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A STUDY TO DETERMINE THE AMBULATORY QUALITY ASSURANCE
IMPACT OF A COMPUTER-STORED MEDICAL RECORDS SYSTEM
UPON THE FAMILY PRACTICE CLINIC, SILAS B. HAYS
ARMY COMMUNITY HOSPITAL, FT. ORD, CALIFORNIA

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A Graduate Research Project
Submitted to the Faculty of
Baylor University
In Partial Fulfillment of the
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of
Master of Health Administration

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By

Captain Frank J. Berlingis, MSC

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CHAPTER I

INTRODUCTION

Development of the Problem

Background

Quality assurance is probably as old as the art of medicine itself. The ancient code of King Hammurabi of Babylon dates back to 1800 B.C. and certainly represents a dramatic example of physician accountability.¹ The code specified that a surgeon would forfeit a hand if a nobleman-patient died or lost his sight as a result of the surgeon's intervention. Hippocrates provided insight into the meaning of quality medical care which is uniquely appropriate to the present:

Life is short, and the Art long; the occasion fleeting; experience fallacious, and judgement difficult. The physician must not only be prepared to do what is right himself but also to make patients, the attendants, and the externals cooperate.²

Over the years, other insightful individuals have expressed the need to systematically assess the quality of care provided in a health care delivery system. The initial thrust of such assessments has been directed at quality evaluation within an inpatient setting. This has developed to the point where the majority of hospital medical and nursing staffs regularly evaluate the care which they provide.³

While advances in the inpatient setting have been impressive, there has not been a comparable development and

implementation of methods for the review and evaluation of ambulatory health care.⁴ Although there was some justification for concentrating the early quality review efforts upon inpatient care--the task is an easier one, and the impact of suboptimal care is presumed to be greater for the hospitalized patient--continued emphasis solely upon inpatient treatment is no longer valid.

This is readily apparent if one views the ambulatory health care delivery system in terms of its scope. During the 1970s, a study conducted by the National Center for Health Statistics showed that there were close to one billion ambulatory visits annually compared to fewer than 30 million annual short-stay hospital discharges.⁵ This represented an average of five outpatient discharges per person.

Continued emphasis solely upon inpatient care is invalidated further by the fact that many illnesses that do not result in hospitalization cause morbidity. Furthermore, ineffective ambulatory treatment, even if not actually harmful, wastes limited resources. The increased role of third parties such as Medicare, Medicaid, and private insurance in financing outpatient services, therefore, is supplying a most compelling impetus toward quality assurance (QA) activities. Yet another purpose for ambulatory QA emphasis centers around the control of rising malpractice costs by identifying and correcting grossly deficient practices which are performed by a small minority of physicians but which threaten the

profession as a whole.⁶ Finally, there is an unmeasured but substantial demand for public accountability of the medical profession. This demand is part of the consumer movement and often expresses distrust of many established institutions, including organized medicine. Thus, despite the numerous problems involved in ambulatory care evaluation, there is a pressing need for effective methods of reviewing the quality of ambulatory care.

Methods of quality assessment differ according to the source of the data used, the aspect of the medical care system which is examined, the time at which that aspect is examined, the index used for deciding which cases will be selected for examination, and the criteria used to judge quality.⁷ One aspect which is consistent throughout any quality assurance system, regardless of actual method utilized, is data dependency. Timely and accurate information abstracted from medical records forms the basis for assessing diagnostic and treatment practices. "An effective clinical information system is a 'sine qua non' in the design of quality assurance programs."⁸

It would seem logical, then, that, since automated health information systems have come to play an integral role in the operation of health care institutions, the timely and accurate data they produce would be used extensively for QA activities. Unfortunately, health information systems in primary ambulatory care settings have been designed and

employed to make planning and management decisions and to describe types of patients and problems seen in the ambulatory setting.⁹ While some exceptions do exist, the potential uses of data from health information systems for assessing quality of care have not been fully explored.

Two factors may explain why ambulatory care data systems have not been so used. First, because a large number of presenting problems remain ill defined without clear diagnosis, it is difficult to apply explicit criteria to evaluate ambulatory care.¹⁰ Second, no strategies have been developed or tested to compare the reliability or the accuracy of judgments made from limited automated data with judgments made based upon the complete medical record.¹¹ The key informational element in the health care delivery system, therefore, remains the individual patient record.

The medical record systems in general use today may have been adequate when health care was limited in scope and focused primarily upon the inpatient. Today, health care is a far more complex operation involving both inpatient and outpatient facilities. Ambulatory care, whether provided by a family physician or other specialist, centers around large numbers of patients who may be seen only infrequently. Diagnosis and treatment at all levels involve more variables than in the past. The physician is expected not only to keep aspects of acute and chronic care under his surveillance but also to consider a variety of preventive activities. He must,

further, coordinate his efforts with other physicians as well as satisfy the ever-increasing governmental requirements.¹² It is time, therefore, to explore innovative methods to collect, process, store, retrieve, and communicate data and information in an efficient and flexible manner with the ultimate goal of enhancing patient care. Modern methods of information management, specifically, a Computerized Medical Record Information System (CMRIS), may be one answer which can be applied to the achievement of optimal health care.

Local conditions and applied
research question

Silas B. Hays Army Community Hospital (SBHACH) was selected by the Tri-Service Medical Information System (TRIMIS) Program as the sole Army test site for a CMRIS. The objective of this eighteen-month test is to define and validate the following:

1. Health care provider patient record information requirements.
2. Order entry/results reporting (OE/RR) formats and data requirements.
3. Data-sharing needs between wards/clinics and ancillary departments.
4. Similarities and differences in outpatient and inpatient OE/RR requirements.
5. Health care provider report requirements.
6. Methods of entering and retrieving information.¹³

Initial phases of the CMRIS test are concentrating upon applications specific to the Family Practice Clinic (FPC). The selection of this service is justified since it is the only specialty not bound by age group or organ system in defining the content of its medical care.

Since a primary project goal is to provide the family practice physician with a flexible patient medical information base designed to enhance the health care of the patient, this test provides an ideal opportunity to study methods by which a CMRIS can be used to meet ambulatory quality assurance objectives. Furthermore, such a study concomitant with a system test will insure that the basic issues of improved patient care will not be ignored in the hectic environment often associated with automation. Moreover, the study is necessary to avoid common misconceptions regarding hospital automation--specifically, the assumption that automation will invariably enhance patient care. Finally, overlaying CMRIS objectives with quality assurance issues could form the basis for broader ambulatory care applications if and when CMRIS is proliferated to other sites.

The study will concentrate upon the feasibility and the development of family practice quality assurance methods which can be supported by the data from a computer-based ambulatory information system. The need for such research becomes obvious when one examines a representative sample of Patient Care Evaluation Committee minutes. Several problems

become immediately apparent.

First, there is no standard method of auditing outpatient records. In fact, it is questionable in some cases whether the audit is done at all. Second, no compilations are provided regarding discrepancies which can be used as a teaching tool to improve records documentation. Third, integrating QA activities from ancillary services such as laboratory and pharmacy is difficult since the autonomous nature of the manual auditing process inhibits coordination and continuity. Finally, as addressed earlier, the majority of QA activities center around the inpatient, where the record is well documented and complete.

In light of the limited emphasis placed upon the use of computerized systems for QA assessment which pervades the ambulatory health care industry in general and the specific need of SBHACH to emphasize quality patient care during a period of automation testing, this project was undertaken to answer the following applied research question: Can prescribed Joint Commission on Accreditation of Hospitals (JCAH) quality assurance standards for ambulatory care services be better satisfied in the SBHACH Family Practice Clinic through the use of a computerized medical record information system?

Objectives, criteria,
and limitations

The JCAH has adopted standards entitled "Hospital-Sponsored Ambulatory Care Services." These have replaced the

"Outpatient Services" section of the Accreditation Manual for Hospitals. In addition, JCAH has also published an accreditation manual specifically for ambulatory health care. Both sets of standards reflect JCAH's recognition of the increasing importance of ambulatory care for delivery of patient care services within hospitals and freestanding clinics.¹⁴ Using these rather broad and purposely generic standards as guidelines, the objectives of the study are:

1. To assist in the defining and validation process outlined in the CMRIS objectives with primary emphasis upon the development of ambulatory quality assurance methodologies.
2. To review JCAH standards with regard to the specific functions within family practice and analyze how ambulatory services can be managed with the same degree of concern for quality as is displayed in inpatient operations.
3. To begin the ongoing process of criteria development in conjunction with stated medical needs and desires which can be used to access the CMRIS data base, resulting in reports which are directly applicable to family practice ambulatory QA activities.
4. To analyze the usefulness of automated assessment procedures in QA monitoring.
5. To provide input regarding the feasibility of proliferating the concept of evaluating ambulatory care with a CMRIS based upon system developmental progress throughout the study.

It should be noted that, although JCAH criteria will act as the basic guide throughout, they are written to accommodate the dynamic nature of the ambulatory care field and to reflect the belief that the quality of patient care should be consistent across health care settings.¹⁵ Their intent is to provide ambulatory care organizations with a framework for developing unique and innovative techniques. It is hoped that this research will give rise to such techniques.

The following limitations were imposed from the onset of this study:

1. The development of QA specifications cannot alter the current contract between TRIMIS and Libra Technology, the prime contractor.
2. The scope of the study is limited to the development of ambulatory QA procedures associated with the CMRIS, to include Family Practice Clinic and laboratory and pharmacy operations. The study will not address the proposed inpatient interface either as a stand-alone system or as a part of the automated Patient Administration System.
3. Although the study will touch upon issues relating to proliferation to other ambulatory care clinics, research will be limited to the family practice setting with associated ancillary spin-offs.

