accurately. Because of the large number of patients served and the variety of services provided these patients, health centers generate an enormous amount of data particularly in the areas of billing, accounts receivable, profile of patients, services delivered, medical records, and patient appointments.

The challenge is to provide health center management with the basic data appropriately analyzed and summarized to facilitate decision making. This means, for example, that statistics of the number of patients served and services provided should be summarized and reported. The characteristics of the patients should be analyzed by age, sex, payment status, etc. Revenues earned, billed, and not yet collected should be summarized. Expenses should be accrued and related to patient volume; and finally, management should have the capability of understanding this information.

Management has recognized that the present data collection system provides a great deal of information that is useless for program planning and decision making. All data

processing instruments are undergoing revision in an attempt to collect information in a more usable form. The assumption is that this revision will provide information that can be readily used to further the goals and objectives of the project. Several options are available in the selection of a new Management Information System. These options include the use of:

A. Private service bureaus
B. University computers
C. Independent consultants
D. Mini-computers

The experiences of other health centers will be compared to the experiences of the St. Louis centers and based on the cost and efficiency of the various sytems and the needs that have been identified by management, a system will be selected.

Hypothesis

The general purpose of this paper is to prove that the accuracy and timeliness of data is directly related to better management and decision making. To test this hypothesis I will compare the use of current data over a six-month period in which a new Ambulatory Health Care Information System will be in effect, as compared with our experiences over an 8½-year period in which another system was in use.

Summary of Topics

Chapter II

"Historical Background of Neighborhood Health Centers and Their Need for an Ambulatory Health Care Information System" contains the historical background of neighborhood health centers and describes how they differ from other centers rendering care. Also included in this chapter is a description of the Ambultory Health Care Information System including its functions, components, and uses.

In that fiscal management has become of prime importance both to health center management and to the Federal Government, a section on "Fiscal Management and the Ambulatory Health Care Information System" is included in this chapter. Many of the identified barriers to increasing third party revenues are discussed along with possible ways of correcting some of the problems. This section shows the importance of data collection and processing as it relates to the Ambulatory Health Care Information System.

Chapter III

"Selection and Installation of a New Management Information System" includes a discussion of how the St. Louis centers selected a new Management Information System. Several Alternative Data Processing Systems were considered and the positive and negative aspects of each are discussed.

After reviewing the several alternatives and making a selection, criteria are established to determine the effectiveness of the new system as compared to the former Ambulatory Health Care Information System. A brief discussion of staff training is also included in this chapter.

Chapter IV

"Summary, Conclusions, Implications for Future" contains a discussion of the effectiveness of the new system as compared to the former one. The criteria for measurement established in Chapter III are compared with results produced by the new system and several conclusions are reached. Several failures of the new system are also discussed and uses for the system in the future that were initially unanticipated are also discussed.

CHAPTER II

HISTORICAL BACKGROUND OF NEIGHBORHOOD HEALTH CENTERS AND THEIR NEED FOR AN AMBULATORY HEALTH CARE INFORMATION SYSTEM

This chapter includes a description of the historical development of neighborhood health centers and how they differ from other centers that deliver care to indigent populations.

In that the first Ambulatory Health Care Information System developed by the Department of Health, Education and Welfare was developed in St. Louis, Missouri, at the Yeatman/Union-Sarah Health Centers, it will be included to demonstrate the purposes and functions of the system. Little additional related literature of significance is available. If the expectation of success predicted by the author of this paper proves accurate, the system that will be developed will undoubtedly be adopted in centers throughout the country.

Also included in this chapter will be a section dealing with "Fiscal Management and the Ambulatory Health Care Information System," which has become of vital importance to the survival of neighborhood health centers. The Department of Health, Education, and Welfare no longer provides centers

with adequate funds for total support and each center must generate additional funds from other sources (third party revenue) or cut back in services to clients. Earlier in my studies at Lindenwood 4, I researched the experiences of other centers as well as Yeatman/Union-Sarah in their attempts to generate additional revenue from third party sources; the problems those centers encountered and their direct relations to proper data collection are discussed here.

Historical Background of Neighborhood Health Centers

A community health center can best be described as a place where residents of a particular community receive a variety of ambulatory health services at one location. Centers are located in both urban and rural communities and usually serve communities thought of as medically under-served, low-income, deteriorating. The centers combine medical and social services for a designated population. Through the years, the term "neighborhood health center" has been applied to a variety of health care models: free clinics, family health centers, health networks, and neighborhood health centers. All have certain common elements, but differ in orientation, financing, and scope of services.

A free clinic differs from the other models in terms of staffing, financing, and the level of community identification. These clinics were initiated by community residents

during the 1960's. Often they served "hippie" populations in big cities or near college campuses. The free clinic is usually staffed by volunteer personnel. Patients who go there pay according to their ability and those who cannot pay receive free medical care. The clinic is financed largely from community and private resources, ranging from donations of money to donations of equipment and services. Very often these clinics originate within an ethnic, cultural, or age group and develop a program highly responsive to that group.

The family health center was developed to meet the health care needs of medically underserved rural populations. Currently there are 39 of these centers, serving approximately 35,000 people. They are financed, in part, through the federal government, and they provide a prescribed package of ambulatory health care benefits on a prepaid basis to their enrolled population. The benefit package includes: emergency medical services, physician services, out-patient medical and health services (such as physical therapy, diagnostic laboratory and x-ray services). The Family Health Center also arranges for hospitalization, but the benefit package does not include financial payment to the hospital for in-patient treatment.

The health network is a prepaid (capitation) plan designed for urban areas. It relies on the existing health

resources in the community and attempts to create a "network" out of these resources to serve a particular population. The network utilizes the services of hospitals, outpatient departments, medical groups, free-standing ambulatory health centers, medical foundations, and neighborhood health centers. There currently are ten networks in operation providing services to approximately 25,000 persons. Community health networks are financed, in part, by the federal government and have consumer-provider boards which determine policy.

The largest number of community health centers are neighborhood health centers. These centers usually are located in low-income, urban areas. They currently are serving about 1½ million people. The majority of the patients utilizing the services of a neighborhood health center are children between the ages of 5 and 14, and women of childbearing age (15-44). Approximately 12 percent of the patients are between 45 and 64; 6 percent are 65 and over.

Neighborhood health centers were initiated in 1965 by the Office of Economic Opportunity (OEO) in response to the growing awareness of inadequate medical attention to the poor and its economic and social consequences. The centers are now under the sponsorship of the Department of Health, Education and Welfare. The policies and procedures which govern the centers are established by HEW national

and regional offices, and the governing board of the centers.

The goal of the neighborhood health center is to provide a wide range of family-oriented, ambulatory health care services to the people living in a defined service area. All of the centers offer basic medical and laboratory services; 94 percent offer pharmacy and 90 percent offer x-ray services. Dental services are offered in 99 percent of the centers, and home health services are provided in 83 percent.

The "comprehensiveness" of health services provided by the centers varies according to the individual needs of each community. For example, a center located in an area which is known to have a high risk for lead poisoning may sponsor a screening project and/or an educational program which informs parents and children alike of the symptoms, causes, and effects of lead-based paint poisoning. Other centers may provide screening programs for sickle cell anemia or a drug abuse education program.

The scope of services available depends upon a variety of factors, such as federal funding level, state support, and private or institutional support. This is particularly the case with social and community services, transportation, training and community organization, physical and speech therapy, and optometric services.

The majority of the health center employees (excepting physicians and other licensed occupations) are community

residents who have been trained in on-site education programs. These programs may be conducted in conjunction with a nearby university or medical school, or the training may be conducted in the center itself with the support of another community agency. The training programs were created to relieve the physician from certain "routine" procedures for which he is overtained; to provide community residents with marketable skills; to bridge the gap between patients and professionals by the use of individuals who, it is thought, can respond to the needs of the patients. Although this program has been controversial from its conception, more than 6,000 persons have been trained. There have been heated debates over the issues of licensure and the quality of the training but almost all centers view these programs, and the graduates, very positively.

The trainees fill a variety of positions. The family health worker has met with considerable success in the neighborhood health center. He/she has had an on-the-job training course for a stipulated period (such as 26 weeks) in community relations and certain basic techniques of health care. Their time is usually spent outside of the center visiting assigned families to see that patients follow prescribed methods of health care and that their families understand the treatment and are supportive of the patient. They usually have the responsibility for maintaining a family's

records and charts and, in some centers, act as referral agents for health-related problems. The success of the family health workers comes primarily from their ability to bridge the gap which may exist between the center and the family.

In some centers, family health workers are called outreach workers. In other centers, however, the outreach worker serves a separate public education and public relations function. This person visits families in the area who are not registered at the center, explains the procedures for registering, and discusses the importance of health maintenance. Once the outreach worker interests a family in the center, appointments will be made for registration and an initial assessment. Those centers which do not employ outreach workers or train family health workers usually operate a public education program, often through the public school system or another community agency.

One of the more successful programs for traditional professionals and others has been the training of mid-level practitioners (MLPs). Mid-level practitioners receive advanced training and, depending on state laws, may require a license. They perform a range of services independent of a physician, but usually will refer diagnostic problems and certain treatment procedures to the physician in charge. The MLP Program includes nurse clinicians, personnel trained

under the Medex Physicians Assistants Program, mental health workers, and registered nurses who have had advanced training in psychiatry, pediatrics, gynecology, and public health.

When a new patient arrives at the center in a non-emergency situation, he/she is usually channeled by the receptionist to a clinical nurse and/or a family health worker who takes the patient's history and vital signs. At this initial registration, basic socio-economic data related to general health and family conditions are recorded. An individual and family registration record is prepared and becomes an integral part of the patient's chart. A medical chart is developed and a permanent record number is assigned. The identification number is recorded for those patients who have private health insurance, Medicaid, or Medicare. Patients who appear eligible for Medicaid and/or Medicare benefits are referred to a staff member who assists them in completing the necessary forms and arranges for an interview with the appropriate agency.

If the individual is not eligible for third-party coverage, and is able to pay for the services, he/she is assigned to the appropriate fee category on a sliding-scale basis. For those ineligible and unable to pay, the cost is absorbed usually by the center. At this time an appointment for a health assessment is made.

The day before the scheduled appointment, a family health worker or an outreach worker contacts and confirms the appointment. If transportation is required, the outreach worker will coordinate necessary arrangements. If the patient cancels the appointment, the family health or outreach worker will either telephone or visit the patient to determine the reason.

When a number of centers discovered that patients were canceling appointments for health assessments out of fear of what the examination might involve, a family health worker was sent to the patient's home to explain the examination in detail. If the family health worker determines that the patient understands Spanish more easily than English, a bilingual health worker is assigned to the case.

The initial health assessment includes a complete medical history and physical, a battery of laboratory tests, and when necessary, referral to the appropriate special or social service worker. For women, the initial health assessment usually includes a pelvic exam, a Papanicolaou smear, and, when requested, family planning assistance.

If the center operates on a "team" system, patients are assigned to a team after the initial health assessment. This team usually consists of a physician, a public health nurse, a mid-level practitioner, and a family health worker. The team will review the patient's case and the medical

history of the entire family and decide the proper course of treatment. If hospitalization is indicated, the family health or outreach worker will make the necessary arrangements. If the center does not have an arrangement with a nearby hospital, the patient will be admitted to a hospital where the attending center physician has privileges or a staff appointment.

Arrangements for hospitalizing patients vary from center to center and have caused problems for some neighborhood health centers. In cases where there is no hospital affiliation, patients may feel uneasy about using the center because there is no assurance that they will be admitted. Moreover, some physicians have had difficulty obtaining hospital admitting privileges.

Ideally, the primary physician should be able to "follow" a patient through the course of hospitalization and monitor treatment for future reference. Too often, however, this is the exception in all health care systems, including the neighborhood health centers. For example, where hospital back-up agreements have not been negotiated, centers have difficulty receiving medical charts on patients who have been hospitalized and then return to the center for follow-up treatment. The reverse also may be true, when a patient enters a hospital, but does not inform the hospital of previous treatment in the center. The attending physician has

no way of knowing what procedures have been described and must depend completely on the patient for information. No satisfactory arrangement has been made to date to obtain these charts.

Most centers are open from nine to five, Monday through Friday, with provisions for emergency services after hours and on weekends. Centers also are open in the evening, one or two days a week, enabling patients to come in after work. Emergency services are provided either at the backup hospital or by physicians in the centers. All patients registered at the center are given an emergency telephone number. The centers have an administrator who is responsible for the day-to-day management of the center and for executing the policy set by the board of directors. Duties include hiring personnel, carrying out programs, and preparing the budget and grant applications. The administrator may be a physician, but more often he is trained in health services administration. The medical director of the center is responsible for all medical treatment and procedures offered in the center. The centers also employ the usual range of secretaries, accountants, and billing clerks.

Prior to the passage of P.L. 94-63, The Health Revenue Sharing Act, in 1975, HEW program guidelines required that each center have a board of directors. If the board of the center was designated as the recipient of the grant

monies, it was called the "governing board." Governing boards could have no more than 25 members, one-third of whom were individuals served by the center; another one-third, individuals who derived more than 10 percent of their annual income from the health industry; and the remaining third, representatives of the community served. Governing boards were exempted from these requirements concerning their composition if the center established an Advisory Council composed of no more than 25 persons, all of whom had to be eligible for services provided by the center.

P.L. 94-63 requires each center to have a governing board, the majority of whose members must be individuals who are serviced by the center and who "as a group represent the individuals being served by the center." The law requires that the board meet at least once a month, establish general policies for the center (including the selection of services to be provided by the center and a schedule of hours during which services will be provided), approve the center's annual budget, and approve the selection of a director for the center. There is no provision for advisory councils in this new legislation.

The previous authorization for the direct federal funding of the centers was found in Section 211-2 of the Economic Opportunity Act, Section 314(e) of the Comprehensive Health Planning and Public Health Services Act of 1966;

it is now found in Section 501 of P.L. 94-63, passed on June 30, 1975.

Additional government sources of funding for the centers include reimbursements for medical services under the provisions of the Medicare and Medicaid laws. There are also a variety of grants from the federal, state, and city governments available to the centers.

Centers submit applications for project grants funds on an annual basis to the regional HEW office, which has the authority to approve the grant based on the amount of money allocated to the region and upon the center's ability to meet requirements set forth in regional policies and other requirements established by HEW.

Prior to submitting the grant application to the regional office, the center must have the concurrence of the governing board as well as the area-wide comprehensive health planning agency (and will be required to have the approval of the newly organizing health systems agencies which will replace comprehensive health planning agencies). The application must also be consistent with state health program planning. The Secretary of HEW may waive any or all requirements necessary to receive a grant it if is determined that the applicant has made every effort to comply with the requirements and the center serves a critical health need.

The Ambulatory Health Care Information System

During the first five years of existence in the life of the neighborhood health centers, the primary focus of the centers was to deliver services to needy residents without a great deal of concern for cost. Centers provided services to patients regardless of cost and if funds were short they simply submitted supplemental grant applications and received additional funds. Most of the freeness of federal funds quickly dissolved when the Ford administration assumed control of the executive branch of the federal government in 1969. In that several years were necessary for the new administration's philosophies to become evident, the full effects were not felt until 1973 when all centers received a 17% budget reduction and were mandated to reduce administrative overhead and increase overall productivity.

Not surprisingly, the major environmental influences on the centers are those generated out of the centers' relationship with DHEW. The nature of this relationship is pervasive and affects all other external influences on the centers, as well as their internal functioning. Particularly salient in this respect are the increasing budgetary constraints on the centers.

Budgetary reductions not only had a detrimental effect on staff morale but prevented the centers from carrying out their programs that provided for staff training activities and resident training programs.

These budgetary restraints made the search for additional and alternative sources of financial and other resources mandatory for the centers. Medicare and Medicaid reimbursements represent the most prominent of these, but certainly good financial and programmatic management became absolutely necessary because if budgetary limits were exceeded there were no longer any sources to which the centers could turn for additional funds.

Although the centers had an existing Ambulatory Health Care Information System, it was not designed to provide accurate and timely information to management. The primary purpose of the system was to provide information to DHEW. This system is discussed in detail in the following section of this chapter along with a discussion of fiscal management. The existing system had the capabilities of performing many needed functions, but the modules for providing the information were newly developed even though the need was foreseen when the system was developed at the Yeatman Center in 1970.

The primary objective of the Ambulatory Health Care Information System is to supply administrators and medical directors of Ambulatory Health Care facilities with information needed to run their operations effectively and to provide high quality care. Toward this end, the health information system measures key characteristics of the families

and patients being served and the services they receive. These measurements, or data, are recorded and processed using an integrated information approach so that a variety of users and functions can be served by just one system. The system is described here in terms of its users, installation, data collection forms, computer processing components, and outputs.

The system is a fully operational one designed for systematically collecting data about patients and services of a comprehensive health center, and consists of data collection forms and a training program to teach center personnel how to use the system (See Appendix A).