Unforeseen factors influencing the study

During initial phases of implementation, the CMRIS

appeared to be on schedule and proceeding according to milestone dates. Initial study efforts were, therefore, geared toward specific events and the QA-related advantages those events would bring.

Four months into the system test, it became apparent that the system was suffering from a user acceptance problem, the severity of which surprised even the developer. Due to a host of reasons, including lack of proper user training, perception of unwillingness on the part of system designers to make changes perceived as crucial, poor managerial support of the system, and unreliable data, it was decided that the test would come to an immediate halt. Problems, whether real or imagined, became so severe that consideration was given to permanently discontinuing the test of the CMRIS at SBHACH. A high level team was immediately dispatched from TRIMIS in an attempt to rectify this serious situation so that the CMRIS test could continue. After a series of negotiations and user acceptance training sessions, a compromise was reached that would allow for test continuation based upon the implementation of changes outlined by the users.

Breakdown of the system test was initially viewed as a virtual death knell for this study. It became apparent, however, as the negotiation process continued, that elements of the study were, in fact, being used to pinpoint problem areas heretofore viewed only in a visceral sense. In addition, CMRIS potential denoted by early research efforts added

a dimension of positive feedback that aided in the restoration of confidence.

As a result, the study continued with its original objectives but with the unexpected aspects brought about by the near system demise. Wherever applicable, these aspects have been incorporated into the research to demonstrate their impact upon quality assurance activities.

Review of the Literature

The current state of the art in the utilization of information systems to support quality assurance in hospitals is limited. Although several examples of useful systems are documented, the literature indicates that these are for the most part experimental and developmental and have not been widely utilized in American hospitals.¹⁶ A survey of Georgia hospitals, for example, showed that fewer than 35 percent of the responding institutions were using inhouse computer systems or outside data-processing services for quality assurance applications. A national survey evinced similar results, with very limited application of computer systems to quality assurance activities.¹⁷

The research conducted on those facilities which have used automated systems for QA has yielded some interesting results. Evaluative research in a 550-bed teaching hospital was carried out to determine whether the benefits gained from such systems were cost justified. The major findings can be

summarized as follows:

1. The development of a useful, retrospective computerized quality review system is feasible.
2. Such a system is potentially cost effective, but full savings can be realized only by proliferation to a number of hospitals through minor modifications.
3. The costs can be reduced by integration with existing systems.
4. A high level of physician interest in medical care review can be achieved.¹⁸

Several studies have shown that the major problems found in medical audit systems relate to the difficulty of definition of data and selection of criteria used to conduct audits. It has been concluded that the major obstacles of systems development are inadequate patient data, unreasonable evaluation criteria, and insensitive audit procedures.¹⁹ Two studies conducted by the Institute of Medicine raised serious questions about the reliability and the adequacy of discharge data abstracted from patients' medical records.²⁰ An automated system can presumably overcome this problem by making data collection an integral part of the patient care recording process and by not requiring a separate abstraction process. The COSTAR (Computer Stored Ambulatory Record) System used by the Harvard Community Health Plan is such a program.²¹ In this plan, the information recorded at the time of treatment is entered directly into a computer and used for

concurrent quality assurance purposes.

The computer has also been shown to be useful for utilization review purposes. This has ranged from providing data for admission certification, length of stay certification, and medical care evaluation studies to the actual development of criteria for monitoring utilization.²² A study of one such system was carried out in twenty West Pennsylvania hospitals. Computerized screening compared favorably to similar review by both records clerks and health professionals. A major benefit was the capability to review 100 percent of the records rather than a sampling, as required by manual methods.²³

Innovative methods of concurrent quality audit using a computer as a protocol-based reminder system are also possible. Once standard tasks or criteria developed by physicians are stored in a computer file, the system will automatically produce a "reminder" for those cases not meeting the prescribed criteria. Systems of this kind have been shown to enhance quality of care and may well be the purest form of quality "assurance," since retrospective audits are more correctly labeled quality assessment.²⁴ Further studies suggest that prospective reminders do reduce clinical errors and improve quality of nursing care.²⁵ It has even been suggested that the only way to facilitate quality of care evaluation is by the use of standardized protocols and reminder lists that can guide the appropriate treatment and care regimens.²⁶

Patient satisfaction has become a recognized factor in measuring medical care quality. The public demand for greater consumer accountability has given rise to the use of computers for monitoring patient satisfaction. Studies carried out in a variety of settings concluded that the patient's perception of care often differs from that measured by peer review or retrospective record audit.²⁷

Quality of care, although primarily measured from the provider-patient encounter, also depends upon the proper management of resources. Management processes in hospitals are information dependent, requiring data which are relevant, timely, accurate, and sensitive. Some studies have been made using the computer to assist in administrative planning and control.²⁸ For the most part, however, hospital information systems have not yet met their potential in providing effective information for management planning, evaluation, and control.²⁹

In summary, review of the literature indicates that information systems have not been used extensively as an aid to quality assurance in hospitals. Few operational systems are reported. Several reasons for this run consistently throughout the literature, of which the following is only an example:

- (1) Lack of standardization in data definitions . . . and lack of agreement on standard criteria to be utilized for medical audit have slowed the development of generalized systems which could be used in multiple hospitals.
. . .

(2) Lack of integration of information systems in hospitals inhibits the building of a reliable data base for quality assurance purposes. . . .

(3) . . . inability of most hospitals to integrate clinical and financial data makes it virtually impossible to use hospital information effectively for management planning and cost control purposes.

(4) Vendors of computer software have not given high priority to the development of clinical software packages . . . concentrating instead on the more lucrative administrative areas such as financial systems.

(5) There have been problems in obtaining physician acceptance for the use of standardized protocols and reminder lists of diagnostic and therapeutic procedures in medical practice, even though such systems have been shown to be effective in improving the quality of care rendered to patients.

(6) There are a set of generic problems which have inhibited the development of all types of information systems in hospitals, and quality assurance systems have been affected by these problems. The major problem areas include: (a) inadequate systems analysis and design prior to implementation of a new system; (b) underfunding of the system development effort; and (c) inadequate involvement and lack of sophistication of top administrators in systems planning and design.

(7) Efforts at the national level by professional associations to develop standard systems of quality assurance and performance control have been limited and have not yet met with general acceptance

(8) Small hospitals, those of 150-beds or fewer, have been neglected in the work on quality assurance systems. Most systems developed to date require large scale computer capabilities, and very few small hospitals can afford the investment in hardware and software which would be required to implement these systems in their institutions.³⁰

Research Methodology

The following process will be utilized in order to carry out study objectives:

1. Conduct indepth interviews and attend formal training sessions in order to become thoroughly familiar with the capabilities and the limitations of the computer-stored medical record information system.

2. Validate vendor claims of functional user flexibility in order to determine the feasibility of report creation/modification.
3. Review in detail those JCAH standards applicable to ambulatory care and assess current level of compliance.
4. Determine how the CMRIS capabilities can be utilized to enhance quality of care. This will entail making a system evaluation based upon the following specifications:
 - a. A vast number of specific items of clinical data, unique and categorical, some recent, some as old as the patient, must be available for selective retrieval. Family "linkages" must integrate relevant information of individual family members.
 - b. Multiple providers and multiple sites will require independent, often simultaneous access to relevant health-related data regardless of time or location. This implies both data "aggregation" (entry of data from many remote sites) and "multiple-access" (capability of geographically dispersed settings to independently retrieve centrally stored data).
 - c. Continued surveillance regarding the status of all types of recorded clinical data must be maintained. The record must alert the clinician to risk situations before conflicting actions are taken or unattended risks proceed to adverse event.
 - d. Chart review and selective or comprehensive review

of patient management will require rapid, inexpensive, and flexible retrieval of a large variety of clinical data related to individuals, disease categories, and patient populations.

- e. Reporting of all clinical encounters or statistically valid sampling of inpatient and outpatient services on a frequent, perhaps daily, basis is essential for valid short-term and long-term epidemiological and planning studies.
 - f. Detailed information regarding community health patterns must be available to medical educators and researchers for effective planning of curricula and research efforts. Students studying individual cases should be able to retrieve clinical data rapidly as a preliminary to understanding and interpretation.
 - g. Standard accounting parameters, itemization of clinical services, and clinical outcome measures will be required.
 - h. Data should be available only to those having a legal right of access. The entire information system must be secure against illegal use by unauthorized persons.³¹
5. Compare the system evaluation results (4, above) with JCAH standards and evaluate potential compliance by using actual CMRIS output reports specifically formatted for quality assurance in an ambulatory setting.
6. Based upon 5, above, speculate in regard to the feasibility

of proliferating a CMRIS program to other clinics.