The system is based on a system analysis of patient flows and program goals from a number of neighborhood health centers; it is not based on either inpatient procedures of health care delivery or on traditional outpatient department procedures. It is designed to assist individual centers to improve their ability to deliver ambulatory care on a community basis and also to gather comparable (standardized) data from centers in the Public Health Services Program in order to:

1. Centrally monitor the program;
2. Investigate different modes of outpatient health care delivery; and

3. Analyze the ability of these centers to deliver comprehensive, continuous, family-oriented care.

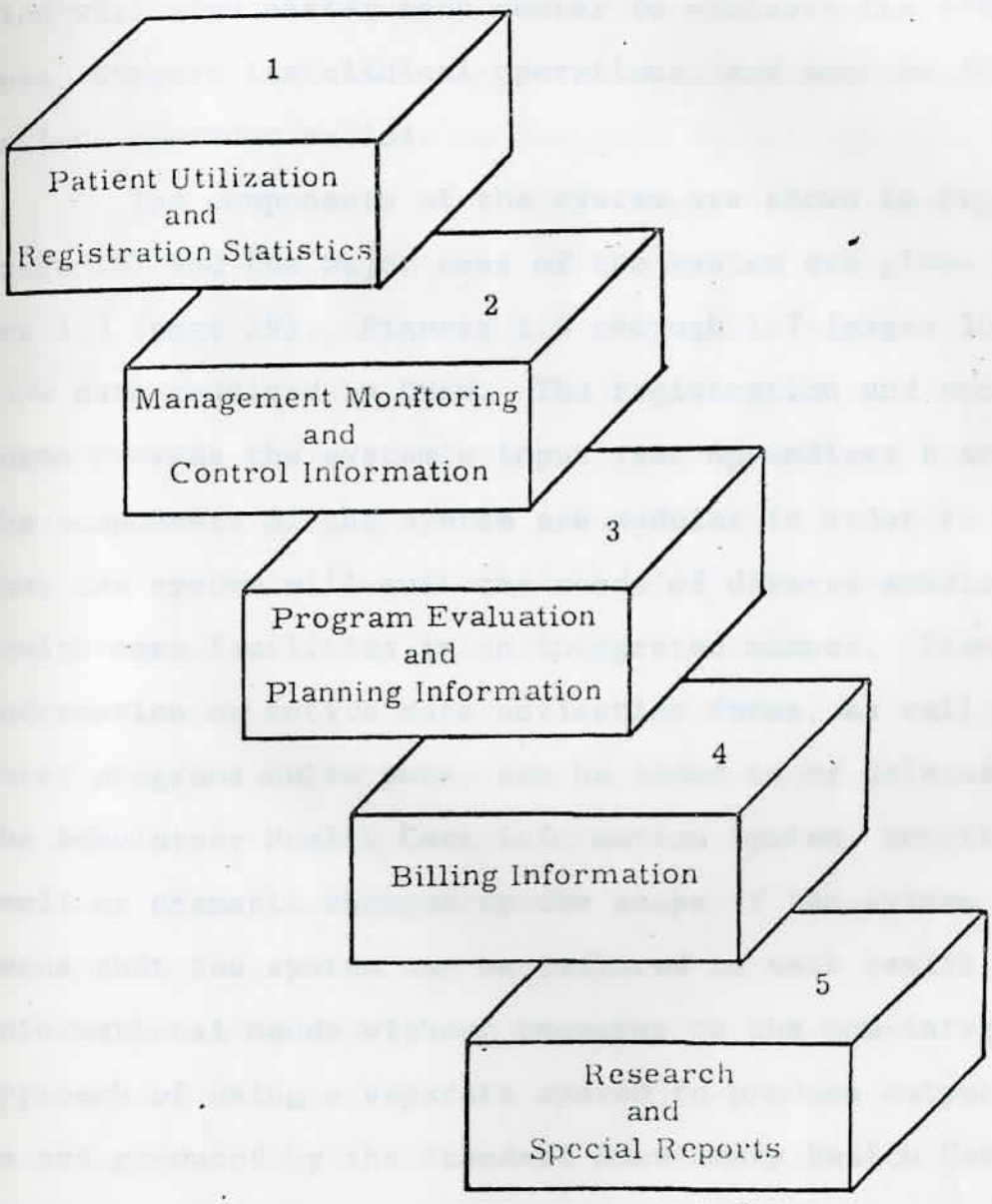
Figure 1.1 shows the five functions of the Ambulatory Health Care Information System. They include:

1. Patient utilization and registration statistics
2. Management monitoring and control information
3. Program evaluation and planning information
4. Billing information
5. Research and special reports

These serve the needs of the health programs themselves while simultaneously providing the information needed by the Public Health Service (PHS) to effectively monitor and evaluate these programs. For example, information is provided about the operation and effectiveness of the center. This gives the PHS necessary monitoring information and provides center administration with the facts necessary for making realistic decisions concerning the center's operations and for evaluating key aspects of the center's progress and impact. Furthermore, the lists of registered patients, the billing information and special reports, which are operationally useful and support the center's clinical services, are produced by the information system as by-products of data which had to be collected in order to produce the monitoring and evaluation information.

FIGURE 1.1

THE FIVE FUNCTIONS OF THE
AMBULATORY HEALTH CARE INFORMATION SYSTEM



All centers are required to make periodic reports of their operations to their sponsoring agencies. The information provided by the Ambulatory Health Care Information System will help meet these requirements. The same information will also assist each center to evaluate its effectiveness, support its clinical operations, and monitor its patient-provider ratios.

The components of the system are shown in Figure 1.2 (page 28) and the major uses of the system are given in Figure 1.3 (page 29). Figures 1.4 through 1.7 (pages 30-33) show data required by DHEW. The registration and encounter forms provide the system's input (see Appendices B and C). The components of the system are modular in order to insure that the system will suit the needs of diverse ambulatory health care facilities in an integrated manner. Items of information or entire data collection forms, as well as computer programs and outputs, can be added to or deleted from the Ambulatory Health Care Information System, resulting in small or dramatic changes in the scope of the system. This means that the system can be tailored to each health facility's informational needs without recourse to the non-integrated approach of using a separate system to produce output which is not produced by the Standard Ambulatory Health Care Information System. For example, additional encounter, order,

and appointment forms are available, if needed for incorporation into the system to meet a center's requirements. It should be noted that these additions require additional computer program development since they are tailored to specific center needs not met by the standard system.

Because of these types of needs the system at Yeatman/Union-Sarah will be designed to not only meet DHEW requirements for today, but will also consider needs and requirements for the future. For example, DHEW does not presently require quarterly reports on the number of hypertensive patients whose condition is being controlled, but since reports are now required for immunizations of children, it is logical to assume that this area will be the next thrust of DHEW in that a national effort is underway to reduce the number of citizens in the U.S.A. who suffer from hypertension and are unaware that they have the condition or do not control it. Based on this assumption the new system will collect information on each patient's blood pressure and will be able to produce exception reports on uncontrolled cases.

One of the primary objectives of the new Management Information System (MIS) will be to supply management with more useful data in the area of fiscal management. In order to develop a better fiscal management system it was necessary to explore not only those areas where third party

reimbursements could be increased, it was also necessary to investigate all barriers that prevented the centers from recovering these funds. A detailed discussion of these barriers begins on page 34 after the presentation of Figures 1.2 through 1.7.

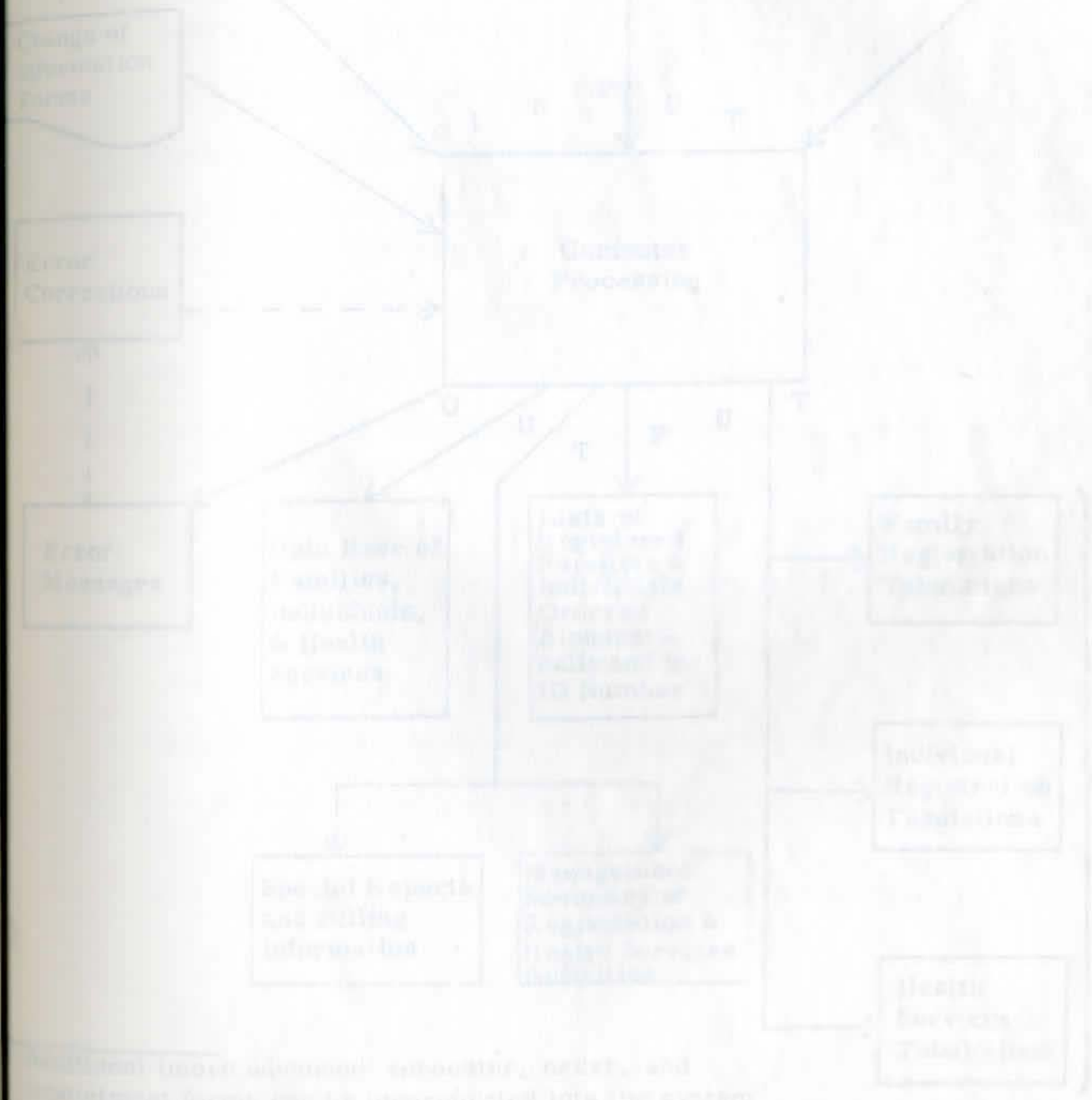
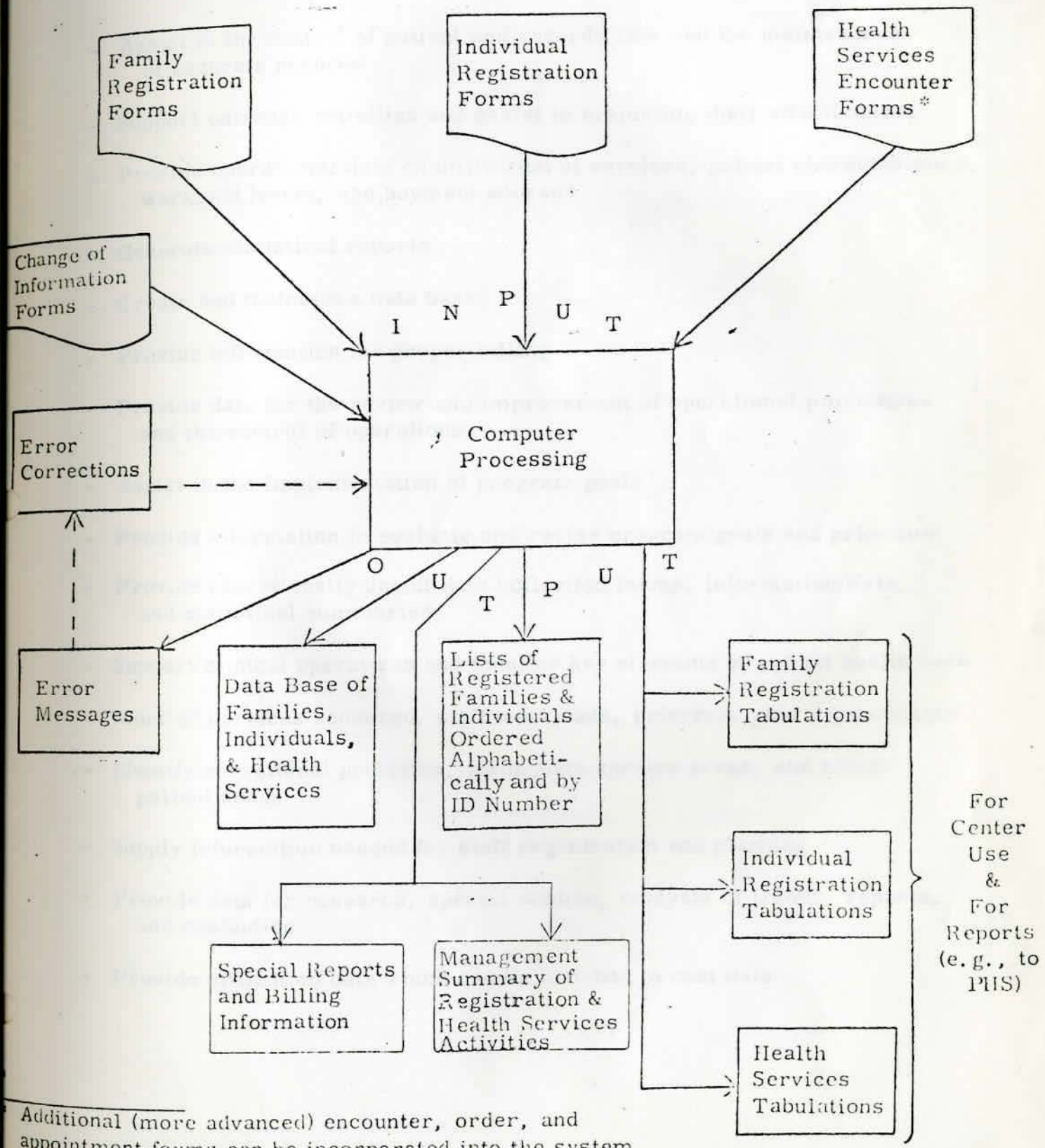


FIGURE 1.2

COMPONENTS OF THE

AMBULATORY HEALTH CARE INFORMATION SYSTEM



Additional (more advanced) encounter, order, and appointment forms can be incorporated into the system on a modular basis to suit local program needs.

FIGURE 1.3

MAJOR USES OF THE

AMBULATORY HEALTH CARE INFORMATION SYSTEM

- Assist in the control of patient and records flow and the maintenance of accurate records
- Support outreach activities and assist in evaluating their effectiveness
- Provide operational data on utilization of services, patient characteristics, workload levels, and payment sources
- Generate statistical reports
- Create and maintain a data base
- Provide information for proper billing
- Provide data for the review and improvement of operational procedures and the control of operations
- Assist in the implementation of program goals
- Provide information to evaluate and revise program goals and priorities
- Provide operationally useful data collection forms, information lists, and statistical summaries
- Support clinical operations and monitor key elements of patient health care
- Monitor services rendered, staff workloads, referrals, and appointments
- Identify operational problems, inadequate service areas, and unmet patient needs
- Supply information needed for staff organization and planning
- Provide data for research, special studies, analysis of trends, reports, and evaluation
- Provide utilization data which can be matched to cost data

FIGURE 1.4

MANAGEMENT SUMMARY OUTPUT OF THE
AMBULATORY HEALTH CARE INFORMATION SYSTEM

- Summary of Health Services Activities
  - All Encounters During the Reporting Period by Type of Provider and Site of Encounter
  - Number of Missed Appointments
  - Frequency of Encounters During Reporting Period for Each Individual Provider, by whether he is on staff, site of encounter, and type of encounter
  - Summary of Records in Current Portion of the Health Services Data Base
- Summary of Registration Activities
  - All Registered Families by Length of Time Registered, Family Size, and Percent of Family Members also Registered
  - Summary of Family Registration Records in Data Base by Their Activity Status as of the End of the Reporting Period
  - Summary of Patient Registration Records in Data Base by Their Activity Status as of the End of the Reporting Period
- Summary of Billing Information: All Encounters During the Reporting Period by Type of Provider and Primary Payment Source.

FIGURE 1.5

HEALTH SERVICES TABULATIONS FROM THE AMBULATORY HEALTH CARE INFORMATION SYSTEM

Table 1	Encounters During the Reporting Period by Provider, Site of Encounter, and Appointment Status
Table 2	Encounters During the Reporting Period by Type of Encounter, Site of Encounter, and Appointment Status
Table 3	Encounters During the Reporting Period for Medical and Related Health Care by Provider and Type of Encounter
Table 4	Dental Care Provided During the Reporting Period by Provider, Type of Encounter, and Selected Dental Services
Table 5	Selected Items of Service Provided During the Reporting Period
Table 6	All Registered Patients by Age, Sex, and Frequencies of Encounters with Physicians, Dentists, and Other Providers During the Reporting Period
Table 7	At the Center - Frequency of Patient Visits and Resulting Number of Encounters During the Reporting Period
Table 8	At the Center - All Registered Patients by Age and Sex and Frequency of Visits to the Center During the Reporting Period
Table 9	External Referrals Requested During the Reporting Period by Reason and Type of Provider Who Made Request
Table 10	Home Encounters During the Reporting Period by Type of Encounter and Provider

FIGURE 1.6

FAMILY REGISTRATION TABULATIONS FROM THE AMBULATORY HEALTH CARE INFORMATION SYSTEM

Table 1	All Registered Families by Length of Time Registered, Sex of Head of Family, Family Size, and Percent of Individual Family Members Registered
Table 2	Newly Registered Families by Income, Welfare Status, Family Size, and Sex of Family Head
Table 3	Newly Registered Families by Family Size, Welfare Status, and Whether Above or Below Income Guidelines
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Table 5	Number of Newly Registered Families by Age and Sex of Head of Family and Family Size
Table 6	Newly Registered Families by Number of Non-family Members in Household
Table 7	Newly Registered Families by Length of Residence in Neighborhood and at Present Address
Table 8	Newly Registered Families with Special Requirements
Table 9	Accessibility of Center to Newly Registered Families
Table 10	Newly Registered Families by Primary Referral Source

FIGURE 1.7

INDIVIDUAL REGISTRATION TABULATIONS FROM THE AMBULATORY HEALTH CARE INFORMATION SYSTEM

Table 1	All Registered Patients by When They Were Registered and by Their Age, Sex, and Race
Table 2	All Registered Heads of Families by When They Were Registered and by Their Age, Sex, and Race
Table 3	All Registered Patients by Primary Payment Status
Table 4	All Registered Patients by Secondary Payment Status
Table 5	Newly Registered Patients by Age, Sex, Frequency of Medical Encounters During Past Year, and Time Since Last Encounter
Table 6	Employment Status of Newly Registered Patients by Age and Sex
Table 7	Employment Status of Newly Registered Heads of Families by Age and Sex
Table 8	Newly Registered Patients by Educational Achievement (Excluding Children Too Young for School)
Table 9	Newly Registered Heads of Families by Educational Achievement
Table 10	Marital Status of Newly Registered Patients by Sex and Relationship to Head of Family
Table 11	Newly Registered Patients by Ethnic Group
Table 12	Newly Registered Heads of Families by Ethnic Group

Fiscal Management and the Ambulatory Health Care Information System

This section deals with fiscal management practices on the part of health center personnel as they relate to increasing non-grant revenue sources. It is the result of my exploring and investigating the needs of Yeatman/Union-Sarah Health Centers as they compare with other centers throughout the country. For this purpose we define fiscal management practices as those procedures that project management should follow in order to maximize third-party reimbursements and non-grant funds for their health center with the smallest expenditure of time and money.

In the past, objectives such as this and even the use of such terms as fiscal management have met with resistance by some health center staff. They ask, "Why should we have to worry about this?" and respond with, "Our grants provided all the money we need," "This is a health center for poor people, not a business," "We're medical care providers, not accountants," "We're too busy helping people to fool with all this," and "Don't turn us into another establishment institution." In order to understand why health center management must be concerned with good fiscal management, let us look at the historical perspective of the problems from the standpoint of the neighborhood health centers,

which constitute a great many of the health centers about which I am writing and are typical of the nature of all projects.

The overall goal of increasing third-party reimbursement is of particular importance and urgency to health centers in light of the new general policy decision of DHEW to attempt to decrease health center reliance on direct grants and increase support through the various third-party sources, particularly Medicare and Medicaid. This policy started in 1970 when the Nixon administration became effective in DHEW. It has long been recognized that such third-party reimbursement is the source from which the bulk of the funds required for fiscal self-sufficiency must come. Inasmuch as most of the projects are located so as to serve the poorest segment of the population, and have been characterized as having the intent of providing medical care to the poor, it seems certain that payments from the patients themselves will never be able to generate enough cash to offset grant losses, even if extensive marketing campaigns were initiated to attract self-pay patients. Therefore, the maximizing of third-party reimbursements has become of utmost concern to both the centers themselves and the federal government.

The neighborhood health center (NHC) is the principal type of comprehensive health provider under the jurisdiction

of the Bureau of Community Health Services (BCHS), Department of Health, Education, and Welfare, many of them having been transferred to the agency from their former location in the Office of Economic Opportunity. Their problems can be taken as typical of all BCHS projects. As early as 1968, DHEW saw the need for these centers to eventually move away from complete dependence on direct grants, and at that time issued a statement stipulating that program support for such centers would be limited to five more years. Furthermore, it was expected that grantees would each year show a higher portion of non-grant to grant revenue in order to ensure continued funding.

As the end of the five-year limitation began nearing for most neighborhood health centers, it became apparent that few were even started on the way toward improved fiscal self-sufficiency, and in late 1972 NHCs as a group were exempted from the five-year limitation. This did not end the drive toward that goal, however, and BCHS conducted seminars and work groups, set up policy committees, and provided funds for technical assistance, all of which were concerned with maximizing third-party reimbursements. Finally, in mid-1973, BCHS awarded contracts in all but one Public Health Service Region to teams of outside consultants to provide such technical assistance to NHCs on an individual basis, working with them toward the goal of improved self-sufficiency.

In May of 1973, the DHEW published proposed regulations concerning funding policies for health service delivery projects supported with federal monies. This publication created a considerable amount of misunderstanding and concern as many persons felt: (1) that the proposed changes would deny needed health services to the poor by requiring them to pay for services provided, and (2) that health center funds would be terminated because of an inability to develop sufficient funding from other sources.

The confusion resulting from this document was later resolved with the subsequent development and publication of formal rules and regulations of the Public Health Service for health services funding in the January 9, 1974, edition of the Federal Register. These rules and regulations explicitly require each health center to establish a plan to: (1) initiate sound fiscal management procedures so that it can recover, to the maximum extent feasible, third-party revenues to which it is entitled as a result of services provided; (2) garner all other available federal, state, local, and private funds; and (3) charge beneficiaries according to their ability to pay for services provided, without creating a barrier to those services.

Some centers have experienced difficulty attracting and/or developing the competence required to develop and maintain adequate policies, procedures, and business

practices necessary to obtain a sufficient and timely flow of reimbursables from third-party payors and thus fulfill the letter and intent of these federal rules and regulations. Now that neighborhood health centers have a federally-imposed mandate stipulating that progress toward reaching acceptable levels of non-grant revenues will be a part of each health center's evaluation, the need for concentrated effort in this area is even more acute. In order for a center to receive reimbursements for services provided to clients, it must do more than provide services. Accurate data must be obtained from patients when they initially enroll at the center and this information must be constantly updated as changes occur in the patients' status with various agencies that have the responsibility of reimbursing for services received by their enrollees.

These problem areas are reviewed in this chapter and are applicable to health centers in general. The data presented represents earlier research I conducted during my studies at Lindenwood 4, as well as some information gathered by DHEW by way of technical assistance contracts to various firms.

Neighborhood health centers are also now exploring marketing of their services as a way of increasing third party revenues. This program is still in its infancy at

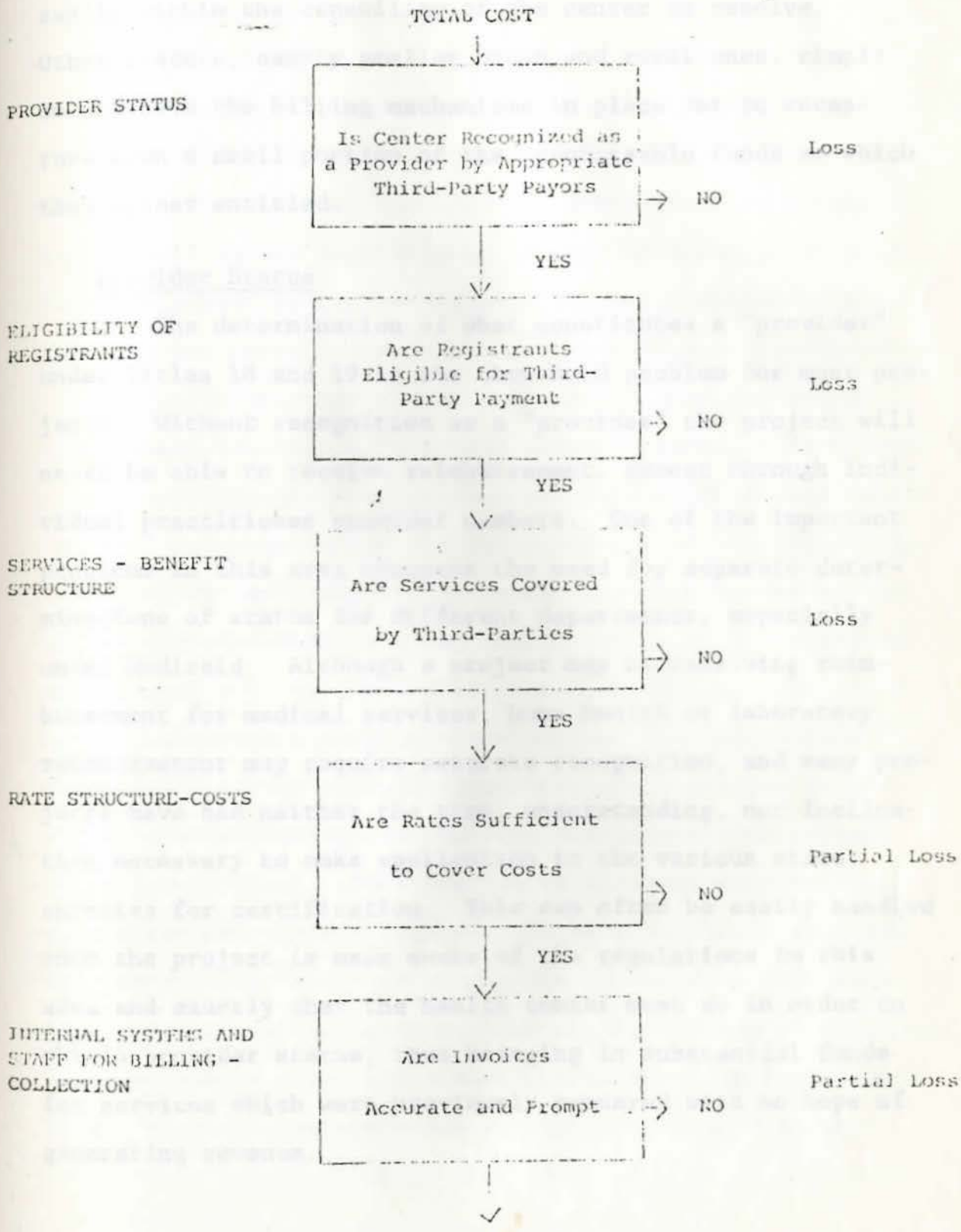
Yeatman/Union-Sarah, but a limited discussion of the problems identified and possible solutions will be presented in this chapter.

In general, five main obstacles in the path of a project maximizing non-grant funds have been identified. These are in the areas of provider status, eligibility of registrants, identification of reimbursable service, negotiation of adequate reimbursement rates, and billing and reimbursement procedures. These problem areas translate into lost revenue in the way that Table I indicates, showing the avenues of lost revenue from the time a target population is identified to the time actual cash collections are received.

These problems, of course, exist in different degrees of severity in different projects. Many health centers have difficulty in understanding the maze of regulations surrounding reimbursement under Titles 18 and 19. Further, the regulations, specifically those governing state Medicaid reimbursement, change frequently and in many instances are not tailored to provide for reimbursement to a health center. As a result, even those centers that have in place efficient, functioning billing systems as well as trained personnel to implement them may often encounter cases for which no claim is filed. Also, many claims may be denied payment from third-party sources for reasons

TABLE I

Potential Sources of Revenue Loss



easily within the capability of the center to resolve. Other centers, namely smaller urban and rural ones, simply do not have the billing mechanisms in place yet to recapture even a small portion of the reimbursable funds to which they appear entitled.

Provider Status

The determination of what constitutes a "provider" under Titles 18 and 19 is the threshold problem for most projects. Without recognition as a "provider" the project will never be able to receive reimbursement, except through individual practitioner provider numbers. One of the important problems in this area concerns the need for separate determinations of status for different departments, especially under Medicaid. Although a project may be receiving reimbursement for medical services, home health or laboratory reimbursement may require separate recognition, and many projects have had neither the time, understanding, nor inclination necessary to make application to the various state agencies for certification. This can often be easily handled once the project is made aware of the regulations in this area and exactly what the health center must do in order to obtain provider status, thus bringing in substantial funds for services which were previously rendered with no hope of generating revenue.

Eligibility of Registrants

Determination of eligibility of recipients of service for third-party payment is perhaps the most difficult problem to deal with, inasmuch as it introduces a human element into the picture. Each of the other areas is involved either with agency regulations, or cost accounting, or project management policy, whereas in the verification of eligibility the health center must interact with its registrants.

The history of the health centers does not set a stage conducive to the role that must be played. "Free care" or non-traditional care has been the watchword of many health centers, and even though the determination of eligibility to bill a third-party payor imposes no financial burden on the registrants, it does cast the health center in a traditional, stereotyped role concerning patient information.

Although a thorough knowledge of the appropriate regulations is the initial requisite, the interview techniques and methodology for keeping the information current is much more vital. Solicitation of personal information, especially in regard to income, can be a difficult task for the interviewer, which is compounded by the fact that many interviewers are community residents. Validation of addresses, incomes, family size, and other such personal data is a difficult task and not one which can be approached without

impinging on the privacy of the patient; but this information is of the utmost importance to the health center.

There are four overall goals that the registration process is expected to accomplish for the health center. These are to determine the identification of the individual or family, their eligibility for services at the center, their potential third-party payment status, and finally, to obtain information to provide a data base for statistical studies by the project and by HEW regarding service utilization, costs, demographics, etc.

Some health centers also take this opportunity to determine medical and social problems which may be affecting the registrant, to help them obtain third-party eligibility, and even to register them to vote. From all of this, it is easy to see that the process of registering a patient and/or his family is a critical function in the efficient operation of a center. The registration interview is generally the initial contact between the center and the patient. It serves a public relations function and is important in creating a favorable first impression. If the registration function is properly performed the patient will respect the center and its staff and is likely to be cooperative in providing the necessary information and documentation.

From the center's point of view, the registration interview is the focal point for the generation of internal

source documents such as medical records, household files, patient number index, etc. In addition, it provides the primary input in the development of a data base to survey such demographic areas as socio-economic status, cultural and ethnic background, target population penetration, etc.

During the registration process the health center determines the patient's eligibility for service and identifies his source of payment for services, which is essential for accurate and complete billing collection. The center should also validate data on income and eligibility for third-party reimbursement. With the pressure to increase third-party and private pay collections, this data helps the center to advise the patient regarding his eligibility for other programs (Medicaid, Medicare, Champus, local welfare) by referring him to an appropriate staff member, e.g., social worker.

It is during the registration process that the health center determines the method by which it will recover the costs of any services provided to registrants. The reimbursement can come from several possible sources:

Medicaid	Patient Payment
Medicare	Private Insurance
Champus	Workmen's Compensation
Local Welfare	Title IV-A, etc.

The specific techniques for gathering the required information consist of filling out a form during a registration interview, usually conducted by a center registrar. Normally the initial registration consists of a registrar filling out two types of forms--a family registration form and an individual registration form.

The family registration form consists of general information about the family including such items as head of family, address, tenancy status, family members, family income, etc. The individual registration form covers specific information regarding the individual registrant including sex, birthdate, marital status, education, occupation, employer, etc.

Filling out the forms of the registration process is basically a simple task with proper instruction and guidelines available to registrars. In order to maintain the credibility of the center with its registrants, it is absolutely necessary that the center do everything it can to validate the information obtained in the registration process. This section discusses the problems and techniques of data validation.

1. Problems with Data Validation

   Many registrars have difficulty in obtaining the cooperation of patients in the registration procedure and especially in the validation of critical information because:

a. The registrant resents having to give a great deal of information about himself and his family relating to income, living conditions, employment, etc.

b. The patient finds the registration process long and tedious, requiring numerous forms, documents, and signatures; and in his desire to terminate the interview he may provide inaccurate data. The general discomfort of the setting may prevent good data collection.

c. The registrant may feel that giving correct information is not in his best interest, e.g., if he states his true income he may lose his welfare status or increase the amount he must pay for service.

d. Many registrants have had interviews of this nature at other agencies and if these have been bad experiences, the patient is cautious and uncooperative from the start.

Despite these problems, it is essential that registrars not only obtain all the information required but also validate five key fields that are especially critical for billing and reimbursement. The following is a general discussion of the various techniques that can be used. The specific methods for validating data to be used at the center will depend on policy decisions made by center management.

2. Techniques of Validation

a. Name - If the registrant should succeed in registering under a false name, it would interfere with continuity of medical care and make billing impossible. Methods for validating a registrant's name include:

1) Any two pieces of standard identification such as driver's license, social security card, charge accounts, welfare cards, employee identification cards, and/or draft card.

2) Recently postmarked mail addressed to the registrant that includes at least his last name and first initial.

3) Prior drug prescription.

4) Birth certificate.

5) Personal verification by other center staff members.

6) Marriage license.

b. Address - This piece of information needs to be validated because of the significant role it plays in the billing mechanism. It is also critical in locating a registrant if he should need to be informed of results of various tests and examinations performed by the center. Methods of validating a registrant's address include:

1) Any two pieces of standard identification.

2) Recently postmarked mail.

3) Prior drug prescription.

4) Phone book.

5) Personal verification by other center members.

c. Date of birth - This information is important as a check of the registrant's eligibility for third-party payment sources. Several methods of validating a patient's date of birth include:

1) Driver's license.

2) Birth certificate.

3) Draft card.

d. Third-party insurance - If the registrant is eligible for some form of third-party reimbursement, he will have been issued a current identification card that shows third-party eligibility.

1) Medicare - validation card issued by Social Security Administration.

2) Medicaid - validation card (current) issued by the administrative agency.

3) Private insurance.

a) Blue Cross/Blue Shield - card issued by the organization.

b) Other carriers - card issued by that organization.

c) Telephone call to employer and/or union or a questionnaire to employer and/or union which includes patient's signature for approval.

(The center must be sure to get policy name and number for billing purposes.)

e. Income - Patient and family income determination is of considerable importance for the center's ability to define the patient's payment responsibility. Various methods of validation include:

1) External sources - if patient is employed.

a) An employee income profile of the area by job title/employer, or by job title without specific employers. The profile basically lists common jobs (carpenter, janitor, clerk, etc.) and their average weekly or monthly income in the health center's target area. There are several potential sources of obtaining such data:

U.S. Department of Labor - Area Wage Survey

State and/or local employment agencies

Local personnel agencies or local newspaper classified section

In-house personnel department data

b) Pay check stub.

c) Form letter and income questionnaire sent employer--the patient's approval must be received prior to sending such a questionnaire.

d) Check previous provider or hospital by phone or questionnaire for income information.

2) Internal inconsistencies - The information the patient provides during the registration interview may be inconsistent. The registrar should note:

a) Income data in relation to size, location, and tenancy status of residence--the center might develop a very simple profile of local rents and average standard of living.

b) Patient's physical appearance, especially dress in relation to income.

3) Factors affecting validation - There are two elements that determine the ability of a center to obtain accurate information and validate it with the appropriate documentation. These are (a) the policies and procedures of the center, and (b) the skill of the registrar.

a) The policies and procedures for validation - a health center may consider establishing one or more of the following policies:

(1) Place the burden of providing valid data on the patient.

If the patient does not provide complete and accurate information by the second visit to the center he is not given any service until such information is received (except in emergencies).

If the patient admits to third-party coverage but has not provided adequate proof (e.g., insurance card, current welfare card), he is charged personally for all services he receives until he submits acceptable proof of third-party coverage.