Footnotes

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CHAPTER II

DISCUSSION

Computer-Stored Medical Record Information System

The installation of a CMRIS program in the Family Practice Clinic at SBHACH represents the first attempt by an Army medical treatment facility to capture outpatient data by means of automated medical record abstraction. The project is designed for installation in the following steps:

1. Phase one--The basic system is tailored for the Family Practice Clinic (FPC) to provide the functions of registration, scheduling, and medical data entry.
2. Phase two--The basic system will be enhanced to include order entry/results reporting functions. Ordering from the FPC to the laboratory and return of the respective results will be accomplished. In addition, the entry of pharmacy medication orders will also be automated.
3. Phase three--The same functions installed in the FPC will be proliferated to the Internal Medicine Clinic.¹

The research effort was initiated during the phase one implementation process. The assessment of quality assurance potential from the very onset of implementation was not considered premature since it was believed that emphasis upon quality patient care would act as a focus to keep systems

efforts on track. Long-range objectives for phase one of implementation were identified as:

1. Enhance patient care by improving availability, accessibility, timeliness of retrieval, legibility, and organization of medical information.
2. Facilitate medical practice administration by providing the data retrieval and analysis capability required by management for day-to-day operation, budgeting, and planning.
3. Furnish data-processing support for administration and ancillary services (e.g., scheduling, laboratory, pharmacy, and planning).
4. Provide the capability to generate routine management reports and support user-identified inquiry and report generation on any elements of the data base.
5. Support programs of quality assurance by monitoring the content of the data base according to user-specified rules and report deviations from those standards of care.²

System modules

A basic design concept of the CMRIS is that of a modular system which makes available a large variety of options. This concept was employed to provide the flexibility to meet specific practice needs. The modules which are basic to the system are:

1. Security and integrity module--These routines, which are

an integral part of all modules, provide for identifying and logging in/out all terminals and users to prevent unauthorized access to medical and administrative information. The module also provides the support routines to monitor the functioning of the system, provide transaction logging, and prevent data loss in case of machine failure.

2. Registration module--These interactive routines are used for the entry and review of all identification data (demographic, insurance, and administrative) for each patient and family. A small set of data is required in any implementation of the registration mode. It is possible for the practice to select the remaining items to be collected in the registration sequence from a large "menu" of pre-coded fields and, if necessary, to define additional registration items.
3. Medical record module--This module represents the core of the information system and provides a large variety of options for recording, manipulating, organizing, and displaying data. All medical data are collected by the medical staff using encounter forms designed for the unique needs of the particular practice. The information on the forms is entered into the computer system by clerical staff using computer terminals directly connected to the computer. This module contains both the data entry routine and the routines which provide accessibility to the total medical and administrative data base. Direct

inquiry into this data base can be accomplished through all computer terminals specified by the practice as having the authority to access medical information (e.g., terminals in the medical records room and in the care areas). This information is also used to prepare the computer-generated medical record (status report) which is made available for each scheduled visit.

4. Scheduling module--This set of routines allows on-line booking and cancellation of appointments, review of current appointments, and production of legible, accurate schedules and day sheets. A minimal registration sequence for the scheduling of nonmembers or new patients is available.
5. Management reporting module--These routines allow the practice to specify the parameters for search routines which operate on the data base to produce patient listings and routine tabulations and cross-tabulations.

CMRIS operation

The basic CMRIS operational flow is depicted in Figure 1. Key documents involved in system operation are shown in Appendix A and include the registration form, the encounter form, and the patient status report.

The operation of the CMRIS differs from a manual medical record system in the following areas:

1. The FPC must enter a set of registration data on each

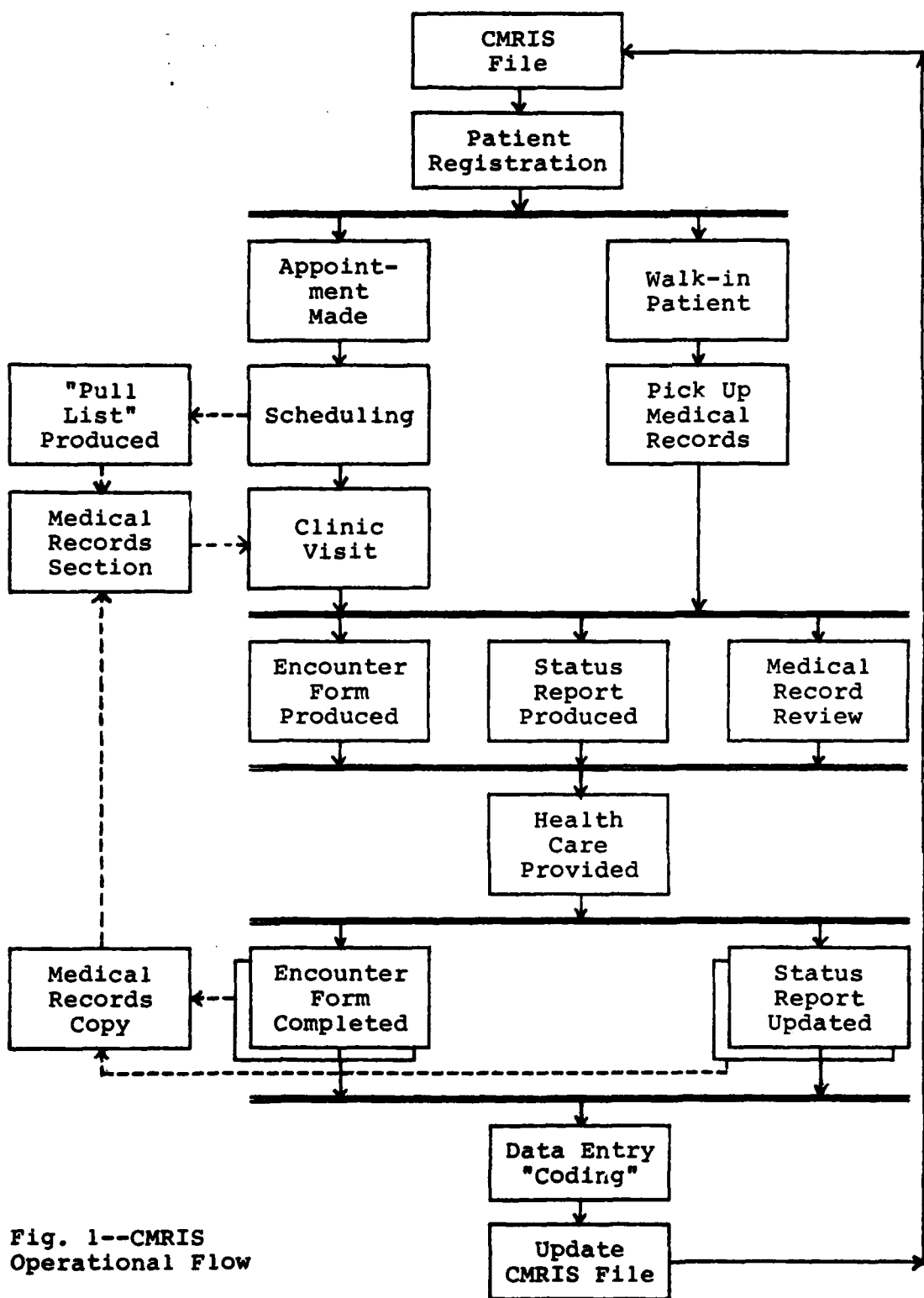


Fig. 1--CMRIS
Operational Flow

patient. This provides a single data file which is always available for patient identification, family linkage, and demographic information. This file can be accessed by authorized users at remote terminals by either patient number or alphabetic name look-up.

2. The data are collected at each patient visit by recording both administrative and medical information on a form which is specifically designed for the needs of the particular medical group and/or specialty. This encounter form is designed to capture all data which providers routinely collect in clinical practice. The use of this single source document facilitates practice efficiency and data integrity. The data collected on this single document supply the multiple needs of medical records, management reporting, quality assurance, medical audit, and research. The encounter form provides for the recording of information in a structured format so that each particular datum is uniquely identified. The provider records the specific medical data for the patient by checking the appropriate item on a self-encoded checklist and writing the name of the item. Further detailed information concerning diagnoses, therapies, test results, etc., is recorded in narrative text. All narrative information is linked to the encoded information and is always accessed and displayed with this code.
3. The medical record data provided by the CMRIS represent

the most up-to-date information. Additionally, the CMRIS can display medical information in the temporal sequence in which it was entered. The information is presented in a form that facilitates scanning of the relevant data in a minimal period of time.⁴

Report Creation/Modification Capability

At project onset, only those reports identified as routine were produced on a scheduled basis. A representative sample of recurring reports with QA potential is presented in Appendix B. Although such reports would subsequently be assessed for their QA usefulness, it was first necessary to validate a system feature heretofore unused, i.e., the ad hoc report generator. The demonstration of such report-generation capability was crucial for the ultimate success of this study.

The ad hoc report generator can be queried only by the system manager. The validation test, therefore, began with a request for separate reports, each designed to challenge the data collected by a specific system module. Ideas for report topics came from family practice physicians as well as from the literature.⁵ The results of this initial test are depicted in Chart 1. The reports produced for this test are shown in Appendix C.

JCAH Standards and Current Level of Compliance

The project continued with a thorough review of the

Module Tested	Report Created	Time Required	Output Success?
Security	None--Attempt by Unauthorized User	--	Yes
Scheduling	Nurse Workload Report Table of Appointment Class	<24 Hours	Yes
Registration	Roster and Selected Patient Data for Dr. X	<24 Hours	Yes
Medical Data	Diabetes Audit Panel	<24 Hours	Yes

Chart 1--Results of Initial Test of
Ad Hoc Report Generator

standards published by the JCAH so that CMRIS QA efforts could focus upon those items considered essential for quality patient care. In addition, data distributed at the Fifth Ambulatory Patient Care Conference held at the Academy of Health Sciences, Ft. Sam Houston, Texas, March 28-April 2, 1982, were used to assess the scope of QA deficiencies in ambulatory care commandwide. Again, this was considered the most optimal method of focusing CMRIS capabilities to meet QA needs. Finally, current QA mechanisms used in the FPC were reviewed in order to determine level of compliance and further ascertain if a CMRIS could enhance present methods.