(2) Insist on, or at least encourage, registration by appointment. When a new patient calls the health center for information on how, when, where to register, the receptionist should obtain the person's name and address and schedule an interview in eight to ten days. The receptionist should then send the patient a "pre-registration letter" requesting the patient to bring pertinent documents to the interview. In case of emergency,

if the patient calls the center and insists on immediate registration, the receptionist should inform him about the necessary documents on the phone. Management of the center must consider the various alternative methods of validation and determine which policies and procedures are most appropriate. Once this is done, management must make its position very clear to the health center staff, especially the registrars and receptionists, and insist that center staff follow such procedures consistently. It is not the strictness of any particular validation policy that irks most patients but rather the manner with which these policies are imposed.

b) Skill of registrar - The other element of validating data without offending the patient is the skill of the registrar in obtaining sensitive information and validating it. In general, if the policies for validating registration data are clearly explained to a registrant and he is convinced that they are nondiscriminatory (i.e., applicable to

everyone) the registrant will cooperate. A good registrar will always be certain to stress two major points in explaining validation policies:

(1) Stress to the registrant that ALL of the information the registrant gives is completely confidential.

(2) Make the registrant aware that if he gives information he will be helping the center provide him with the best service.

In summary, the best way a center can obtain and validate patient identification information is to develop specific policies and procedures and for registrars to explain these policies to patients and apply them with consistency.

Coverage of Services

While this area is closely linked to the determination of provider status, due to the complexity of the regulations there may be variance even within a group of certified providers as to what services or benefits are reimbursable. Regulations concerning services can be viewed on a lineal scale, ranging from absolute non-coverage of some services such as visits to a nurse to total coverage of other services such as a visit with a doctor.

Services Not Covered----------Services Covered

It is the mid-range of the scale that becomes critical to the health center, where some procedures will be reimbursable only if documented and processed properly. Determinants of coverage within this area include:

1. Prior Authorization
2. Circumstances
3. Definition of Service
4. Prior Condition, etc.

Oftentimes, claims are denied for reimbursement simply because of a faulty diagnosis, whereas resubmitting the claim with the proper data could lead to approval by the third-party agency.

It is generally the case that most health centers provide services that no third-party agency will pay for, despite recognition as a provider. These might include such things as alcoholism treatment, family planning, social services, etc. In these cases, usually there is nothing that the health center can do other than evaluate their program and determine the benefits provided to the people as compared to the cost of the services, and make a management decision as to whether to continue or drop that service.

Assuming the services offered, even though not reimbursed by third-party agencies, are required by the target population, and the health center desires to continue with

them, it is up to health center management to determine the cost of providing such services and estimate in advance the sources and amount of funds required from other than third-party sources. The conditions of various grants under which a health center operates may also dictate that the services be offered.

Rate Structure - Costs

The fourth area of concern has to do with the rate structure approved for reimbursement and the relationship of this to the actual cost of providing the services. Implicit in this is the need for the health center to know precisely how much each element of service costs.

If the health center has good data on its costs and encounters for each service area, then it is in a strong position to negotiate for increases in rates for any services that are currently being reimbursed at a rate lower than the actual cost. This requires a good encounter form and an accounting system for compiling costs and frequencies of encounters by service element. It also, of course, implies a reimbursement arrangement whereby the health center can be reimbursed on the basis of its actual cost.

The actual development and negotiation of rates necessitates a state-by-state treatment. For Medicaid, some states reimburse health centers based on the actual cost of

providing the services. Others use an arbitrary determination based upon prevailing area costs or changes. Still others negotiate rates with each center on an individual basis. Inherent in any of these schemes is the necessity for the health center to be able to accurately determine just what its actual costs of providing services are. For example, the direct reimbursement scheme for Medicare is based upon cost, yet many health centers are currently being reimbursed through fiscal intermediaries at rates much lower than their costs due to their inability to determine an auditable cost. This is partially due to insufficient data gathering, a lack of skilled personnel, or management decisions. Allocations of indirect cost can play a critical role in rate determination. Different methods such as single step down, double apportionment, and simultaneous equation can lead to varied outcomes. In addition, the ability of a health center to minimize the impact of an unallowable cost center can be critical.

Once a cost is determined, there are a number of techniques that might be used in negotiations with third-party payors:

a. Incentive reimbursement

b. Packaging of benefits within a visit

c. Capitation

If negotiation leads to a reimbursement rate that falls short of cost then the ability of the health center to become truly fiscally independent is severely hindered, and an effort to reduce costs through the proper utilization of financial management techniques becomes critical. Unfortunately, those health centers that lack the ability to accurately calculate costs also lack the skills to effectively manage their expenses, doubly compounding the problem.

Billing System

The final area of revenue loss from potential third-party reimbursement services is that relating to the billing system, and represents the area in which effective management techniques can have the most impact in terms of increasing reimbursement. Unless the health center can accurately and timely issue a bill to the proper agency, all of its other efforts at increasing third-party reimbursement will have been in vain.

A billing system is essentially a simple process. The key elements of any billing system consist of answering the following basic questions:

Who was the patient?

What services were provided?

Who provided the services?

What is the charge for these services?

Are there any adjustments?

Who should be billed?

What techniques should be used?

When most people think of the billing system in their health center, they naturally think of the group in the accounting area where the bills are sent out. But in actuality the billing system encompasses a great deal more, including the registration and provider areas. In order to issue an accurate bill, the billing department must have accurate data on the patient and on the services provided.

I described earlier the methods for insuring the accuracy of the patient information, and turn now to the data on the service provided. In most health centers this is done by means of an encounter form.

The encounter form itself should be designed to provide at least enough information about the patient and his visit for the billing department to issue a bill to the appropriate agency without having to refer to any other document, except perhaps a fee schedule. It should provide the patient's name, address, date of birth, center registration number, and third-party insurance number. The best way of handling this is by stamping the encounter form with a charge plate that contains this information.

Secondly, it should provide total information with respect to the encounter. It should tell when it happened,

what services were provided, who provided them and their provider number, what the diagnosis was, and the signature of the doctor. All too often, a billing has to be held up because some of the encounter forms lack one of these items and the billing clerk has to call around the health center or dig out the medical record to complete the data.

Also, even if an encounter form is properly filled out, it is of no use at all unless it gets to the billing department. For this reason, the flow of these forms must be carefully controlled.

The initiation and maintenance of an encounter control mechanism is necessary to insure that all services provided are accounted for. A method must be put into place that will enable a center to match the patient visits to the center with the number of encounters sent to billings, and then billed. The key to any control system lies in the prenumbering of all encounter forms. Once numbered, they can be assigned to various locations, and monitored based on the number used.

One of the most difficult areas concerns the number of encounter forms that can be generated for one patient visit to the center. If each provider or each department uses a separate form it becomes difficult to control the initiation and usage of forms. If one form can be used for

an entire visit, it can be generated at the reception desk and controlled from that point.

If multiple forms are used, it is important that these forms also be prenumbered and assigned to specific areas. It then becomes necessary to check the top or beginning number at the start of the day, and at the end, to determine the number of forms used. To insure accurate totals any improperly used forms should be marked void, and placed in a designated area for collection by the billing department.

As a center begins to grow in size, it becomes impractical to keep track of specific encounters daily for each department manually. It is suggested that the billing area do a daily count for a trial period of not less than two weeks, and then, if the results indicate a high degree of accuracy, use a periodic sample to continue control.

If a number of encounters are missing, these are a few areas to check:

Are all void forms accounted?

Are forms not being filled out on time by providers?

Are forms being buried in the medical records?

Some health centers find it useful to cycle their third-party bills, sending out Medicare week one, Medicaid week two, BC-BS week three, other commercial week four. This

is dependent to a large degree on the proportionate volume of billing to each third-party. It may be advisable to bill Medicaid every two weeks. For a health center too small to have specific clerks to deal with particular third-parties, cycling the bills in this manner allows an individual to process a great number of the same type of bills without having to get used to the particular format again and again. In addition, some of the third-parties have requirements as to batching the bills in groups of a specific number, such as fifty bills to a batch. This will necessarily influence the health center's procedures.

If a health center has automated its billing processes, there will necessarily be a degree of cycling. The health center in this situation should explore with the third-party the question of preparing magnetic input directly into the third-party's system, to speed collections by eliminating the need for further keypunching. The Division of Direct Reimbursement (DHEW) currently accepts this type of input, as do some of the Medicaid agencies. This can have a substantial impact on a health center's cash flow, with little additional work.

Finally, once the bill is sent out to the agency, there is still the possibility that it might be denied. There are a variety of circumstances that could cause a bill to be returned to the health center for correction. The

easiest and by far the most efficient way to handle this situation is to prevent it. The billing process must be accurate, and the information that feeds the process--specifically registration and update--must function smoothly and accurately.

If a bill is in fact returned to the health center, it is important to control the physical handling of the bill so that it does not get lost. One method is to assign the bill a number, log it in a distinct log for resubmission, and cross it off as it goes out of the health center, back to the appropriate recipient.

Some of the reasons a bill might be returned include:

Insufficient or incorrect address

Incorrect identification number for third-party

Expired eligibility

Services not covered by third-party

As mentioned before, the health center must have the ability to trace the bill back to the original source document, to clarify patient identification and proper transfer of services rendered from the encounter form to the bill. Just by doing this, and resubmitting an amended billing rather than simply filing it away, some health centers' reimbursements can dramatically increase.

If the bill cannot be corrected and resubmitted, there must be a procedure for reversing the charge on the

health center's books. This process must be controlled, and it is advisable to require the signature of the billing supervisor on any reversal. In addition, the voided bills should be kept on file, and an appropriate file should be made in the log.

A necessary adjunct to any good billing system is the maintenance of accurate and timely accounts receivable information. Without this information a health center cannot hope to have any control over the billing function.

There are three levels of necessary information. The first concerns the total amount of money due the health center from all types of patient sources. This aggregate figure is important in monitoring billings and receipts against budgets, and is also used in cash flow projections.

The second level of information is the total receivable broken into categories that reflect the various sources of revenue, such as Medicaid, Medicare, Title IV-A, BC-BS, other commercial, and self-responsible. This detail allows a health center to monitor utilization by the different pay classes, which can have a significant effect on financial viability. In addition, this information can be used to monitor the cash receipts from each source.

The third level of information concerns the individual patient account. It is imperative that all services received by a patient be noted on an account that reflects

that patient's activity at the health center, regardless of where the bills are sent. Many health centers keep this information on individual ledger cards that are completed through the use of a bookkeeping machine at the time of billing.

At each level it is important to collect and record information so that the receivables can be "aged." The process separates the monies owed the health center into intervals usually of 30 days. The maintenance of aged receivables allows a project to watch for unusual lags in payments, and further indicates when certain receivables should be written off. This breakout of receivables is very useful in projecting cash flows.

The usefulness of receivable information is directly linked to the accuracy and timeliness of the information. In addition, this is one area that brings the health center into continual contact with patients and third-party payors. Sound fiscal management practices are imperative if the health center is to demonstrate competence to the community at large.

Marketing

Up until now, I have been generally discussing ways that good management techniques can be used to increase third-party reimbursement from patients that the health

center already has. One final method remains to increase reimbursement, and that is by increasing utilization of the health center by people who have coverage by other carriers and are not using it. This requires the establishment of a marketing plan by the health center to increase its penetration into its particular target area.

All too often, when the term "marketing" is mentioned in the context of a health center, it is met with a response ranging from indifference to total opposition. This is something of a paradox in a country such as ours where advertising is so much a part of everyone's lives. Almost every working minute of every day each one of us is bombarded with advertising from television, radio, billboards, newspapers, magazines, signs, both in and on public transportation vehicles, store windows, direct mail, and so on. Advertising is used to promote everything from political candidates to soap.

For some reason, however, the advertising of medical services has been looked upon as being, at the least, unnecessary, and perhaps even undesirable. This is probably due to the fact that most advertising is engaged in attempting to convince people to consume something they don't really need. And, although it can be argued that there are doctors and other providers who seem to specialize in unneeded services, it is not something that the profession as a whole

embraces, and, therefore, a great many view health care advertising as superfluous, feeling that if people need medical services they will seek out a provider. Hence, most medical marketing is limited to a listing in the yellow pages.

In the case of a neighborhood health center and other such projects, however, the situation is different. For one thing, not everybody knows about the existence of the health center, and informing them of it performs a valid function. Secondly, within the specialized target population of most health centers, many people have not developed the appreciation of the need for medical services as has the population of the country as a whole, and hence these people may need more prodding to get them to receive the medical attention that is necessary for their health. These two factors alone are sufficient to make advertising of the health center's services both desirable and necessary. The added factor that the center needs to attract as many cash-generating patients as possible is the final consideration that makes having a functioning marketing plan mandatory.

To best develop a good marketing plan a health center must first understand the characteristics of its users and its audience. Demographic breakdowns of the user and target populations in terms of age, sex, race, income, and, most importantly, third-party coverage should be made to see where

the health center is succeeding or failing with respect to penetrating its target area.

Once this is done, it becomes possible to tailor a plan to reach those elements upon which the health center decides to concentrate. Possible means of doing this include direct mail, billboards, posters, radio spots, word-of-mouth, and the like. Hopefully, some of these can be provided on a public service basis.

Summary

This chapter has described the historical development of neighborhood health centers and their need for a management system that will allow them to deliver quality health care and at the same time generate much-needed capital. Although the original system developed at the Yeatman/Union-Sarah Centers included most of the necessary modules, it was developed at a time when few financial constraints existed and no demands were made by funding sources as to quantity of patients served.

Information on fiscal management and the Ambulatory Health Care Information System was included to stress the importance and necessity of an improved data management system.

Many problems in the development of an improved system have been considered in this chapter and will play a major role in decisions made in the selection of a new Management Information System. The latter topic is addressed in the following chapter.

CHAPTER III

SELECTION AND INSTALLATION OF THE NEW MANAGEMENT INFORMATION SYSTEM

The Ambulatory Health Care Information System must be designed to be a useful program resource and management tool. Prior to the installation of this system, each Comprehensive Health Center's program goals and objectives had to be carefully reviewed to define their information needs. Before actually using the system, a detailed implementation and training plan must be developed by health center staff.

Management at both St. Louis Comprehensive and Yeatman/Union-Sarah decided that the successful implementation of any system depended on the involvement of key center personnel. It was decided that during each step of the installation, maximum effort would be made to involve staff in the planning and in the training of other center personnel. Although initially more time consuming, this approach was believed to be critical to insure acceptance of the system at all levels and continued future operation in spite of staff turnover. As a side benefit, this involvement would represent the first real opportunity staff members have had to formally review in detail many current procedures

since the centers began seeing patients. In addition, the decision was made that internal personnel problems resulting from misunderstandings often encountered of center practices could be resolved by this experience. For some staff members, this would be their first involvement in formally improving their skills as trainers and could possibly improve their abilities to supervise others.

Six distinct steps and phases were outlined by management in the complete installation of the new Ambulatory Health Care Information System. They were:

Phase I:
1. Review center's goals and objectives.
2. Review center's operations and procedures.
3. Review center's information needs.
4. Review alternative data processing systems and make selection of system.

Phase II:
5. Develop strategy for implementation and task forces.

Phase III:
6. Train staff and initiate use of system.

During Phase I each center's goals and objectives were carefully delineated and found to be compatible with the Management Information System (MIS), but a number of changes were needed in operations and procedures at each site. These changes were:

1. Nurses assumed greater roles in completing forms previously completed only by physicians to reduce error rates.

2. The billing departments became a part of the fiscal departments to insure control of accounts receivables.
3. All patient registrations were updated in order to remove the records of patients who had not made a visit to the center in two years from the active registration lists.

Next a careful review was made of each center's information processing requirements (see Figure 3.1), and departmental meetings were held with all key staff, so that a determination could be made as to what information not presently available could be obtained from the new system that would improve efficiencies at the centers. Once our needs had been established, it was decided that an in-depth study of the experience of other centers using a variety of arrangements to obtain data would be undertaken, and we would select the most suitable arrangement or combination of arrangements for the St. Louis centers.

Alternative Data Processing Systems

The possible number of alternative data processing systems is large if one considers the various combinations of factors that define a system:

Ownership/Management

- Single center
- Multiple center
- Multiple or single center ownership--contract management

FIGURE 3.1

PROJECTION OF INFORMATION PROCESSING REQUIREMENTS

		St. Louis Comp	Yeatman/Union-Sarah
1.	Family Registration Records	5,700	8,000
2.	Individual Registration Records	20,000	28,000
3.	Registration File Size	2.57	3.6
4.	Annual Encounter Records	80,000	112,000
5.	Annual Encounter File Size	8.0	11.2
6.	Annual Medicaid Bills	39,000	31,000
7.	Annual Medicare Bills	8,600	7,700
8.	Patient Bills	4,700	0
9.	Private Insurance	0	0
10.	Total Annual Bills Printed	52,300	38,700
11.	Estimated lines of Printing	1,57	1,16
	Average of 30 lines/bill printed, figures in millions of lines.		
12.	New Family Registrations	1,425	2,000
13.	New Individual Registrations	5,000	7,000
14.	Registration Changes	5,000	7,000
15.	Encounters	80,000	112,000
16.	Payments	26,150	19,350
17.	Data Input Requirements	9.24	12.59
	Figures in Millions of Characters		

All of these figures have taken into consideration an average of 3.5 individuals per family and a 20% growth rate for the Centers per year.

Hardware

Service bureau
Time sharing
Shared computer--large 360/370 type
Inhouse computer--mini

System type

Batch
Online--data retrieval only
Online--file updating and data retrieval

Software development

Existing system in public domain
Proprietary system
"Tailor made" system

Programming and operations (ongoing and maintenance)

Inhouse salaried programmer
Inhouse consultant
Facility management contract

The total cost and effectiveness of a data system is dependent upon how consistent the above factors are with the center's needs and how well the center manages each factor. (For example, an inhouse programmer is usually less expensive and more available for problem solving than a programming consultant; however, systems developed by consultants are frequently implemented quicker and require fewer modifications later on.)

Various alternative systems were presented for consideration by each of the two health centers. The significance of each of the above factors is discussed, where

appropriate, identifying the cost, performance, and potential problems associated with various combinations of factors.

Combined Center Approaches

Recognizing the potential efficiencies of using a common data system, several community health centers have elected to utilize the same service bureau system or to share an inhouse computer. The following two examples highlight the advantages and disadvantages of these combined approaches.

The Rochester Health Network is a community health center grantee with five semi-autonomous delegate centers, all of whom utilize a basic registration, encounter and HEW reporting system, which is operated by the University of Rochester computer center. The average cost for these applications is realtively low (40¢ per encounter) and the centers have benefited from the sharing of system development and program modification costs over the past several years. In spite of the economic advantages of the Rochester approach, the individual centers are not satisfied with the system for several reasons:

1. All centers must use a standard encounter and registration form, constraining individual centers from collecting data items unique to their project's needs. In several centers, different forms have been developed for internal purposes and information is recopied onto the standard forms, offsetting potential cost savings.

2. As is the case with many offsite or service bureau arrangements, data timeliness and accuracy is considered unacceptable by all but one of the centers. Hence, centers do not utilize the billing or management reporting features of the system. As in Kansas City, four of the five delegates contract with a second service bureau for billing and accounts receivable systems.
3. The centers have not developed a mechanism for jointly deciding which new computer applications should be developed. Since data input cost represents a high percentage of the total data processing budget, programs to provide additional management services from an existing data base are very cost effective. Unfortunately, the centers have not taken advantage of this feature.

Four of the seven New York City community health centers utilize an IBM 360 model 30 computer which is leased by the Dr. Martin Luther King, Jr. Health Center (MLK). The four centers contract for services with the Association of New York Neighborhood Health Centers (ANYNHC) who in turn purchases keypunching services and computer time from MLK. ANYNHC picks up and delivers forms and printouts for the centers, provides data control and file maintenance and provides a computer operator to run the various programs. When the ANYNHC system was initiated in 1973, all participating centers

were charged between 20% and 35% less than they had been paying service bureaus for the same services.

The New York situation was made possible by several important factors:

1. The computer system was already in place at MLK and the costs and excess capacity of the machine were well documented. ANYNHC was charged only 5-7¢ per card for keypunching and 100% verification of encounter data, and 10-13¢ per card for registration forms. Seven hours of "prime" computer time were scheduled throughout the week, however ANYNHC was charged only for hours used, at $43 per system hour. Average total charges to ANYNHC were $2,200 per month or roughly 10.5¢ per encounter for its four centers.
2. ANYNHC had a grant from HEW which allowed them to market and develop their system. The unique needs of the centers were assessed and the system was tailored to particular needs.
3. The ANYNHC approach allowed each center to retain its existing encounter and registration forms. Conversion programs reformatted data input from the forms so that a common data base format (in the computer) could be maintained. Hence all centers could utilize any application programs developed to extract information from the common data base.

4. Since all centers were members of the association, ANYNHC was at an advantage in coordinating joint ventures.

After its initial year of operation, the grant subsidy ended and several shortcomings of the system became apparent:

1. In order to cover its own costs (over and above MLK's monthly processing charges), ANYNHC projected that the combined volume of six centers would be required to break even. However, while ANYNHC was achieving its first year goal of adding four centers to the system, two centers signed contracts with a private service bureau and a third center could not be sold.
2. Periodic hardware breakdowns, although promptly repaired by IBM, created production backlogs for MLK's own data systems and ANYNHC was bumped on the priority list. Frequently ANYNHC lost one or both of its daily scheduled computer hours.
3. ANYNHC did not utilize MLK's computer operators although the operators' salaries were included in the computation of hourly computer rates charged to ANYNHC. Hence, overlapping costs were incurred.
4. Maintenance of the computer system required the expertise of at least one full-time senior data processing professional. After early 1976, this expertise was not available to MLK from previous sources and MLK could not

attract replacement resources willing to work in the "pits" of the South Bronx at a reasonable price.

As a result of this last point, MLK has recently opted to have Montefiore Hospital run its various computer systems on the hospital's System 370 computer. By virtue of MLK's affiliation with Montefiore, the center can afford to purchase the processing and expertise needed to support its systems and to have resources available to further develop and improve their basic operational systems: appointment, medical records, laboratory, pharmacy, billing, management reporting, quality assurance, and various business functions. (It is not clear at this point how MLK's decision will affect the other centers.)

In summary, combined center approaches to data processing provide the potential for reducing data processing costs by up to 50%. In addition, health services delivery and administration costs can be reduced and overall system performance can be improved as relevant computer applications are developed.

Combined center approaches can achieve these advantages only when the following issues are successfully managed:

1. Each center involved must formally express a strong and long term commitment to the joint approach.
2. The geography of centers in the data processing network

must be such that data communication costs are not prohibitive nor data timeliness impeded.

3. The centers must form a steering committee, consisting of representatives authorized by their organization to make policies regarding the operation of the data center, including at a minimum:
   a. Production schedules and priorities.
   b. System development/expansion decisions.
   c. System location, staffing, and management.
4. Policies and procedures for operation of the data center must be developed. Key issues to be addressed are data control, data confidentiality, and "fail-safe" (back-up) procedures.
5. Professional data processing personnel must be available to oversee operation of the data center and to assist the steering committee in developing and implementing a system development plan.

Minicomputers

During the past 10 years, a range of small business computers have been developed which provide viable alternatives for meeting the information needs of community health centers. Generally ranging in purchase price from $35,000 to $150,000, minicomputers provide several features important to operation in a health center environment:

1. Reasonable cost (appropriate hardware can be leased for $1,000-$2,000 per month)
2. Simple operation
3. Small space requirements
4. Flexibility for expansion
5. Ability to support on-line systems
6. Already programmed health center systems
7. Compatibility with large computers

During the past two years, a number of CHCs have purchased or leased minicomputers to meet their information processing needs. These CHCs have in some cases developed their own computer programs/systems. In other cases existing software packages have been bought or leased from private firms. Although insufficient data is available to accurately assess the effectiveness of existing minicomputer systems in CHCs, the features described above were reviewed for several of the existing systems, indicating that minicomputers may provide the cheapest solution to CHC data processing needs. Figure 3.2 presents a summary of the CHC minicomputer systems surveyed during the course of this study.

Evaluation of minicomputers by the Missouri centers included communication with CHCs that have existing computers to discuss existing software availability and planned new software development (in addition to basic issues of cost, system performance, etc.).

Figure 3.2

Survey of Computer Systems in Community Health Centers

Center	Computer	Hardware Costs	Software	Remarks
West Oakland, Oakland, CA	Basic Four	$85,000 purchased	Developed on contract, programmed in BASIC.	The West Oakland system consists of over 100 programs which perfor the following functions w/3 input terminals (Cathode Ray Tubes): on-line inquiry to the patient regis tration file (available at the recept desk), on-line access to patient account status (size of the patient file precludes utilization of this feature currently), BCRR reports, management reports, patient bills, Medi-Cal bills, other third party bills, accounts receivable reports
Family Health Foundation of Alviso Alviso, CA	Burroughs 1700	NA	Being developed on contract. COBOL	Status - recently installed, not ye operational. Planned applications include billing management inform tion and on-line registration and patient accounts.
Drew Health Center East Palo Alto, CA	NOVA	NA	Being developed on contract Language not known	Status - recently installed, not yet operational. Planned applications include the West Oakland System plus expanded financial package.

NA - not available at this time.

Technical Assistance Contract-Alternative Approaches to Data Processing, Medicus Corporation - May 1977

Figure 3.2continued

Center	Computer	Hardware Costs	Software	Remarks
North County, CA San Ysidro, CA Wainae, Hawaii Jackson, Miss.	IBM System 32	Vary by center needs Min.$35,000 purchase	Medical Group package and accounting package available. System supports: RPG II, Fortran IV.	IBM provides a "Medical Group" system for the System 32 which mee the requirements of health centers and has the capacity to support smal to medium sized centers.
Dr. Martin Luther King, Jr. Bronx, NY	IBM 360/30	$5,400/mo leased privately (cost incl. maint.)	Developed in-house. Supports multiprogramming (Power II). COBOL In public domain.	System applications include: appoir medical records, laboratory, billing accounts receivable, pap smear aud personnel, payroll time sheets, mar ment reporting, HEW reporting, diagnosis analysis and special utility programs.
Atlanta South Side Atlanta, GA	IBM 360/22	$4,500/mo.	Developed in-house. RPG In public domain.	System applications include: encour registration, management reporting, HEW reporting, pharmacy, business applications (inventory control, financial, billing, etc.).
Cordoza Health Center Washington, D.C.	Microdata Reality (Marketed thru dealer network)	$35,000 basic model	Package from private sources. System supports RPG.	On-line system applications for pati intake procedures, billing, accounts receivable, management reporting a HEW reporting.

Figure 3.2 continued

Center	Computer	Hardware Costs	Software	Remarks
———	PDP 11/34 or 70	$35,000 for minimum configuration (small group practice, 7000 patients. Maintenance $250/month.	COSTAR IV supported by MUMPS	System developed jointly by HEW/ Digital Equipment Corporation for pilot testing, May 1977. Initial software investment will be about $15,000 (to DEC). Extension of COS system developed at Harvard Comm Health Plan (Mass. General Hospita includes patient registration and encounter systems, plus on-line pat profiles for use by physicians.

Service Bureaus

The majority of community health centers utilize service bureaus to meet their data processing needs. Depending upon the quality of the service bureau and the center's ability to control the quality of data submitted, the cost effectiveness of service bureau arrangements will vary. In considering a service bureau, the advantages and disadvantages of various types of service bureaus (outlined in Figure 3.3) were considered.

In addition, centers must be aware of overall limitation of service bureau arrangements.

Service bureaus are off-site, frequently located in other cities. Data turnaround time is constrained by communication with the service bureau.

Characteristically, service bureaus operate to maximize utilization of an existing computer, and small accounts such as neighborhood health centers are not given priority.

Service bureaus dedicated to ambulatory care data packages generally offer the most cost effective service bureau solution. However, these service bureaus must "sell" a large number of health centers if they are to efficiently utilize their computer and personnel. Otherwise, client centers must be charged for excess capacity and overhead costs of the service bureau and center data processing costs may be excessive.

Figure 3.3

Alternative Service Bureau Systems

Description	Advantages	Disadvantages
1. Private service bureau – no health center system available	• Machine time costs are low • DP Expertise available	• Low priority • Need user provided softwa and instruction to run syst • Center expertise in syster data processing is needed
2. Private service bureau – available health center systems	• Understanding of center needs • Provide useful, tested outputs • System/program growth costs may be shared • DP Expertise available	• Costs are higher than #1. • Standardized forms and reports may be required
3. University computer – operating "standard" health center packages	• Machine time costs are low • DP Expertise available	• Standardized forms and reports may be required • Understanding of centers needs may be lacking
4. Hospitals data processing department – operating "standard" health center packages	• DP costs may be low (particularly under affiliation arrangement) • DP Expertise available • Other patient data potentially available	• Low priority to hospitals needs • Standardized forms and reports may be required
5. Independent consultant – arranges for DP services as he sees fit (may select any of the above alternatives)	Advantages and disadvantages vary greatly according to the individual consultant selected.	

Technical Assistance Contract-Alternative Approaches to Data Processing-Medicus Corporation, May 1977

Service bureau packaged systems often require that a center adopt new encounter, registration, and billing forms.

Expansion of system applications is expensive. Programming charges of a private service bureau are normally billed at three times the programmer's base salary.

After review of the alternate data processing systems and careful review of the needs of the St. Louis, Missouri, centers it was decided that we would design a system to meet our needs but would not enter into agreements that we could not easily terminate in case the system proved inoperable.

We explored arrangements with several large firms and finally agreed that the Burroughs Corporation allowed for great flexibility in its programs as it relates to training of staff and use of their computers. Therefore, we entered into a monthly contract with this firm.

In selecting a new management information system a great deal of information that served no useful purpose was eliminated from the data base, such as:

A. How did the patient get to the center?
B. Crowding index.
C. Accessibility of center to newly registered families.
D. Referral sources of families.

Forms were designed to produce information more pertinent to management, such as:

A. Provider time in seeing patients.

B. Exception reports on hypertension and immunizations.

C. Accounts payable and receivable.

D. Referrals ordered.

E. Primary and secondary diagnosis.

After completing the review of other centers' experiences with Management Information Systems, it was decided during Phase II that the St. Louis centers would:

A. Design forms to produce the information needed.

B. Keypunch all information on site using staff that would be trained.

C. Rent cheap night computer time from Burroughs Corporation on a month-to-month basis rather than buy a computer in case the system proved unmanageable.

D. Hire an experienced programmer to develop the computer program to meet our needs.

Hypothesis and Research Design

The general purpose of this paper was to investigate alternative data processing systems. The author hypothesized that the accuracy and timeliness of data is directly related to better management and decision-making. For the purposes of this study accuracy of data will be defined as data with an error rate of less than five percent. The previous MIS had an error rate of fourteen percent. For data to be considered

timely, it must be available to management in less than thirty days after requested.

Specific areas of comparison selected to prove the hypothesis previously stated are as follows:

A. Data will be provided to management in a shorter period of time using the new MIS, and previously unavailable data will be available on a monthly basis. Data to be produced will include:

1. Blood pressures of patients with exception report (not previously available).
2. Provider time in seeing each patient (not previously available).
3. Immunizations given and type with exception report (not previously available).
4. Referrals ordered.
5. Types of prescriptions ordered by providers.
6. Number of prescriptions ordered for each patient by each provider.
7. Primary and secondary diagnosis.
8. Accounts receivable (not previously available).
9. Accounts payable--accrual basis (not previously available).
10. Payment status of each patient.

If the new MIS produces at least 75% of this data on a monthly basis, the system will be considered satisfactory in meeting these criteria.

B. Cost of the new MIS will be equal to or less than the cost of the present system.

Prior to January 1977 the St. Louis centers were spending $90,000 annually on MIS; this cost was distributed as follows:

1. Service Bureau $56,000.
2. Health center staff $34,000.

All costs including computer time should not exceed $90,000 for the new system to be considered cost effective for the purposes of this paper.

C. Data will be available in such a form that it will allow management to improve the quality of care at the centers.

Hypertension Management and Immunization levels are considered major indicators of quality of care by staff and DHEW. A sampling of 75 medical records in December 1977 indicated that 50% of the children receiving care at the centers who were in the age group 18 to 21 months had not been completely immunized for polio, measles, diphtheria, tetanus, pertussis, and mumps. The new MIS should produce an exception on any child who is not completely immunized. This report will allow staff to implement a recall system and complete the needed immunizations. If the MIS allows staff to reach an 85% immunization level for all children 18 to 21 months of age by April 1978 the system will have improved the quality of care at the centers.

Twelve (12%) percent of the centers' active patients have been diagnosed as hypertensive; fifty (50%) percent of the patients so diagnosed as of December 1977 were considered to be controlled hypertensives either by medication or diets. This has been due to a large extent to failure of patients to keep appointments. The new MIS will produce an exception report on all patients diagnosed as hypertensive and uncontrolled monthly. This report will be given to Social Services and home visits will be made to encourage return visits by the patients. The new MIS will be considered effective in improving the quality of care if eighty-five (85%) percent of our hypertensive patients are controlled by April 1978. Data will be available in a timely manner for meeting federal reporting requirements.

D. Quarterly reports are required by DHEW from all community health centers; their reports require programmatic information obtainable from the MIS. A survey conducted by the Evaluation Department of the St. Louis centers indicates that we are late in submitting these reports at least twice yearly because of the time data is received from McDonnell Douglas Corporation. I will compare the timeliness in which data is available for these reports with the new system vis-à-vis the former system.

E. The new MIS will improve the Fiscal and Billing Departments by providing management with timely and accurate information.

The new system should produce at least on a monthly basis a printout of accounts receivable and payable. This information has not previously been available to management in adequate time for possible intervention. Because this information has not been available financial crises have developed at the centers near the end of each fiscal year, May 31.

In that the new MIS will be installed during January 1978, I will compare the effects timely information has on enabling management to stay within budgetary limits during the final six months of the fiscal year.

The Data Entry Machines, AE-500 and Microfiche Units, were installed at all of the centers during January 1978. These units were leased from the Burroughs Corporation on a month-to-month basis in case the system proved inoperable. Installation of the units themselves proved to be a minor task; however, conversion of the existing system to the new format was a major undertaking.

An experienced programmer had to be hired to convert the McDonnell Douglas system which was in use to the new system. The major problem encountered was due to the language in which McDonnell Douglas had developed the existing program. They had used both Cobol and Fortran in the program, and the system we proposed to use had to be totally in the language of Cobol. This proved to be a massive problem

that caused the centers considerable delays and sizable costs.

In addition to the above stated problem there appeared to be considerable reluctance on the part of the former contractor to release the master tapes that were now in the public domain.

After several attempts to develop a workable program we finally succeeded in doing so in early February 1978. The timing of all activities was very critical in that all reporting requirements had to still be made on a timely basis to the Department of Health, Education and Welfare.