The results of this review both on the macro and on the micro level are summarized in Chart 2 and Table 1. In Chart 2, JCAH ambulatory care standards applicable to this project are divided into two broad categories--(1) quality assurance and (2) medical records. JCAH criteria for these

Criterion (1)	FPC Compliance? (2)	CMRIS "Interface"? (3)
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I. QUALITY ASSURANCE

Standard: The organization demonstrates a consistent endeavor to deliver patient care that is effective within available resources and consistent with achievable goals. A major component in the application of this principle is the operation of a quality assurance program.

1. At least the following quality control mechanisms shall be established:		
a. Coordination of a scheduling & staffing plan that facilitates accessibility & continuity of care & that minimizes patient waiting time	Yes	Yes
b. System for follow-up of broken appointments as well as evaluation of effectiveness of system		Yes
c. Timely review, interpretation, & reporting, as appropriate, of diagnostic radiographic studies, laboratory tests, & electrocardiograms, to be available to practitioner requesting such services in provision of ambulatory care	In Part	Yes
NOTE: Reports on patients scheduled for surgery shall be made available to the responsible practitioner before surgery is performed. A mechanism shall be established for notifying & recalling patients who require repeat or additional studies or for whom further consultation is appropriate.		
d. Means of assuring that ambulatory surgical patients treated in facility under other than local anesthesia receive same preoperative & postoperative evaluations as patients undergoing same surgical procedures on an inpatient basis	NA	NA
e. Systematic review & evaluation of surgical patients who require hospitalization following ambulatory surgery	NA	NA
f. Examination of surgical specimens by a pathologist	Yes	No

Chart 2--Family Practice Clinic Compliance and CMRIS Interface with
JCAH Standards and Criteria

Criterion (1)	FPC Compliance? (2)	OWIS "Interface"? (3)
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I. QUALITY ASSURANCE--Continued

g. Copy of record or summary of ambulatory care services to private practitioner or medical facility responsible for follow-up care when authorized & appropriate	Yes	Yes
h. Maintenance & evaluation of patient drug profiles, whenever possible	In Part	Yes
i. Inclusion of ambulatory care patients who receive antibiotics in medical staff review of clinical use of antibiotics	Yes	Yes
j. Inclusion of ambulatory care patients who receive blood transfusions in medical staff review of blood utilization	Yes	Yes
k. Compliance with requirements of Radiology Services section of Accreditation Manual for Hospitals when facility provides radiation therapy for ambulatory patients	Yes	No
l. Means of communicating in language of predominant population groups served	In Part	No

II. MEDICAL RECORDS

Standard: The organization maintains a medical record system that permits prompt retrieval of information.
 Medical records are legible, documented accurately in a timely manner, and readily accessible to health care practitioners.

2. Prior pertinent medical record information shall be available to attending practitioner and other authorized individuals. Following information shall be documented in each patient medical record; at time of each ambulatory care visit, any required updating of such information shall be accomplished and any pertinent new information entered:		
a. Patient identification		
b. Relevant history of illness/injury & physical findings		
c. Diagnostic & therapeutic orders		

Chart 2--Continued

Criterion (1)	FPC Compliance? (2)	CMRIS "Interface"? (3)
II. MEDICAL RECORDS--Continued		
d. Clinical observations, including results of treatment e. Reports of procedures, tests, & results f. Diagnostic impression g. Patient disposition & any pertinent instructions given to patient and/or family for follow-up care h. Immunization record i. Any allergy history j. Growth charts for pediatric patients k. Referral information to & from outside agencies	In Part	In Part
3. Except as required by law, any record that contains clinical, social, financial, or other data on a particular patient shall be treated in a strictly confidential manner & reasonably protected from loss, tampering, alteration, destruction, & unauthorized or inadvertent disclosure of information	Yes	Yes
4. An individual shall be in charge of medical records; individual's responsibilities shall include, but not be limited to, the following:	Yes	No
a. Maintaining confidentiality, security, & physical safety of patient records b. Maintaining unique identification of each patient record c. Supervising collection, processing, maintenance, storage, timely retrieval, & distribution of records d. Maintaining predetermined, organized medical record format	Yes	In Part
5. Reports, histories, & physicals; progress notes; & other materials (such as laboratory reports, X-ray readings, & consultations) shall be incorporated into records in a timely manner	In Part	Yes

Chart 2--Continued

Criterion (1)	FPC Compliance? (2)	ORIS "Interface"? (3)
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II. MEDICAL RECORDS—Continued

6. Summary list of significant past surgical procedures & past & current diagnoses or problems shall be conspicuously documented in each patient medical record to facilitate ongoing provision of effective medical care: a. Summary list shall be legibly recorded in same location in all patient records b. Summary list will not repeat problems or diagnoses that recur during ongoing treatment c. Summary list will include, but not be limited to, the following: (1) Significant surgical conditions (2) Significant medical conditions (3) Any allergies & untoward reactions to drugs (4) Currently or recently used medications	In Part	Yes
	In Part	Yes
7. Entries in patient records shall be legible to clinical personnel	In Part	Yes
8. Review & evaluation of quality & appropriateness of ambulatory care services shall be performed at least twice annually & involve use of medical record & preestablished criteria	Yes	Yes

TABLE 1
JCAH MEDICAL RECORD AND QUALITY ASSURANCE FINDINGS
HEALTH SERVICES COMMANDWIDE, 1981

<u>Unmet Criterion</u>	<u>Number of Occurrences</u>
<u>Medical Records:</u>	
Emergency medical records must include condition of patient on release and have instructions to patient or family	3
All entries must be legible	2
All entries must be dated	8
All diagnoses must be recorded in full, without abbreviations or symbols	5
Antibiotics must be documented	2 ^a
<u>Quality Assurance:</u>	
Ongoing review of use of antibiotics must be documented, along with appropriate action as required by findings; written criteria should be used in review of antibiotic usage	7
Review and evaluation of quality and appropriateness of ambulatory care services shall be performed at least twice annually and involve use of medical record and preestablished criteria	7
Review and evaluation of quality and appropriateness of emergency patient care shall be performed on at least a monthly basis and documented	6
Realistic priorities shall be set for assessment/resolution of important problems	5
Criteria must be written	5
QA actions must be documented	9
There must be an effective plan for assuring that problems have been eliminated or reduced (follow-up)	4
Written QA plan must delineate lines of authority, accountability, and communication	3
Written criteria that relate to essential or critical aspects of patient care shall be used to assess problems	1
There shall be coordination of a scheduling and staffing plan that minimizes patient waiting time	1

^aThere were also seven findings in QA.

categories are listed in Column 1. Column 2 indicates whether the SBHACH FPC is fulfilling in some way the intent of the standard as evidenced by performance and documentation. "In part" indicates that compliance could be improved. Column 3 indicates whether the CMRIS could in some way influence the standard described. It should be noted that a "Yes" in Column 3 does not assume the standard can be positively influenced by the CMRIS but merely denotes an interface between the system's objectives and the JCAH standard. The identification of this interface is crucial in determining what JCAH criteria should ultimately be used to assess QA enhancement by the CMRIS. Table 1 summarizes common JCAH findings for 1981 by the broad categories outlined above.

CMRIS Evaluation

Having identified several JCAH criteria that interface and are potentially impacted by the CMRIS, an evaluation was made to determine the system's capability to assist in the FPC ongoing quality assurance efforts. Demonstrating the system's capability to meet or exceed a specific JCAH criterion was not considered an adequate evaluation strategy, since other potential QA benefits may be overlooked by such a narrow view. It was decided, therefore, that a more beneficial assessment strategy would be to evaluate the CMRIS against generally accepted health care delivery specifications. Such an approach was also considered necessary in light of the user acceptability problems alluded to previously.

The outcome of this evaluation could then be compared to prescribed JCAH standards in order to determine if, in fact, the CMRIS could better satisfy these standards.

Eight specifications were ultimately chosen for the evaluation. The eight specifications are essential elements of any health care system which meets the standards of the profession and the expectations of an enlightened public.⁶ Evaluation results are shown in Chart 3. Column 1 describes the health care specification. Column 2 represents a brief synopsis of how, according to the literature, an automated system could be used to meet that specification.⁷ Column 3 describes CMRIS capabilities or shortcomings in meeting that specification. Wherever possible, actual output reports were produced to support the specification.

Utilizing CMRIS Data to Assess Quality Assurance Standards

Information gathered and reports generated during the system evaluation were analyzed with respect to specific JCAH criteria shown in Chart 2. Development and generation of these reports were a crucial part of this research effort since, in many cases, they represented the sole basis for validating system QA capability. Furthermore, due to the delay in system implementation, subsequent phases which will theoretically offer QA enhancements could not be tested directly. It is apparent, however, that the order entry/results reporting capability available with implementation of phase

Health Care Specification (1)	Automated System Capability (2)	CVRIS Capability/Shortcoming (3)
Health care <u>must be comprehensive</u>. This includes acute and chronic illness as well as social and psychological problems and provides for prevention and rehabilitation. Care is provided to individual and family covering entire life span.	Large amounts of data, unique and categorical, both recent and historical, are selectively retrievable.	Data retrieval can be accomplished through flexible report generator. This enables chronological data to be displayed. Family data can be linked by registration module. Status report can act as an "index" to patient's care. Proper data entry is crucial to this process.
<u>Health care personnel and facilities must be integrated</u>. Services may involve several providers working together in different ways depending upon patient. Administrative and other support personnel are essential to process. Care is provided in a variety of settings, information from which must be cohesive.	Multiple providers working in different sites can gain access to data base. Data can be entered from remote sites and be retrieved from a centrally stored data base.	CVRIS in its current test configuration operates only for FPC. Lab and pharmacy data will be integrated during subsequent phases. Access to data base benefits only FPC.
<u>System must be alert to high-risk situations</u>. Risk situations such as suspicious physical findings, abnormal lab tests, drug allergy, failure to follow up, or omission of immunizations must be solved on a high priority basis.	System provides continuous surveillance regarding the status of clinical data and automatically alerts the provider to risk situations to facilitate action prior to adverse event.	<u>"Scan"</u> Set capability allows user to extract routine data sets pertaining to specific problems and review patient records for equivalent matches. <u>"Plan"</u> Set capability allows user to specify expected standards (protocols) which can be surveyed by the system. System will automatically identify exceptions. This feature requires full implementation of all phases.

Chart 3--CVRIS Evaluation Results

Health Care Specification (1)	Automated System Capability (2)	OVRIS Capability/Shortcoming (3)
Health care process must be <u>audited and evaluated</u>. Ongoing audit of care is a vital part of continuing education and administrative efforts to achieve optimal results. Medical treatment activities must be evaluated in terms of absolute effectiveness and cost-benefit considerations.	Comprehensive review of patient management can be accomplished due to rapid, inexpensive, and flexible retrieval of a large variety of clinical data related to individual disease categories and patient populations.	Review is possible through flexible retrieval capability. Data gathering is simplified, and audits by diagnosis can readily be accomplished. Traditional outpatient treatment record makes such audit laborious and expensive.
<u>Detection of short- and long-term trends is necessary</u>. Changes in incidence must be recognized in order to detect onset of epidemic. Prevalence patterns are used for health care planning.	All clinical encounters are captured, making trending accurate. Epidemiological and planning studies are possible through frequent sampling capability.	OVRIS does assist in trend detection by "browsing" individual or defined patient groups for a specific problem. Accurate data entry is crucial to this process.
<u>Research and teaching must be ongoing</u>. Provider education must be correlated with problems they are likely to encounter. Prevalence rate must be a significant factor in assigning research priorities.	Health patterns are available as indicated above. Students can rapidly retrieve cases as a preliminary to understanding and interpretation.	OVRIS can be beneficial to Family Practice Residency Program since it allows rapid linking of cases with physician. Listing of diagnoses can be used to insure equitable distribution among residents as well as providing research priorities.
<u>Attempts must be made to control cost</u>. Cost accounting of services must be made available to patients, third-party payers, and governmental agencies. Correlation of costs with outcomes is required on a continuing basis.	Automated systems are capable of preparing all standard accounting parameters and itemizing clinical services.	OVRIS billing and accounting module is not a part of FPC test system. Data regarding utilization may be used by controller for workload accounting. OVRIS has no interface with UCA nor is any expected as part of the test.

Chart 3--Continued

Health Care Specification (1)	Automated System Capability (2)	OVRIS Capability/Shortcoming (3)
<u>Confidentiality and security of medical information must be assured. Use of personal data must be solely for patient's best interest while, at the same time, allowing for statistical and epidemiological studies to proceed.</u>	Entire information system can be made secure against illegal use by unauthorized persons.	OVRIS provides for "controlled accessibility." In addition to physical security mechanisms inherent to computer operation, system provides file/record access controls restricting data access to specified users or classes of users.

Chart 3--Continued

two will greatly enhance the system's capability. Although actual output could not be produced, formal system documentation was used to project QA capability and ultimate effect upon satisfying JCAH criteria.

The results of report/documentation and criteria analysis are summarized in Chart 4. Column 1 represents the health care specification by which the CMRIS capability was tested. Column 2 indicates the report which was specifically produced or the system module which demonstrates the system's capability of meeting the specification. Column 3 denotes those JCAH criteria (Chart 2) which have been satisfied by the uniquely produced report or standard module. Column 4 provides comments regarding further QA upgrades which can be made during phase two or phase three of implementation. Appendices D-I show actual reports produced for this analysis. Column 2 of Chart 4 cross-references these reports to the applicable health care specification.

Since much effort was expended during this study to capitalize on CMRIS audit capability, some additional comments should be made regarding specification number four. Using a method developed by the Harvard Community Health Plan and the Massachusetts General Hospital, three approaches were considered.⁸ The first called for the computer to search the entire data base and identify patients who were at risk as determined by the search parameters. Figure 2 depicts this approach. The second approach calls for the

Health Care Specification (1)	Report Produced or Module Used (2)	JCAH Criteria Satisfied (3)	Further Enhancement in Phase 2 and 3 (4)
Comprehensive care	Status Report (Appendix A)	1c, g; 2a-i; 5; 6a, c; 7	Phase 2 OE/RR will provide lab and pharmacy data to status report. New format of problem list will make data more meaningful to physicians.
Integration of health care personnel and facilities	Diagnostic Listing (Appendix D) Status Report (Appendix A) All system modules Proposed Medication Profile (Appendix E)	1a-c, g-h; 2a-i; 5	Integration will occur when lab and pharmacy modules are implemented. Further integration will occur in phase 3 when another clinic is brought on-line. System allows for access by more than one provider. He, therefore, is no longer totally dependent upon manual outpatient record.
Alert to high-risk situations	Proposed concurrent audit using "plan sets" (Figure 4) Immunization Report (Appendix F)	1c, i-j; 8	Upon full implementation of phase 2, plan sets will provide unique capability to perform concurrent review automatically and report deviations.
Audit and evaluation	Chart audits (Appendix G)	8	Manual record does not readily allow for auditing by diagnosis. Phase 1 provided ability to produce pull lists by diagnosis or other parameters, making retrieval much simpler. Phase 2 will incorporate "browsing" and "plan sets," which will allow greater flexibility to retrieve specific data.
Detection of trends	Listing of most common diagnosis (by all diagnoses or by patient) (Appendix D)	4a-d	Individual in charge of medical records can more readily see changes in diagnostic patterns. Full potential for trends will not

Chart 4--Analysis of CMRIS Output to Meet JCAH Standards

Health Care Specification (1)	Report Produced or Module Used (2)	JCAH Criteria Satisfied (3)	Further Enhancement in Phase 2 and 3 (4)
Research and teaching	Chart audits (Appendix G) Diabetes Audit (Appendix G) Colon Cancer Audit (Appendix H)	Relates to QA standard and more specifically JCAH requirement for continuing education	be realized until phase 2 implementation.
Cost control	Workload Report (Appendix I) Medication Profile (Appendix E) Scheduling Module	QA standard stresses efficient re-sources utilization	Although a billing and accounting module will not be part of OMIS, "spin-off" uses exist for reports by comptroller as well as efficient uses of resources within FPC.
Confidentiality	NA	3; 4a	Ad hoc report generator can be activated only by system manager. User access codes restrict terminal to specific use classification. Medical data module has restrictions for access. Such specific limitations are extremely difficult with a manual record.

Chart 4--Continued

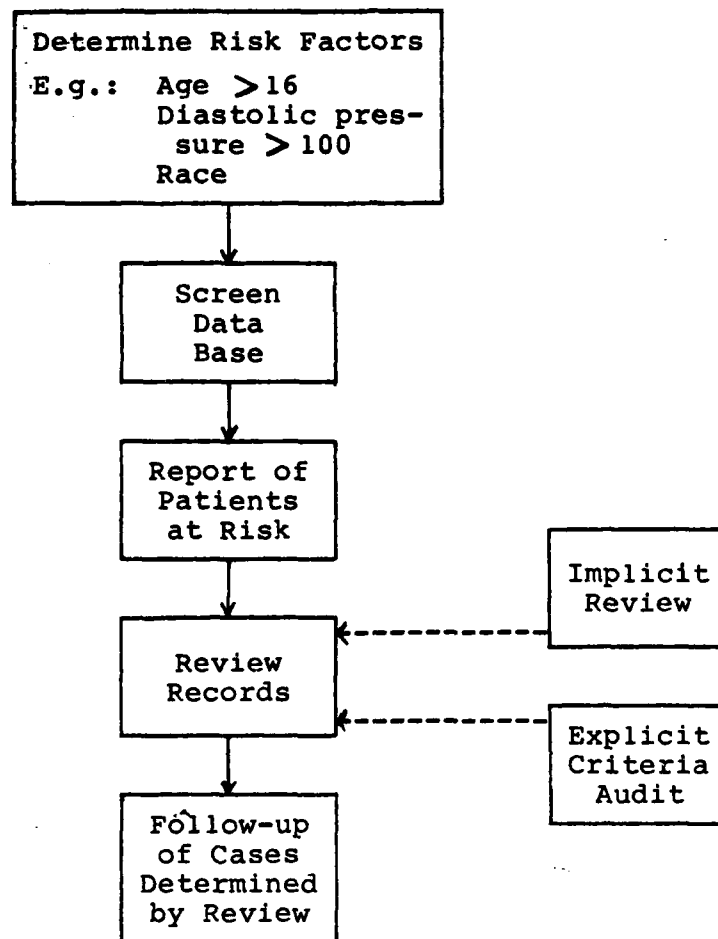


Fig. 2--Data Base Search Approach

computer to "examine" the record when the patient comes in for a visit and flag any deviations for the provider's attention. These are corrected during that visit. Figure 3 depicts this second approach.