Training

During Phase III, to facilitate time we arranged a program to recruit staff for the Data Entry Machines in December 1977. Job descriptions were developed and posted and to our surprise we found that four members of our present staff--one EKG Technician, one Evaluation Clerk, one Social Worker Aide, and one Billing Clerk--had previous keypunching training and a working knowledge of data processing. We arranged for all of these persons to spend a week in Chicago, Illinois, at the Burroughs Computer Center receiving additional training. Our plan was to use two of these individuals as daily operators of the AE-500 and two would serve as backup operators to relieve the daily operators in case of vacations, illness, or tiredness. This has proved to be a

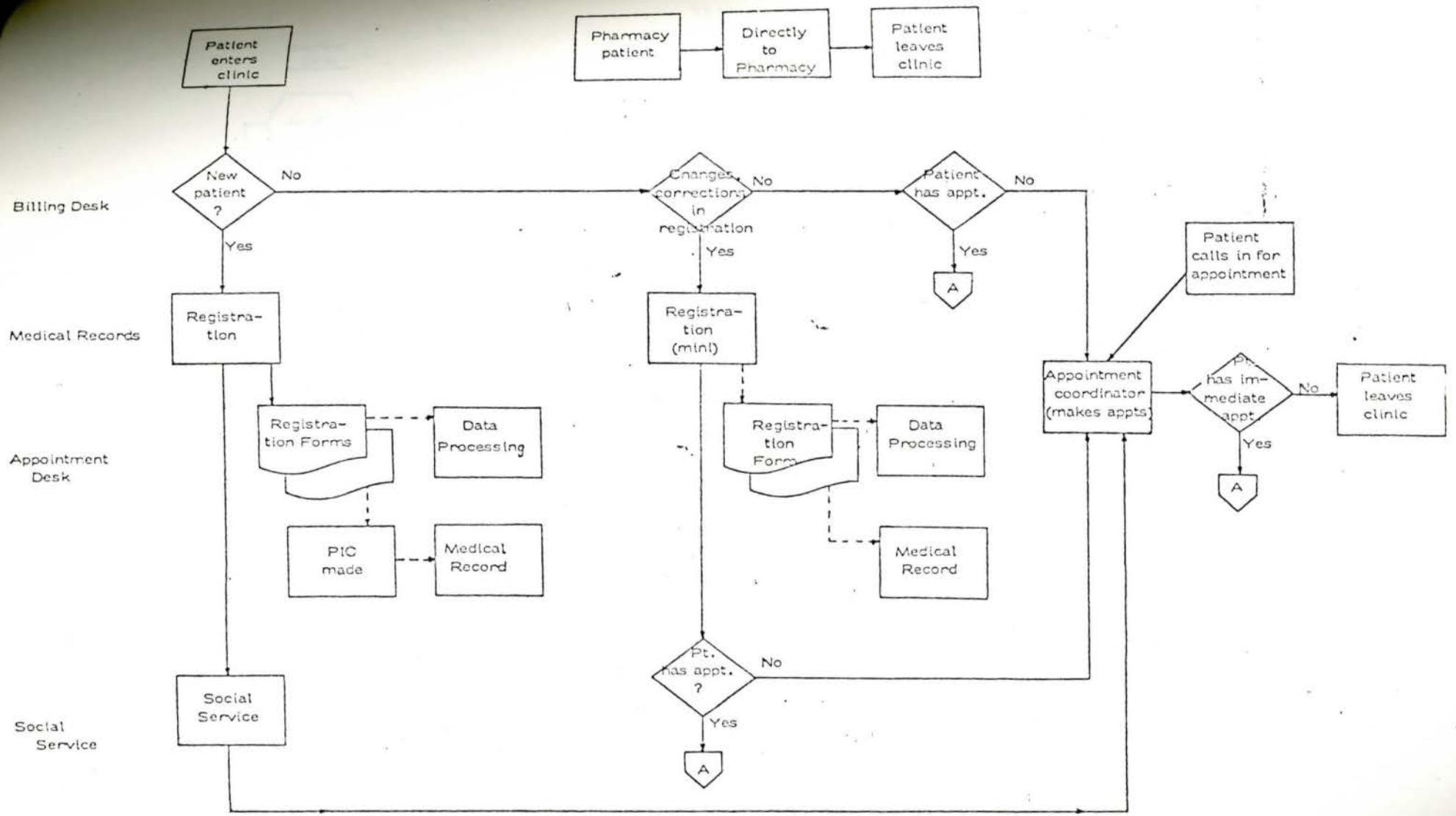
very valuable move on our part in that several occurrences of this nature have happened.

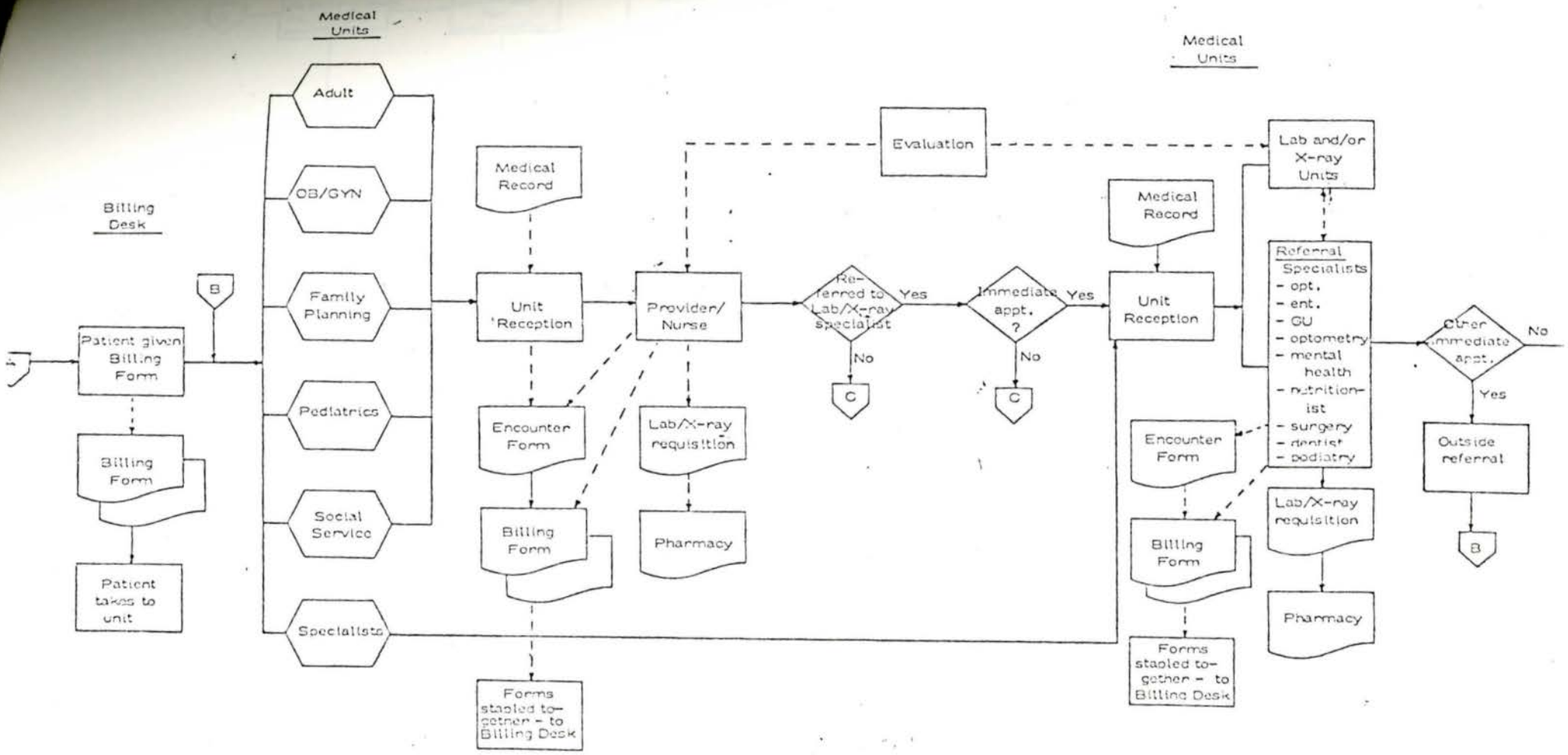
We then developed a training manual for all staff persons explaining the new system and its functions. New forms were developed that provided information previously unobtainable in the former system. The training manual used to familiarize staff with the new system alleviated a number of problems in that it was designed to provide staff with a complete understanding of the importance of the system and its uses. Attached to the training manual are all of the new data collection forms and diagrams of the flow of all forms and the patient from entry to the center to completeness of the encounter (see Appendices B and C).

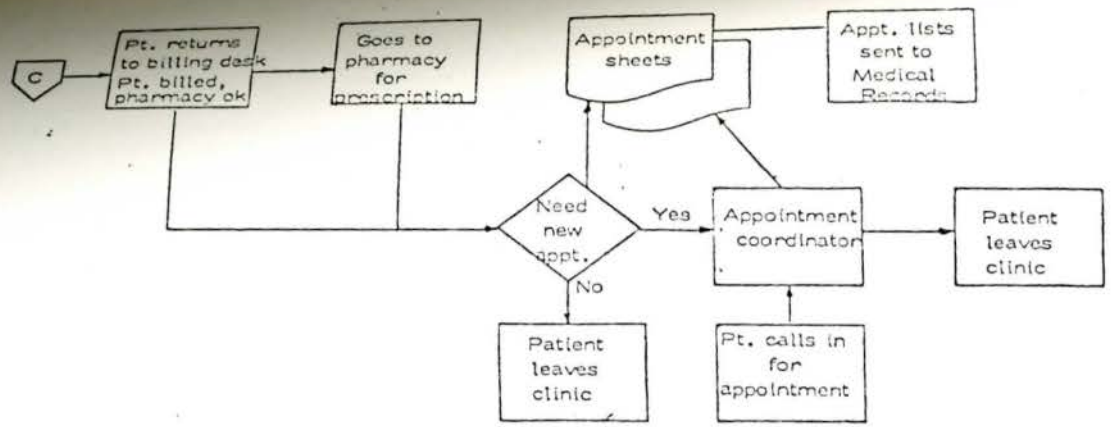
Summary

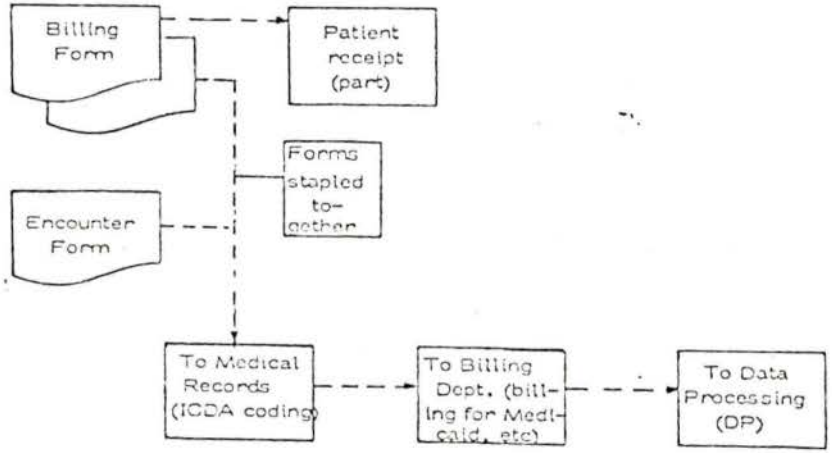
Chapter III explores the various systems available to the St. Louis centers in selecting a new MIS. All alternatives were considered as well as the data needs of the centers, and a selection was made. In order to make a determination as to the usefulness of the system selected, several hypothetical improvements are believed possible. Comparison models have been established in this chapter that should allow for comparisons of the usefulness of the new MIS versus the former system.

A brief discussion of the installation of the new MIS is included in the next chapter as well as a discussion of the training of staff. The training manual the center used is included in the exhibits as Appendix A.

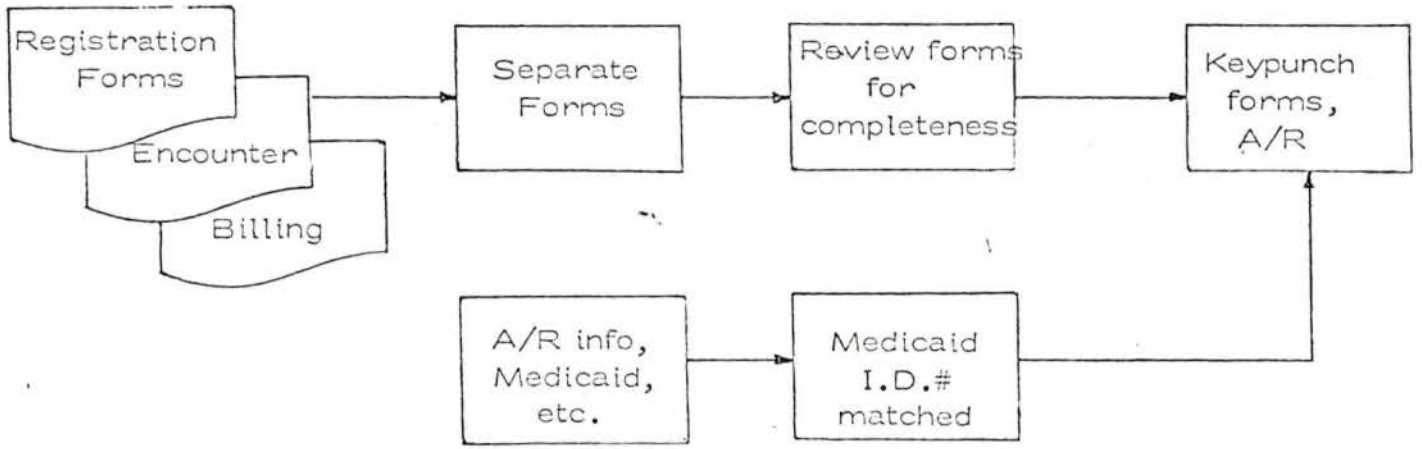

Patient enters clinic
Pharmacy patient
Directly to Pharmacy
Patient leaves clinic
Billing Desk
New patient ?
No
Yes
Changes, corrections in registration
No
Yes
Patient has appt.
No
Yes
A
Patient calls in for appointment
Medical Records
Registration
Registration (mini)
Appointment Desk
Registration Forms
Data Processing
PIC made
Medical Record
Registration Form
Data Processing
Medical Record
Appointment coordinator (makes appts)
Pt. has immediate appt
No
Patient leaves clinic
Yes
A
Social Service
Social Service
Pt. has appt. ?
No
Yes
A


Medical Units
Adult
OB/GYN
Family Planning
Pediatrics
Social Service
Specialists
Billing Desk
B
Patient given Billing Form
Billing Form
Patient takes to unit
Medical Record
Unit Reception
Provider/ Nurse
Encounter Form
Lab/X-ray requisition
Billing Form
Pharmacy
Forms stapled together - to Billing Desk
Evaluation
Re-ferred to Lab/X-ray specialist
Yes
No
C
Immediate appt. ?
Yes
No
C
Medical Units
Medical Record
Unit Reception
Encounter Form
Billing Form
Forms stapled together - to Billing Desk
Lab and/or X-ray Units
Referral Specialists
- opt.
- ent.
- GU
- optometry
- mental health
- nutrition-ist
- surgery
- dentist
- podiatry
Lab/X-ray requisition
Pharmacy
Other immediate appt.
No
Yes
Outside referral
B


C
Pt. returns to billing desk Pt. billed, pharmacy ok
Goes to pharmacy for prescription
Appointment sheets
Appt. lists sent to Medical Records
Need new appt.
Yes
No
Appointment coordinator
Patient leaves clinic
Patient leaves clinic
Pt. calls in for appointment


Billing Form
Patient receipt (part)
Forms stapled to-gether
Encounter Form
To Medical Records (ICDA coding)
To Billing Dept. (billing for Medicaid, etc)
To Data Processing (DP)

Data Processing



CHAPTER IV

IMPLEMENTATION AND SUMMARY

The new MIS was installed in the St. Louis centers during January 1978 and was fully operational in the month of February 1978. Several problems in our program had to be eliminated, but the system functioned adequately enough to meet our data needs.

For the purposes of this paper criteria were established in Chapter III to determine the effectiveness of the MIS and now each criterion will be examined individually.

A. Data will be provided to management in a shorter period of time using the new MIS and previously unavailable data will be available on a monthly basis. Data to be produced will include:
   1. Blood pressures of patients with exception report (not previously available).
   2. Provider time in seeing each patient (not previously available).
   3. Immunizations given and type with exception report (not previously available).
   4. Referrals ordered.
   5. Types of prescriptions ordered by providers.

6. Number of prescriptions ordered for each patient by each provider.
7. Primary and secondary diagnosis.
8. Accounts receivable (not previously available).
9. Accounts payable--accrual basis (not previously available).
10. Payment status of each patient.

As stated previously, if the new MIS produces at least seventy-five (75%) percent of this data on a monthly basis the system will be considered satisfactory in meeting this criterion. As of April 1, 1978, of the ten reports wanted by management on a monthly basis, all were available with the exception of accounts receivable and accounts payable. This represents an efficiency of eighty (80%) percent and is considered satisfactory. All of the data reports could be readily obtained on a 34-hour notice at any time during the month, which was better than anticipated.

B. Cost of the new MIS will be equal to or less than the cost of the present system.

Prior to January 1977 the St. Louis centers were spending $90,000 annually on MIS; this cost was distributed as follows:

1. Service Bureau $56,000
2. Health center staff, $34,000

All costs including computer time should not exceed $90,000 for the new system to be considered cost effective for the purposes of this paper. Present costs of the new MIS are as follows:

Staff, 2 full-time key-punchers	$16,000 annually
Microfische rental	3,000 annually
Computer time (Burroughs Corp.)	11,000 annually
Assistant Director Evaluation Salary (50% time)	7,000 annually
Travel (Center to Burroughs & return)	1,000 annually
	$38,000 annually

Ten thousand ($10,000) dollars was spent by the centers for programming costs and $10,000 for system development, but these were one-time costs and were paid separately by DHEW. In that the centers have reduced their data costs by more than 50% the system is considered cost effective.

C. Data will be available in such a form that it will allow management to improve the quality of care at the centers.

Hypertension Management and Immunization levels are considered major indicators of quality of care by staff and DHEW. A sampling of 25 medical records in December 1977 indicated that 50% of the children receiving care at the centers who were in the age group 18 to 21 months had not been completely immunized for polio, measles, diphtheria, tetanus,

pertussis and mumps. The new MIS should produce an exception report on any child who is not completely immunized. This report will allow staff to implement a recall system and complete the needed immunizations. If the MIS allows staff to reach an 85% immunization level for all children 18 to 21 months of age by April 1978, the system will have improved the quality of care at the centers. Twelve (12%) percent of the centers' active patients have been diagnosed as hypertensive. Fifty (50%) percent of the patients so diagnosed as of December 1977 were considered to be controlled hypertensives either by medication or diets. This high level of uncontrolled hypertensives has been due to a large extent to failure of patients to keep appointments. The new MIS will produce an exception report on all patients diagnosed as hypertensive and uncontrolled monthly. This report will be given to Social Services and home visits will be made to encourage return visits by the patient. The new MIS will be considered effective in improving the quality of care if 80% of our hypertensive patients are controlled by April 1978.

As of March 14, 1978, the immunization levels of the 125 children involved in our original sample were as follows:

83 - are fully immunized

8 - have received a telephone call, home visit, or post card

6 - have moved out of the area

12 - are receiving care at another facility

1 - has begun series of immunizations

15 - have been sent cards, received calls, but no home visits have been made (not acceptable)

125

The MIS exception report has allowed the centers to monitor these children, and according to DHEW criteria those children who have been contacted by telephone or mail and received at least one home visit are considered acceptable. Therefore, only fifteen children are considered unacceptable and a rate of 88% has been obtained. Attempts are being made to resolve the fifteen unacceptable cases.

During January, February, and March 1978 hypertensive exception reports have been produced monthly by the MIS and these reports have been given to the Social Services staff at each center for follow-up on the patients listed. Twelve hundred (1200) patients were listed in the reports as uncontrolled hypertensives. Eleven hundred and twenty (1120) patients were contacted by Social Services and 80 were lost to follow-up due to our inability to contact them. All 1120 of those contacted were given appointments and as of March 17, 1978, 980 have been seen by their physicians and nutritionist, if needed.

All 980 have received medication or diets and have been given six-week appointments for return visits. For the

purpose of this study, we have achieved a controlled hypertensive level as of March 17, 1978, of eighty-one (81%) percent.

D. Data will be available in a timely manner for meeting federal reporting requirements.

Quarterly reports are required by DHEW from all community health centers. These reports require programmatic information obtainable from the MIS. A survey conducted by the Evaluation Department of the St. Louis centers indicates that we are late in submitting these reports at least twice yearly because of the time data is received from McDonnell Douglas Corporation. I will compare the timeliness in which data is available for the reports with the new system vis-à-vis the former system.

Only one quarterly report has been required by DHEW during the time of this study; therefore, the results are inconclusive. The report due April 28, 1978, for the first quarter of 1978 was actually submitted on April 17, 1978, eleven days before the due date. Data for the completion of this report was in the hands of management on April 10, 1978. We believe that the data will be available as timely in the future.

E. The new MIS will improve the Fiscal and Billing Departments by providing management with timely and accurate

information. The new system should produce at least on a monthly basis a printout of accounts receivable and payable. This information has not previously been available to management in adequate time for possible intervention. Because of this, financial crises have developed at the centers near the end of each fiscal year, May 31.

The new MIS was installed during the month of January 1978. I have compared the effects timely information has in enabling management to stay within budgetary limits during the final six months of the fiscal year.

The accounts receivable module is presently fully operational and a manual for staff has been developed. All procedural steps are included in the manual and the manual has been distributed to staff.

Prior to implementation of the new management information system the centers had no accurate method of determining outstanding balances owed by Third Party Carrier, nor could we determine the value of services rendered. As demonstrated in the New Accounts Receivable and Billing Manual, the cost of services provided is entered into the computer system whether the patient actually pays for the services or not. This allows management to compare cost versus services, rather than services versus the amount received. We also now can project accurately the amounts owed to the center by

Medicare, Medicaid, Family Planning, and others, and can demonstrate to each of these agencies if need be the reasons for rate adjustment requests.

No longer does management have to wait until a check is received from a Third Party Carrier to make a determination as to the financial status of the centers. This is very critical in that most Third Party Carriers are usually 90 to 120 days behind in payments and without accurate knowledge of outstanding accounts receivable it is impossible to know the true fiscal status of the centers. We can now predict when we compare grant revenues, accounts receivable, and accounts payable the true fiscal picture of the centers.

A summary of accounts receivable and billings are submitted to management on a monthly basis. This is compared with accounts payable which are now kept on an accrual basis and management can accurately predict if the center will stay within its budget parameters for any given year.

The accounts payable system has not been incorporated into the data processing system as of this date, nor has the purchasing system. The major reason for this delay was because the entire systems had to first be converted to an accrual accounting system.

In an accrual accounting system each department in the centers is given a yearly budget. When equipment or supplies are ordered the funds are encumbered and for all

practical purposes spent even if the supplier does not deliver for several months. Prior to the installation of this system, management had no accurate way of determining outstanding obligations and in many cases a budget period would end with expenses carried over into a new period because supplies had not been received from various suppliers.

Monthly reports are now sent to management that detail the expenses of all departments. We are therefore able to approve or disapprove of orders if an area is exceeding budgetary limits. This system will be computerized within the next six months but presently proved to be too large an undertaking. The manual system for accounts payable and purchasing is included in this document and has allowed management to effect the same changes as those which would have occurred under a computerized system. Less manpower will be required once the system is incorporated in the entire data management system, but the effects to date have been very positive. Supervisors are more conscious of the quantities ordered by their departments, and we are experiencing less wastage of supplies.

The accounts receivable, accounts payable, and purchasing systems are operational at the centers, but delays in the actual implementation of these systems did not allow for any determinations as to their effects on the centers' ability to stay within budgetary limits during this budget

period. Therefore I will attempt to draw no conclusions as to this particular criteria.

Clearly, based on the criteria established for this study the hypothesis has been proven. The MIS has functioned above expectations and has been accepted by staff as a management tool. Once the fiscal aspects of the system are operating as well as the rest of the system, even greater benefits are anticipated. Now that the system is operational, DHEW has requested that the system design be made available to other centers in the country. We are presently considering contracts to do the data processing for three other centers in Missouri.

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APPENDICES

The Department of Health, Education and Welfare recently issued new ederal requirements that affect all federally funded health projects. hese new requirements will affect the funding of all health centers. ll funds are channeled through ten regional offices of HEW throughout he United States, of which we are in Region VII. The amount of money ach region receives is based on 60% of what it received last year, plus 0% which is based on the amount of users and encounters that the region ad the previous year. Example: Three Hundred Million Dollars was allotted for health centers in the United States, and our region received fifteen million dollars last year. Next year they would get 60% of the fifteen million received last year which amounts to nine million dollars. If the region had 5% of the encounters and users nation-wide, then they would get an additional fifteen million dollars for a total of twenty four million dollars.

The region will then distribute the twenty four million dollars among the health centers in the regions, based on the same formula that the Department of HEW uses, that is, on the amount of encounters and users each health center had the previous year. Therefore, it is to our advantage to maximize the number of encounters and users. If our region gets more money, then the health center can get more money providing we are productive. This can mean raises in pay, new staff and new equipment.

The paper work, that is, the filling out of encounters and registration forms is like money to us and should not be viewed an an unnecessary routine. These forms should be accurate, legible and completely filled out. Failure to do so is like playing with our own money. So it is very important that the forms be given our very best effort.

Along with the new federal requirements, the Department of HEW has also started a new reporting system. To meet these new federal require-

ments and to respond to the new reporting system, we are changing our data information system. This will enable us to get better management data and to upgrade the skills and mobility of some staff, while at the same time lowering our costs for data processing.

Our new system will include three new forms, the medical encounter form, the registration form, and the dental form. It will also include the billing slip which will be entered into the new system.

This new system is a joint effort between the St. Louis Comprehensive Health Center and the Yeatman and Yeatman-Union Sarah Health Centers. Each center will have a data entry machine called an AE-500, which works similarly to a key punch machine. All encounters, registration and dental forms and billing slips will be keyed into the system on site by our staff onto cassette tapes. These tapes will be run and processed on a Burroughs 1700 compiler and computer, which in turn will give us the monthly reports that we need to meet the quarterly reporting requirements and management data.

The Billing Department will get a monthly microfiche film on the registered patients and how much they owe us, and whatever their payment status is. It is important that any person not appearing on the list be sent back to be either a new registrant or a recertified registrant, otherwise we will not get credit for the encounter that they would have.

REGISTRATION FORM:

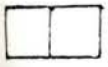
The registration form is used to register separately each member of a family for health care by recording data which is specific to that individual. It is also used to notify the medical records department to make a medical chart for a new patient. In the new federal reporting system, there is a new table called a users table. The purpose of this table is to provide a count by the age and sex of the health center users.

Therefore, each encounter form must be matched to a registration form which will contain the age and sex of the user.

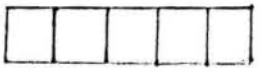
A User is a person who has been seen by one of the health centers' staff providers, at least once during the last twelve months.

HOW TO FILL OUT THE REGISTRATION FORM:

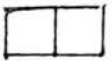
1. PATIENT IDENTIFICATION NUMBER: The patient ID number is an eight digit number. The first digit which is pre-printed will identify the health center (remember there will be three centers using this system and in the future possibly more.) The next five digits will identify the family and the last two digits will identify the individual family member.



Center no.



Family ID no.



Family Member no.

2. REGISTRATION DATE: Month-day-year. The registration date is the date when the individual is first registered or in some cases re-registered. The month is entered in the first two boxes. Always fill in both boxes. It will be helpful in entering all dates to think of 1-9 as 01-09. The month is entered in the first set of boxes and the year in the last set of boxes.

March 21 1976

3. PATIENT NAME: Print the name of the patient in the boxes provided.

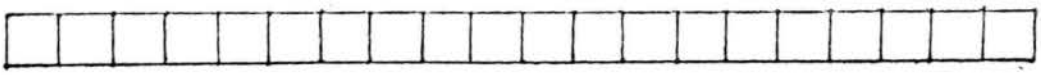
Print one letter to a box.

Start the last name first

Skip a box after the last letter of the last name, then print first name.

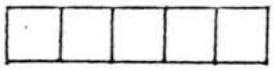
Put the middle initial at the far right in the very last box.

4. ADDRESS: There are 20 boxes reserved for the address. After the street number, leave a box blank, then write the street name.

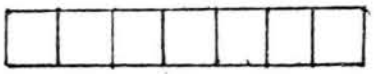


Where there is an address that has more than 20 characters, then the name of the street can be abbreviated.

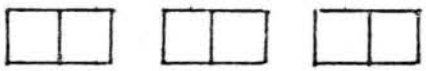
5. ZIP CODE: There are 5 boxes reserved for the zip code.



6. TELEPHONE NUMBER: There are 7 boxes for the telephone number.



7. DATE OF BIRTH: There are 6 boxes reserved for the date of birth. The month is entered in the first two boxes. It will be helpful in entering all dates to think of 01, 02, 03, etc. The day is entered in the middle set of boxes and the year is entered in the last set of boxes.

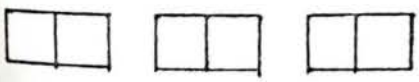


SPECIAL CASES: If the patient's date of birth is unknown or uncertain:

a. Estimate a year because it must never be omitted.

b. The month and day if unknown may be entered with a 06 for month and 15 for the day.

EXAMPLE: Unknown date of birth of patient about 85 years of age.



8. SEX: One box is reserved for the sex of a patient. If the patient is a male, enter a 1 in the box. If the patient is a female, enter a 2 in the box.

-male

-female

9. TOTAL FAMILY INCOME (GROSS): Three boxes are reserved for the family income. Family income is the total amount of earnings or income a family receives per year. Round the family income to the nearest one hundred dollars ($100). [ ]

When rounding off numbers, if the last two numbers is 50 or more, round up to the nearest hundred. If the last two numbers is less than 50, round down to the nearest hundred.

EXAMPLE:

Income:	Rounded to nearest $100	Code:
$1,000	$1,000	
1,500	1,500	
1,824	1,800	
2,360	2,400	
2,340	2,300	
10,140	10,100	
10,180	10,200	

10. TOTAL NUMBER OF PERSONS IN HOUSEHOLD: There are 2 boxes reserved for the number of persons in a household.

[ ]-5 people

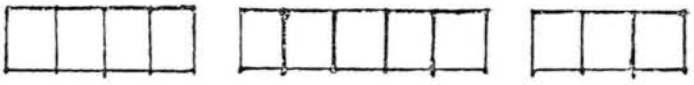
[ ]-10 people

11. PAYMENT STATUS: One box is reserved for the payment status code. The payment status code identifies the mode of payment that the patient might have.

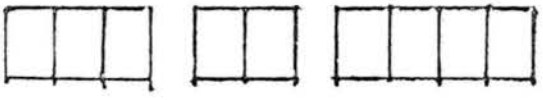
CODE: PAYMENT STATUS

1. Medicaid
2. Medicare
3. Medicare/Medicaid
4. Partial Pay

5. Full Pay (100%)
6. Private Insurance
7. Group Contract 
8. No Charge
9. Other (Specify)

MEDICAID: If a person has medicaid, a 1 is coded in the payment status code box. If a person has medicaid, then they must have a medicaid coverage number. If, at the time of registration the patient states he has a medicaid card, but does not have the card with him, or does not know his number, then instead of coding the form as a medicaid patient, he should be coded as a cash patient. If at a later date the patient brings in the medicaid number, then his pay status can be changed and entered into the system. The same rule apply to those patients who are on medicare. 

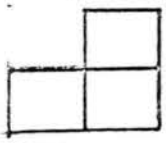
MEDICARE: The number 2 is coded in the payment status box when the person is a medicare patient. There are 10 boxes reserved for the medicare number. If the patient does not have his number at the time of his registration, then the same rule as stated above for medicaid patients will apply.



MEDICARE/ MEDICAID: If a person has both medicare and medicare, then a 3 must be coded in the payment status box. The medicare and medicaid numbers will be coded in the appropriate boxes.

PARTIAL PAY: When a person is paying for his services based on the sliding fee scale, then the portion that he is paying must be coded. First a 4 is coded in the payment status box, then the amount that is being paid is coded in the 2 boxes reserved for it.

EXAMPLE: Patient pay $5:00



Payment Status Code

$5.00 payment

FULL PAY: (100%) Whenever a patient pays the full amount, then a 5 is coded in the payment status code box.

PRIVATE INSURANCE: Private insurance is coded with a 6. If the patient has to pay any portion, such as a deductible, then the amount payed will be coded in the 2 boxes reserved for it.

GROUP CONTRACT: When a person is registering under a group contract, a 7 is coded in the payment status code box. The name of the group must be written in the space for it. Here we are referring to Carter Carburetor, Family Planning, Head Start, etc.

NO CHARGE: Whenever a patient does not pay, such as board members or employees, then the number 8 is coded in the payment status code box.

OTHER: Any kind of payment status not mentioned above will be coded with the number 9 (specify what the payment is).

12. PRIMARY REFERRAL SOURCE: One box is reserved for the referral source.

If the family discovered the health center, enter a 1 in the box.

If a neighbor or relative made the referral enter a 2 in the box.

If neighborhood health center staff worker, enter a 3 in the box.

If community action agency enter a 4

If private physician enter a 5

If the referral came from a hospital, enter a 6

If any other, specify and enter a 7

If any health or social agency made referral enter 8

The rest of the form must be completed but does not have to be coded for the data system.

MINI-REGISTRATION: Due to the new user table which we mentioned before, there must be a registration form for each encounter. Therefore, we will no longer mark a x for an unregistered patient. Instead, a mini-registration form will be filled out. This will also enable us to get more money for billing purposes. When any of these unregistered patients slip by, we will lose money.

The mini registrants will be given or assigned numbers in the 90000 series. This will help the centers to identify the CEP, Head Start, and Family Planning patients.

MINI-REGISTRATION INFORMATION NEEDED:

1. Patient ID number (90000 series)
2. Sex and Date of Birth
3. Income
4. Number in Household.

5. Payment Status. **NOTE: If the patient is a family planning patient and they have a medicaid number, then the payment status code will be coded with the medicaid status code, otherwise the payment status will be coded as a group contract which has a 7 as the status code.

Remember all new patients and everyone having an encounter must be registered either by the regular method or with a mini-registration. Each patient when entering the health center must be checked to see if he is registered. To help in doing this, the health centers will have Microfiche Readers. The entire registration list will be put on microfiche. When checking to see whether a patient is registered or not, the reader will display the ID number, name of patient, sex, address, telephone number, date of birth and balance owed for previous services. If the patient is not on the microfiche, even though they may have a record in the medical records department, they will have to be re-registered. The microfiche reader will prevent someone from going into the record room to check and see if a person is registered or if an address or phone number is needed, etc.

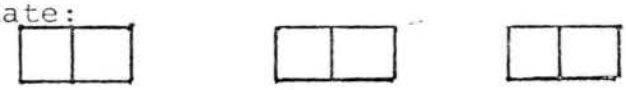
CHANGE OF INFORMATION OR NEW INFORMATION: The registration form will also be used to add or change any information on patient. The new information will be put in the appropriate boxes, such as patient name, address, sex, or phone number. Whenever an old patient returns for a visit, we will then get his address, telephone number, gross income, payment status, and number of people in household if needed.

ENCOUNTER: The encounter form is used to collect data on health services provided. One copy of the encounter form is completed for each

provider seen. The encounter form is the basis for computing the health service data, so that the center can quickly initiate the systematic collection of such data. As previously stated, this information helps us to make our quarterly reports to the Department of HEW.

1. PATIENT NAME-ID NUMBER: This should be done by pic which has all the information necessary for this section. If this information is done by hand, the name and ID number must be in this area. All encounter forms must have an identification number.

2. DATE: As on the registration form, there are 6 boxes reserved for the date:



3. PROVIDER: Three boxes are reserved for the provider ID number. The provider number identifies the health center provider that see the patient. Listed below are the provider catagories and their identification numbers.

MEDICAL PROVIDERS	IDENTIFICATION NUMBERS
PHYSICIANS:	
General Practioner	011-039
Family Practioner	040-059
Internist	060-100
Pediatrician	110-159
Obstetrician/Gynecologist	160-199
Psychiatrist	220-279
PHYSICIAN SPECIALIST:	
Cardiologist	340-349
Allergist-Dermatologist	360-369
Orthopedist	400-409

Urologist	380-389
Ophthalmologist	350-359
Ear-Nose-Throat	390-399
Surgeon	370-379
MID-LEVEL PRACTIONERS:	
Pediatric Nurse Practioner	500-509
Physician Assistant	510-519
Medical Nurse Practioner	520-529
Family Nurse Practioner	530-539
DENTAL PROVIDER:	
General Practioner	300-329
Oral Surgeon	331-332
Orthodontist	333-335
Periodontist	336-338
Dental Hygienist	660-679
Dental Tech	680-689
NURSES:	
Clinical Nurse Specialist	620-629
RN/PHN	560-599
LPN/LVN	600-619
MENTAL HEALTH PROVIDER:	
Alcohol Counselor	740-749
Psychologist	750-759
Psychiatric Nurse	760-769
Psychiatric Social Worker	770-779
Clinical Social Worker	790-799

ALLIED HEALTH PROVIDER:	
Physical Therapist	410-419
Family Planning Counselor	420-429
Medical Social Worker	430-439
Optometrist	440-449
Podiatrist	450-459
Occupationist Therapist	460-469
Speech Pathologist	
Audiologist	
Health Educator	470-479
Nutritionist/Dietician	480-489
COMMUNITY SERVICE PROVIDERS:	
Family Health Worker	850-859
Outreach Worker	860-869
Community Health Aide	840-849
Community Health Advocate	870-879

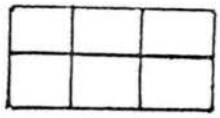
4. SITE OF ENCOUNTER: One box is reserved for this. Just enter the code for the place of encounter.