The third and by far the most exciting use of a CMRIS calls for the computer to pick up abnormal results as they are input, which, in turn, triggers an ongoing monitoring process to detect deviations from prescribed standards. Such

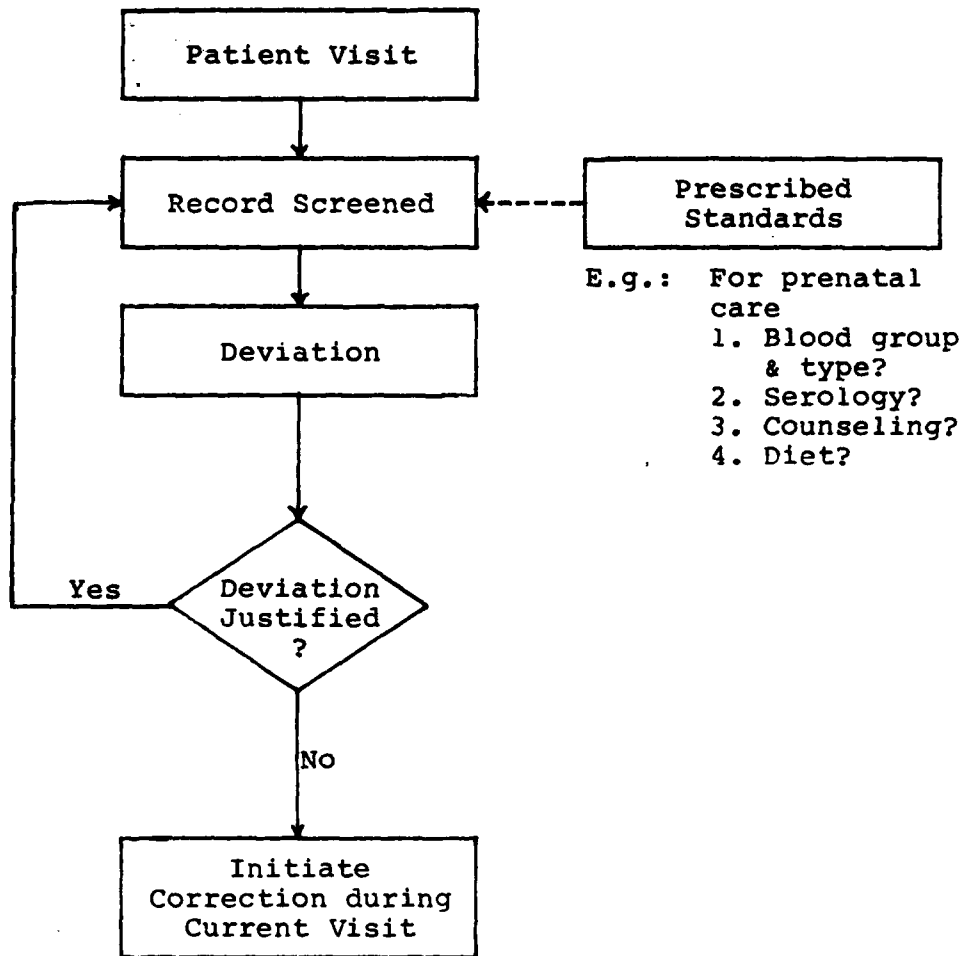


Fig. 3--Record Screening Approach

an approach represents true quality assurance instead of quality assessment since it identifies problems concurrently and prompts action before a negative outcome can result.⁹ Figure 4 depicts such an approach.

Unfortunately, only the first approach was demonstrable during phase one of implementation (Appendix F). Although much better than a manual search of medical records, this approach still does not provide the audit flexibility inherent

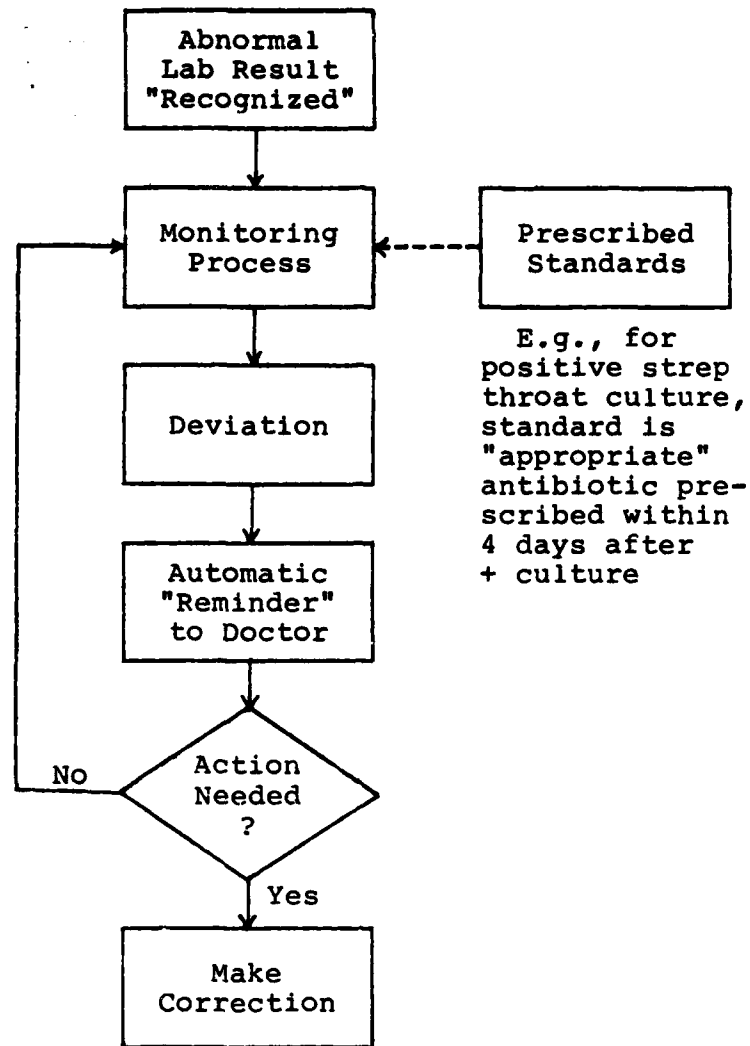


Fig. 4--Concurrent Monitoring Approach

in the other approaches. While this study did treat provider attention to CMRIS audit capability, full utilization will not be possible until phase two OE/RR is complete.

Data Reliability

Throughout this research effort, it was readily apparent that, although interested in CMRIS QA impact, the

providers were more concerned with data reliability.¹⁰ It was determined, therefore, that no conclusions regarding CMRIS quality assurance capability were appropriate without first determining the scope of the data reliability problem. This was done by means of a data input audit which compared entries appearing on the encounter form with those actually being printed on the status report. One hundred records were randomly selected for review. The audit (shown in Appendix J) concluded a 16.5 percent error rate was present. Results of this audit were instrumental in bringing about changes to the encounter form and the status report as well as numerous administrative changes in the FPC. It is anticipated that, prior to the implementation of phase two, these issues will be resolved since any QA enhancements depend directly upon good input methodology.

Footnotes

¹TRIMIS Program Office, Computerized Medical Record Information System/Order Entry/Results Reporting Pilot Test, Silas B. Hays Army Community Hospital, Ft. Ord, California, issues meeting, Washington, D.C., March 3, 1982.

²National Center for Health Services Research and Digital Equipment Corporation, Laboratory of Computer Sciences, COSTAR: Functional Specifications (Version 5.6) (N.c.: National Center for Health Services Research and Digital Equipment Corporation, 1979), p. 3.

³Ibid., pp. 5-6.

⁴Ibid., pp. 7-9.

⁵Richard Winickoff, et al., A computer Based Ambulatory Quality Assurance Program: Final Report (Boston: Harvard Community Health Plan and Laboratory of Computer Science, 1979), p. v.

⁶Daniel Levinson, "Information Management in Clinical Practice," The Journal of Family Practice 7 (October 1978): 801-2.

⁷C. J. McDonald, "Protocol-Based Computer Reminders, the Quality of Care and the Non-Perfectibility of Man," New England Journal of Medicine 295 (9 December 1976): 1351; and Matthew A. Budd and P. F. Reiffen, "Implications of Computer Science for Developing Ambulatory Medical Record Systems," Medical Care 11 (March-April 1973): 132.

⁸Winickoff, et al., pp. 352-53.

⁹G. Octo Barnett, et al., "COSTAR--A Computer-Based Medical Information System for Ambulatory Care," Proceedings of the IEEE 67 (September 1979): 1236.

¹⁰Interview with Dr. Anthony Sforza, Department of Family Practice, Silas B. Hays Army Community Hospital, Ft. Ord, California, February, 1982.

CHAPTER III

CONCLUSION

It is readily apparent from this partly operational and partly investigative study that the CMRIS has the potential for making major contributions to the FPC quality assurance program based upon the following:

1. The system's ability to capture, organize, index, and report both medical and administrative data can facilitate continuity of care.
2. With full implementation of phase two, the system will be able to facilitate the timely review and reporting of laboratory and pharmacy data.
3. The status report can act as a synopsis of relevant past medical treatment, providing a summary for follow-up care.
4. The patient drug profiles will offer greater medical record accuracy by showing all dispensed medications.
5. The system will assist medical records personnel in maintaining records in a predetermined, organized format.
6. The entries made by the system are always legible.
7. The system can assist in review of the quality and the appropriateness of ambulatory care by enabling the selection of cases for review by diagnosis and, under phase two, actually screening for predetermined criteria.