1-Center 2-Home 3-Hospital 4-Other

5. NEW MEDICAL PATIENT: One box is reserved. A New Medical Patient is a patient who has never been registered and does not have a record on file in the medical record room, or a patient who has not seen a provider in 18 months. If it is a new patient, put a 1 in the box, if not new, put a 2 in the box.

6. BLOOD PRESSURE: There are three boxes each reserved for the systolic and diastolic readings - systolic on top - diastolic

on the bottom. This will help us measure the quality of care given to each patient. Blood pressure of children should also be taken.



7. APPOINTMENT STATUS: One box is reserved. Enter in the box the code that describe on what basis the patient saw the provider for this encounter. 1-appointment 2-walk-in 3-direct referral 4-patient cancelled 5-missed appointment 6-center cancelled 7-home health patient 8-group

If the center or doctor has cancelled an appointment, be sure it is marked in the appropriate box. Another point to consider is - many patients will only come to the health center when there is an emergency, therefore, there are constant walk-in patients who need to be educated on the real purpose of the health center, and that is preventive care and they should get an appointment for complete health care.

8. PROVIDER TIME: One box reserved. 1-less than 15 minutes 2-15 minutes 3-less than 30 minutes 4-30 minutes 5-45minutes 6-1hour or more

Time spent with the patient helps the Medical Director to evaluate the ulitization of his staff.

9. IMMUNIZATIONS GIVEN: One box reserved. 1-DPT & OPV #1 (series started) 2-DPT & OPV #2 3-DPT & OPV #3 4-DPT & OPV Booster #1 5-DPT &OPV Booster #2

10. SERVICES PERFORMED: Check as many circles as appropriate.

11. REFERRALS/ORDERED SERVICES: Check as many circles as appropriat In both services rendered and referrals make sure the appropriat box is checked or circled and that these services and referrals are documented in the patient's record.

12. TYPE OF DRUGS PRESCRIBED: Check as many types as were prescribed.

13. NUMBER OF PRESCRIPTIONS WRITTEN: One box is reserved. Simply write the total munber of scripts written at that visit by the physician. 

14. DIAGNOSIS: There are 4 boxes each reserved for the primary and secondary diagnosis. There is also space provided for the diagnosis to be written out so that the ICDA code may be entered later in the processing.

_____ The diagnosis is to be written here. A primary diagnosis and a secondary diagnosis.
_____

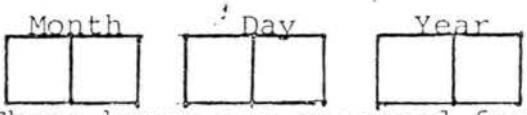
Primary Diagnosis-

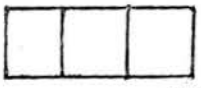
Secondary Diagnosis-

DENTAL ENCOUNTER FORM:

The dental encounter form is used to collect data on dental services. One copy of the encounter form is completed for each dental provider seen. The dental encounter form is the basis for computing the amount of dental service data, so that the center can quickly initiate the systematic collection of such data.

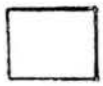
1. PATIENT NAME -ID NUMBER: This should be done by pic because the pic has all information necessary. If it is done by hand, the name and ID number must be placed on the encounter. All dental encounter forms must have an identification number.
2. DATE: As on the registration and medical encounter form, there are six boxes reserved for the date.



3. PROVIDER: Three boxes are reserved for the provider ID number. Listed below are the dental provider catagories and their identification catagories. 

DENTAL PROVIDERS	IDENTIFICATION NUMBER
General Practioner	300-329
Oral Surgeon	331-332
Orthodontist	333-335
Periodontist	336-338
Dental Hygienist	660-679
Dental Technician	680-689

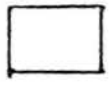
4. SITE OF ENCOUNTER: One box is reserved for this. Enter the code for place of encounter. 1-center 2-home 3-hospital 4-other 
5. NEW DENTAL PATIENT: One box reserved. A new dental user is a person who is seeing a dental provider for the first time. This

is determined when there is no pink dental form in the record. If the patient is a new dental user - put a 1 in the box. If the patient is not a new dental patient, place a 2 in the box. 

6. APPOINTMENT STATUS: One box is reserved. Enter in the box the code that describes on what basis the patient saw the provider for this encounter. 1-appointment 2-walk-in 3-direct referral 4-patient cancelled 5-missed appointment 6-center cancelled. 

If the center cancels the appointment, place a 6 in the box. If the patient cancel the appointment place a 4 in the box. It should be noted that if a patient calls and cancels or ask for a new appointment, this is not and should not be considered a missed appointment. A missed appointment results when a patient simply does not show up for a scheduled appointment, and has not called to cancel.

Another point to consider is that many patients will only come to the health center when there is an emergency, therefore, they are constant walk-in patients. These patients need to be educated on the real purpose of the health center, and that is preventive care and they should get an appointment for complete health care.

7. PROVIDER TIME: One box is reserved. 1-less than 15 minutes 2-15 minutes 2-less that 30 minutes 4-30 minutes 5-45 minutes 6-1 hour or more. 

Time spent with the patients helps the Dental Director of evaluate the utilization of his staff.

8. SERVICES RENDERED: Check as many as appropriate by checking the circles of each service listed. Make sure these services are documented in the record.

9. X-RAYS: One box is reserved. Place the code in the box that describes the x-ray performed. 

10. PRESCRIPTIONS: One box is reserved. Place the code that describes the drug that was used. If both drugs listed on the form is used, place a 3 (for both) in the box. If there were none, place a 4 in the box.

11. REFERRALS: One box is reserved. Place the code that describes the type of referral made. Remember to document the referral made in the patient's record. 

TYPES OF ENCOUNTERS

1. MEDICAL ENCOUNTER: An encounter by a physician or midlevel practitioner for the purpose of prevention, diagnosis or a medical problem.
2. DENTAL ENCOUNTER: An encounter by a dentist, dental hygienist or dental technician.
3. OTHER HEALTH CARE ENCOUNTERS: An encounter by any health provider other than a medical or dental provider in which health services are provided. For example, the optometrist, podiatrist, nutritionist, dietician, health educator, physical therapist, medical social worker, family planning counselor, occupational therapist.
4. NURSING ENCOUNTER: For the purpose of these reporting requirements, an encounter by a clinical nurse specialist, RN, PHN, or LPN in the person, and acting independently of any other provider.
5. MENTAL HEALTH ENCOUNTER: An encounter in which mental health services are provided,except for psychiatrist which is counted as a medical encounter.
6. ALLIED HEALTH ENCOUNTER: An encounter which is provided by an allied health provider in which the person is acting independently of any other provider.
7. COMMUNITY SERVICE ENCOUNTER: An encounter which is related to outreach referral or follow-up services. These encounters result in the provision of socially oriented services rather than medical care.
8. FAMILY PLANNING ENCOUNTER: An encounter by any medical provider or other health provider in which family planning services connected with contraception is provided.

by taking a patient's history or by taking the vital signs, is not credited with a separate encounter. The nurse in this instance is simply participating in a physician encounter. An encounter does not encompass such services as drawing blood or collecting urine specimens , or taking an x-ray film. The nurse should fill out an encounter if she has a patient coming in for only a lab test , x-ray, EKG, etc.

b. The encounter criteria is met when a patient comes in periodically for physiological measurements and or medication renewal on standing orders of the physician, and THESE ARE ADMINISTERED BY A NURSE without the physician seeing the patient, then the nurse can fill out and get credit for an encounter. However, if the nurse spends time instructing or counseling the patient, even though that patient has seen a physician, she can fill out and get credit for an encounter.

c. The encounter may be in the health center or at any other location integral to the project's outreach or direct referral activities, e.g. patient's home.

d. Group sessions or community meetings such as when a nurse or family health worker speaks to a high school class on hygiene, are not to be included as encounters. Classes for prenatal instruction are not encounters, separate lists should be maintained by staff doing this kind of work. However, group sessions on counseling diabetics and hypertensives can be counted as encounters for each individual patient by one provider only.

Patient pick up billing slip and is directed to the adult medicine station or pediatric nursing station or mental health, social service dental or nutrition.

All patients who need lab work or x-ray, and who do not have a doctor's appointment on that day, the nurses will fill out an encounter and the billing slip will list the charges, but they will be given free to the patient.

After the service is completed and the billing and encounter forms are filled out entirely, the nurse, social worker, mental health person, nutritionist/dietitian will staple the encounter forms together with the billing slip and bring them to the billing clerk.

At the billing desk, the actual cost of the services will be filled in and the billing slip checked for diagnosis, provider, ID number, payment status, etc., and the total charge be placed into the appropriate place. When this is completed, the billing slip will be filed in a basket for evaluation to pick up two or three times a day. The dental department must fill out all Medicaid forms on same day of service and staple with the billing form and encounter form. No encounter forms will be punched without a billing slip. After evaluation finishes with the billing slip, they will bring them to the billing department for actual third party billing.

Patient stops at billing desk - at this time the patient is checked to see if he is registered. Billing Clerk will look the patient's name up on the microfiche reader. This is done by placing the microfiche in the microfiche reader. The microfiche will be in alphabetical order.

a. If the patient does not appear on microfiche, then the patient has to be registered before getting a billing slip and receiving service. The billing clerk will refer the person to an interviewer who will be located in the medical record department, or a designated area.

b. If the person is a new patient, he must be registered before receiving any services.

c. For all patients who are registered and are on the microfiche, their telepnone number, address, number of persons in household, and current payment status must be ascertained at this time. The billing clerk will refer the patient to an interviewer, who will be located in the billing area. Whenever there is a patient back up, the billing clerk will write the information needed on a change of information and put it in a basket where the interviewer will fill in the information later, on the regular registration form. The regular registration form will be used to enter new information in the data system.

Whenever there is a change of name, or coverage number, the patient will be referred to the interviewer, located in the medical records department, so that the pic can be changed.

d. If the patient is a person that is receiving services for Carter Carburetor, Head Start, Upward Bound, CEP, and Family Planning, the billing clerk will refer these patients to the interviewer

who is stationed with her in the billing area. The interviewer will then fill out a mini registration form. The only information needed will be the name, age, sex, date, payment status, and coverage number is any. All of these contract patients will be assigned a special registration number starting with the number 90000-01, 90001-01, etc, and noted in a log.

We cannot stress enough, the importance of accuracy. Each box must be checked. The identification number which includes the family number and the individual member number and patient name must be legible, and if not, then it should be redone.

In addition to the new quarterly reports that is required by HEW, there is also a new federal criteria which states that for every physician and mid-lever practioner, there will be 3 supportive staff members which include nurses, lab techs, health aides, EKG techs, blood drawers, etc. These staff members perform services that HEW figures the doctor does not do. Except for nurses when they are acting independent of a physician, none of the above should fill out an encounter.

Please note: If a person does not get credit for an encounter, it does not mean that his job is not important.

Productivity is important especially to the physician, because the most important federal criteria is productivity of the doctors. For every full time physician we need 3600 encounters per year. This includes adult, child, OB/GYN and physician specialist. So productivity is very important and means every encounter form is very important. Hence the need to be very careful and accurate with the encounters.

Up to now the Evaluation Department has been correcting errors to make sure proper credit was given. Due to the fact that our department will be entering the data into the data entry machine and compling and processing the data to generate the report, we will not be able to correct errors anymore. Therefore, we will be sending the forms back to the providers for correction. Failure to correct the errors or failure to return the encounter forms or whatever forms back to be processed, could result in

Loss of credit for that encounter which would result in a reduction of productivity and therefore money to our project.

Your best cooperation is needed to make a success of our new data system.

Health Service Encounter Form

Patient's Name
Last _____
First _____
. No. 3 [ ][ ][ ][ ][ ] — [ ][ ]

2. Date [ ][ ] [ ][ ] [ ][ ]
3. Provider [ ][ ][ ]
4. Site of Encounter [ ]
1=Center 2=Home 3=Hospital 4-Oth...
5. New Medical Patient [ ]
1-Yes 2=No

Blood Pressure: _____ [ ][ ][ ] Systolic / [ ][ ][ ] Diastolic [ ]

Appointment Status: [ ]
1=Appointment 2=Walk-in 3=Direct Referral 4=Patient Cancelled 5=Missed Appointment
6=Center Cancelled 7=Home Health Patient 8=Group

Provider Time: [ ]
1=Less than 15 min. 2=15 min. 3=> 30 min. 4=30 min. 5=45 min. 6=1 hr. or more

Immunizations Given: [ ]
1=DPT & OPV #1 (Series Started) 2=DPT & OPV #2 3=DPT & OPV #3 4=DPT & OPV Booster #1 5=DPT & OPV Boosters #2

Services Performed (Check as many as appropriate)

1. ◯ Alcohol & Drug Abuse Counselling
2. ◯ Audiogram
3. ◯ Complete History & Phy. Exam.
4. ◯ Ear, Nose & Throat Specialty
5. ◯ EKG
6. ◯ Family Planning/Medical encounter
7. ◯ Family Planning/Other Health encounter
8. ◯ Follow-up or episodic medical exam.
9. ◯ Health Education services
10. ◯ Injection
11. ◯ Laboratory Service
12. ◯ Mental Health Service
13. ◯ Nursing – Special Consultation
14. ◯ Nutritional Service
15. ◯ OB/GYN Service
16. ◯ Ophthalmology/Optometry/Optical Service
17. ◯ Physical Therapy
18. ◯ Podiatry
19. ◯ Rx Refill
20. ◯ Social Services
21. ◯ Surgical Services
22. ◯ Tine test/PPD/Reading
23. ◯ X Ray

Referrals / Ordered Services (Check as many as appropriate)

24. ◯ Adult Medicine
25. ◯ Alcohol & Drug Abuse Counselling
26. ◯ Dental Services
27. ◯ Ear, Nose & Throat Specialty
28. ◯ EKG
29. ◯ Family Planning
30. ◯ Home Health Service
31. ◯ Hospital – Inpatient
32. ◯ Hospital – Outpatient
33. ◯ Lab. Service – Inside
34. ◯ Lab. Service – Outside
35. ◯ Mental Health Service
36. ◯ Nursing – Special Consultation
37. ◯ Nutritional Service
38. ◯ OB/GYN Service
39. ◯ Ophthalmology/Optometry/Optical Service
40. ◯ Pediatrics
41. ◯ Physical Therapy
42. ◯ Podiatry
43. ◯ Private Specialist (Outside)
44. ◯ Social Service
45. ◯ Surgical Service
46. ◯ X Ray
47. ◯ None

Type of Drugs Prescribed (Check as many as appropriate)

48. ◯ Analgesic
49. ◯ Anti-infective agents
50. ◯ Autonomic/Gastrointestinal
51. ◯ Cardiovascular Agents
52. ◯ Central Nervous Systems (except Analgesics)
53. ◯ Contraceptives
54. ◯ Decongestants/Expectorants/Antihistamines
55. ◯ Electrolytic, Caloric & Water Balance
56. ◯ Hormones & Synthetic Substitutes
57. ◯ Skin & Mucous Membrane Preparations
58. ◯ None

Number of Scripts Written _____ [ ]

Diagnosis

Primary _____ [ ][ ][ ][ ] ICDA CODE

Secondary _____ [ ][ ][ ][ ]

FORM NO. 2

HEALTH CENTER

1. Patient's I.D. No. 3

2. Registration Date: MONTH DAY YEAR

PATIENT'S NAME: LAST (one blank space) FIRST M.I.

ADDRESS:

ZIP CODE

6. TELEPHONE NO.

DATE OF BIRTH: MONTH DAY YEAR

8. SEX 1) Male 2) Female

TOTAL FAMILY INCOME (GROSS)

10. Total No. of Persons in Household

PAYMENT STATUS

1. Medicaid

2. Medicare (Part B) Rx ____ %

3. Medicare / Medicaid

4. Partial Pay ____ % or $

5. Full Pay (100%)

6. Private Ins. ____ ____ Cash ____ % or $
COVERAGE NUMBER
Company Name ____

7. Group Contract ____
NAME OF GROUP

8. No Charge 9. Other Specify – ____

PRIMARY REFERRAL SOURCE

1. Self
2. Neighbor, Relative
3. Neighborhood Hlth. Prog. Staff
4. Community Action Agency
5. Health, Welf., or Soc. Agency
6. Private M.D.
7. School
8. Hospital
9. Other (Specify)

OCCUPATION ____

EMPLOYER OR SCHOOL ____

SOCIAL SECURITY NUMBER ____ ____ ____ ____ ____ ____ ____ ____ ____

EDUCATION (HIGHEST GRADE COMPLETED) ____

MARITAL STATUS ____
(MARRIED, NEVER MARRIED, WIDOWED, SEPARATED OR DIVORCED)

RACE ____
(BLACK, WHITE, ORIENTAL OR OTHER)

HOSPITAL INSURANCE: YES ___ NO ___ Name of Co. ____ Coverage No. ____

CONSENT FOR TREATMENT: I hereby authorize the above-named Neighborhood Health Center to provide medical, surgical, dental and hospital treatment to the above named person and to use this information for medical education and research.

DATE ____ SIGNED ____ RELATIONSHIP ____

WITNESS ____

PERSON TO CONTACT IN EMERGENCY: Name: ____

Address ____ Telephone No. ____

EVALUATION DATE ____ INITIALS ____ / DATE ____ INITIALS ____ Form No. 1