Although the CMRIS evaluation was able to verify the

findings stated above, a definitive conclusion regarding the improvement of quality assurance standards for ambulatory care services provided by the FPC using a CMRIS could not be drawn. The applied research question could not be answered categorically primarily because of the volatile and uncertain atmosphere that surrounded the CMRIS during much of this study. In fact, the research/operational study format was a direct result of the need to demonstrate the system's potential usefulness despite ongoing user dissatisfaction. The identification of positive system attributes may well be the most important result of this study. This is not to say that providers are now convinced that a CMRIS quality assurance program will improve clinical performance. They are, however, amenable to testing the CMRIS features in an effort to simplify existing audit requirements.¹ Even prior to the study's completion, two physicians had used the CMRIS system to identify patients needing audit.² Considering the system's dilemma, described previously, this constitutes a positive step toward system acceptance.

Successful implementation and proliferation of a CMRIS will not be an easy task. The SBHACH CMRIS system represents the Army's first attempt at providing the same level of data abstraction for ambulatory care that has been provided on the inpatient side since 1971. Accurately collected, such data will add a new dimension to ambulatory quality assurance as it exists today. Concurrent auditing as outlined in this

study is but one such innovative method to help achieve the ultimate goal of improved patient care.

Changes in the health care system will require some basic alterations in traditional clinical methods.³ Clinicians will have to relinquish some individuality and adopt methods of data recording which are computer-compatible. As evidenced by the CMRIS implementation, such adaptation can present a major obstacle. Since provider acceptance is the key to system success, it is essential that the clinicians be involved with system design, system installation, and system training.⁴ It is only with this level of involvement that the potential for improved patient care will be recognized without the perception of a threat to the unique clinician-patient relationship. Personalized individual and high quality medical care is possible only if service and informational systems supporting the providers are as efficient as technology can make them. When assisted by systems such as the CMRIS, routine and laborious tasks can be simplified and clinicians can more properly provide high quality care.

Footnotes

¹Interview with Dr. Mark E. Rampton, Department of Family Practice, Silas B. Hays Army Community Hospital, Ft. Ord, California, March, 1982.

²Interview with Dr. Chalmers Armstrong and Dr. Jimmie Morrison, Department of Family Practice, Silas B. Hays Army Community Hospital, Ft. Ord, California, March, 1982.

³Daniel Levinson, "Information Management in Clinical Practice," The Journal of Family Practice 7 (October 1978): 805.

⁴Ingeborg M. Kuhn and Gio Wiederhold, "The Evolution of Ambulatory Medical Record Systems in the U.S.," Proceedings of the IEEE 69 (January 1981): 82.

APPENDIX A

KEY CMRIS DOCUMENTS

FAMILY PRACTICE CLINIC REGISTRATION FORM

Page 2 of 2

Patient Initials: _____
FML

Patient Race: A ☐ Caucasian
B ☐ Black
C ☐ Other
D ☐ Unknown

Ethnic Group:

- A ☐ Spanish descent; includes all personnel of Spanish extraction except when delineated separately.
B ☐ American Indian; includes all personnel of American-Indian extraction except when delineated separately.
C ☐ Asian-American; Includes all personnel of Asian/Pacific derivation except when delineated separately.
D ☐ Puerto Rican; includes personnel born and reared in Puerto Rico.
E ☐ Filipino
F ☐ Mexican-American; includes Chicano
G ☐ Eskimo; does not include Aleut
H ☐ Aleut
I ☐ Cuban-American
J ☐ Chinese
K ☐ Japanese
L ☐ Korean
M ☐ Other than above
N ☐ Unknown

Religious Preference:

- 1 ☐ Reformed
2 ☐ Roman Catholic
3 ☐ Salvation Army
4 ☐ Unitarian Universalist
5 ☐ United Church of Christ - includes Congregational Christian and Evangelical and Reformed
6 ☐ Protestant - Other Churches
7 ☐ Protestant - no denominational preference
8 ☐ Other Religions
A ☐ No religious preference
B ☐ Unknown
C ☐ Adventist, Seventh Day
D ☐ Assemblies of God
E ☐ Baptist - American Baptist Convention
F ☐ Baptist - Southern Baptist Convention
G ☐ Baptist - Other Groups
H ☐ Brethren
I ☐ Buddhism
J ☐ Christian Science
K ☐ Church of Christ
L ☐ Church of God
M ☐ Disciples of God
N ☐ Episcopal - Anglican
O ☐ Friends - Quaker
P ☐ Jehovah's Witnesses
Q ☐ Jewish
R ☐ Latter Day Saints - Mormon
S ☐ Lutheran - includes Missouri Synod
T ☐ Methodist - includes Evangelical United Brethren
U ☐ Evangelical Covenant
V ☐ Mastic
W ☐ Nazarene
X ☐ Orthodox
Y ☐ Pentecostal
Z ☐ Presbyterian

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dd mmm yy

Source: A ☐ Rotation
B ☐ Referrals
C ☐ Transfer
D ☐ Educational
E ☐ Other

Inactive Date: ____/____/____
dd mmm yy

Discharge Code: A ☐
B ☐
C ☐

FAMILY PRACTICE CLINIC
Patient History Form

Name: _____
 Sponsor SSN: _____
 Patient FMP: _____

Encounter Date: _____
 Provider: _____

Common Surgeries and Procedures

- | | | | |
|---------|--|---------|---|
| Y/RZAR2 | ☐ Abortion | Y/NYAM6 | ☐ Femoral Bypass |
| Y/VYAS5 | ☐ Amputation | Y/VYAA6 | ☐ Fracture Reduction |
| Y/QYAB4 | ☐ Antrectomy & Vagotomy | Y/NYAP3 | ☐ Hemorrhoidectomy |
| Y/BYBR9 | ☐ Any Cancer Operation | Y/QYAZ7 | ☐ Hernia Repair |
| Y/QYAR6 | ☐ Appendectomy | Y/QYAT3 | ☐ Hiatal Hernia Repair |
| Y/NYAE5 | ☐ Arteriograph | Y/Ryat6 | ☐ Hysterectomy |
| Y/NXAL3 | ☐ Blood Transfusion | Y/EYAG1 | ☐ Liver Biopsy |
| Y/FYAJ1 | ☐ Bone Marrow biopsy | Y/WYAX2 | ☐ Lumbar Puncture |
| Y/PYAB1 | ☐ Breast Biopsy | Y/LYAC2 | ☐ Lung Resection |
| Y/LYAK3 | ☐ Bronchoscopy | Y/PYAJ2 | ☐ Mastectomy |
| Y/MYAK6 | ☐ Cardiac Catheterization | Y/MYAS7 | ☐ Pacemaker |
| Y/MYAA8 | ☐ Cardioversion | Y/RXAA4 | ☐ Pelvic and/or Pap |
| Y/NXAD2 | ☐ Carotid Endarterectomy | Y/JXAA6 | ☐ P.E. Tubes |
| Y/BYBJ8 | ☐ CAT Scan | Y/SYAY3 | ☐ Prostatectomy |
| Y/HYAD3 | ☐ Cataract Removal | Y/QXAH2 | ☐ Proctoscopy/Sigmoid |
| Y/QYAJ5 | ☐ Cholecystectomy | Y/RYAJ8 | ☐ Salpingectomy |
| Y/SYAF4 | ☐ Circumcision | Y/GYAJ4 | ☐ Skin Lesion |
| Y/QYAG8 | ☐ Colectomy | Y/FYAR2 | ☐ Splenectomy |
| Y/MYAC5 | ☐ Coronary Bypass | Y/JYAL7 | ☐ Tonsillectomy |
| Y/RYAL5 | ☐ C-Section | Y/KYAS1 | ☐ Tooth Extraction |
| Y/BYBT6 | ☐ Cyst Removal | Y/RYAR9 | ☐ Tubal Ligation |
| Y/RYAB7 | ☐ D & C | Y/RZAJ1 | ☐ Uterine Suspension |
| Y/RXAH5 | ☐ Delivery of Baby | Y/MYAV4 | ☐ Valve Replacement |
| Y/TXAG1 | ☐ Dialysis | Y/SYSQ2 | ☐ Vasectomy |
| Y/BYBB7 | ☐ Endoscopy | Y/NYAX4 | ☐ Vein Stripping |

Common Allergies

- | | | | |
|---------|--|---------|---|
| CKNL2-C | ☐ Adverse Effect of Drugs NOS | CKNT3-F | ☐ Narcotic Agent, HX. |
| CKNL2-D | ☐ Allergy NOS | CKQP1 | ☐ Non Medicinal Biological Agents, HX. |
| CKNT3-G | ☐ Analgesic Agent, HX. | CKNT5-D | ☐ Other Anti-infection Agent, HX. |
| CKNL2-B | ☐ Anaphylactic Shock | CKNT3-A | ☐ Penicillin, HX. |
| CKNT3-E | ☐ Anesthetic Agent, HX. | JLAV3-A | ☐ Pollinic Rhinitis |
| CKNT3-B | ☐ Antibiotics Agent, HX. | CKNT3-C | ☐ Sulfonamides, HX. |
| LKNW1-L | ☐ Asthma | CKQX2 | ☐ Transfusion Reaction, HX. |
| JLAV3-I | ☐ Hay Fever | | |
| CKNT3-J | ☐ Medicinal Agent NOS, HX. | | |

STATUS REPORT

FMP:30 SSN: [REDACTED]

PRINTED: 22 MAR 82

[REDACTED], JULIA J (F) 65 YRS (12 JUL 16)
11040 [REDACTED] ROAD [REDACTED] LOMOND, CA 95005
HOME: 336-[REDACTED] WORK: N

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

MHAG5-1 ECTOPIC BEATS, ALL TYPES	18MAR82
PUCS ON EKG NOW RESOLVED	
MHAE8 HYPERTENSION, UNCOMPLICATED	22JAN81-4-28JAN82
GLGY3 MED OR SURG PROCEDURE WO	20APR81
DIAGNOSIS	
RJAB6-1 MENOPAUSAL SYMPTOMS & POST	01OCT80
MENO BLEED	

----- ALLERGIES/SENSITIVITIES -----

NO ALLERGIES/SENSITIVITIES

----- SURGERIES, PROCEDURES, AND IMMUNIZATIONS -----

SURGERIES

HYSTERECTOMY [S/P 1952]	28JAN82
-------------------------	---------

----- VITAL SIGNS - LAST VISIT -----

* TEMPERATURE	95.5	28JAN82-2-18MAR82
WEIGHT	151.75	28JAN82-2-18MAR82
BLOOD PRESSURE	138/74	28JAN82-2-18MAR82

----- REFERRALS AND APPOINTMENT - LAST VISIT -----

NO REFERRALS AND APPOINTMENT - LAST VISIT

FAMILY PRACTICE CLINIC-PRIVACY ACT DATA

ARMSTRONG, CHALNERS, MD
26 MAR 82 1:30 PM 30N

CACV1 TEMP _____ CAJC1 HT _____ APPOINTMENT TYPE LC LATE XI MD SHOW NI NIGHT CALL IC INAPPROPRIATE
 CAKH1 WT _____ CALH1 HC _____ VISIT CLASS IC INIT 2I JF/U 3I JENER 4I JPHONE 6I JWALK 7I JRENEW 9I JI.OB 0I JF/U OB
 CAEF1 BP _____

CLINICAL NOTES:

LAB TESTS

T R
 HNC12 [] HCT
 HNC16 [] CBC
 HNC17 [] DIFF
 HNC18 [] SED. RATE
 HPAJ7 [] ANA
 UNK [] RA FACTOR
 RNATO [] RPR
 JNC19 [] HBSAG
 UNK [] FOLATE AND I
 JNFJ7 [] FE AND TIBC
 HNA15 [] SICKLE CELL
 RNB61 [] BLOOD TYPE
 RNAX7 [] ANTIBODY SCF
 UNK [] FBS
 CNAB8 [] GLUCOSE
 UNK [] NA AND K
 CNDK7 [] LYTES
 CNAJ9 [] BUN
 CNCPS [] CREAT
 CHEV1 [] URIC ACID
 CNDV5 [] SGOT
 CNCV9 [] LDH
 JNDH5 [] CPK
 CNDG8 [] ALK. PHOS
 CNBR6 [] ACID PHOS
 CNBT3 [] BILI. T
 CNAF2 [] BILI. T&B
 CNDCA [] GGPT
 MPBR4 [] CAH
 CNB27 [] ALBUMIN
 JNAT2 [] CHOLESTEROL
 JNC2 [] TRIGLYCERIDE
 CNB40 [] AMYLASE
 SHAG8 [] T3RU, T4, FT
 SHAWO [] TSH
 PNC18 [] O&P
 UNCR7 [] U/A
 UNACO [] HCG(URINE)
 PNEK8 [] URINE CULT

OTHER:

[] []

[] []

[] []

SOURCE:

ASSESSMENT:

FREE TEXT DIAGNOSES

ICHPPC-2 OR COSTAR DIAGNOSES

1. _____ 1. _____
 2. _____ 2. _____
 3. _____ 3. _____
 4. _____ 4. _____
 5. _____ 5. _____

PLAN:

PROCEDURES DONE

LXAR1 [] ASPIRATION
 BXAC5 [] COMPLETE PHYS. EXAM
 BXAM4 [] DRESSING CHANGE
 RXAC1 [] ENDOMETRIAL BIOPSY
 VXAZ3 [] MANIPULATION
 BYAL9 [] MINOR SURGERY
 RXAM4 [] PELVIC AND/OR PAP
 QXAM2 [] PROCTO/SIGMOID.
 WXAT2 [] SPINAL TAP
 SYAQ2 [] VASECTOMY

OTHER: _____

IMMUNIZATIONS

BTNC5 [] DPT
 BTMX1 [] DT
 BTSZ1 [] FLU
 BTME2 [] MEASLES
 BTM33 [] MMR
 BTLR1 [] ORAL POLIO
 BTM44 [] RUBELLA
 BTRT1 [] TB READINGS
 BTRB2 [] TINE TEST
 BTRJ3 [] COCCI SKIN TEST
 BTLG3 [] TETANUS TOXIOD
 BTTE1 [] PNEUMOVAX
 BTOT5 [] MUMPS

REFERRAL [] AACY2 _____

30 _____

ARMSTRONG, JULIA J
 12 JUL 16 F RET USA
 LTC DONALD W
 11040 ROAD
 BEN CA 95005
 H:336 WIN
 FPC PT.

FPC DISPENSED MEDS.

DISPOSITION

AACQ1-A _____ DAYS
 B _____ WEEKS [] JADR
 C _____ MONTHS (NON-SUSP)
 D _____ PRN
 E _____ ADMITTED TO HOSP.
 F _____ MONTHS (SUSPENSE)

ARCK7 [] PRECEPTOR:

DOCTOR: ARMSTRONG, CHALNERS, MD LTC, MC 249-60-2504

APPENDIX B

CMRIS QUALITY ASSURANCE-RELATED
RECURRING REPORTS

A review of CMRIS recurring reports reveals that certain quality control mechanisms mandated by the JCAH have been addressed. For example, the coordination of a scheduling and staffing plan that facilitates accessibility and continuity is improved by routine reports from the scheduling module. Inclosures 1 thru 4 show reports generated on a routine basis, all of which are designed as management indicators in the areas of appointment types, appointment availability, and "no-show" data. As additional experience is gained with CMRIS, such reports will be valuable in accessing physicians' practice profiles.

Recurring reports shown as Inclosures 5 and 6 can also be used to capture work load as a by-product of the system rather than developing complex capture mechanisms for clinic visits and procedure data. This ultimately can mean a more equitable distribution of resources to the work center.

Daily Appointments List

58

FRIDAY 26 MAR 82

~~XXXXXXXXXX~~, CATHERINE P 2:00 PM 15K(15) FPC: BREASTCLINIC, LECLAIR TWENTYSIX MARCH
30 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, ELLIOTT V

~~XXXXXXXXXX~~, PRESTON C 9:00 AM 40K(40) FPC: MORRISON, JIMMIE D, MD
20 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, PRESTON C

~~XXXXXXXXXX~~, JAMES B 9:30 AM 15K(15) FPC: MORTON, LARRY, MD
20 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, JAMES B

~~XXXXXXXXXX~~, ERIKA M 10:00 AM 45K(45) FPC: SFORZA, ANTHONY, MD
30 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, JAMES R

~~XXXXXXXXXX~~, ROSALIA H 8:00 AM 15K(15) FPC: MORRISON, JIMMIE D, MD
30 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, ISIDRO S

~~XXXXXXXXXX~~, MARCIA 1:30 PM 15K(15) FPC: BREASTCLINIC, LECLAIR TWENTYSIX MARCH
30 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, ANTHONY

~~XXXXXXXXXX~~, PAUL W 9:15 AM 15K(15) FPC: SFORZA, ANTHONY, MD
20 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, PAUL W

~~XXXXXXXXXX~~, JANICE B 1:15 PM 15K(15) FPC: SARGENT, DAVID, DO
30 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, MALCOLM D

~~XXXXXXXXXX~~, MALCOLM D 1:00 PM 15K(15) FPC: SARGENT, DAVID, DO
20 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, MALCOLM D

~~XXXXXXXXXX~~, FLORENCE S 8:00 AM 15K(15) FPC: SFORZA, ANTHONY, MD
30 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, RAYMOND M

~~XXXXXXXXXX~~, ANNETTE BRSC 3:00 PM 15K(15) FPC: BREASTCLINIC, LECLAIR TWENTYSIX MARCH
30 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, KENNETH

~~XXXXXXXXXX~~, JOELLEN 3:00 PM 15K(15) FPC: MELI, JAMES, DO
20 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, JOELLEN

~~XXXXXXXXXX~~, BIRGIT H 10:00 AM 15K(15) FPC: ARMSTRONG, CHALMERS, MD
30 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, BRUCE W

~~XXXXXXXXXX~~, URSULA BR CL 1:15 PM 15K(15) FPC: BREASTCLINIC, LECLAIR TWENTYSIX MARCH
30 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, ANSELMO

~~XXXXXXXXXX~~, MARIE T 1:45 PM 15K(15) FPC: BOYD, JOHN, MD
02 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, RESE C

~~XXXXXXXXXX~~, FELICISIMO C 8:15 AM 15K(15) FPC: ZARINCZUK, JAMES, MD
20 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, FELICISIMO C

~~XXXXXXXXXX~~, PHILOMENA E 1:00 PM 15K(15) FPC: BOYD, JOHN, MD
30 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, ORLANDO A

~~XXXXXXXXXX~~, JEREMY V 8:15 AM 30K(30) FPC: MORRISON, JIMMIE D, MD
01 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, LARRY B

~~XXXXXXXXXX~~, MICHAEL 2:45 PM 15K(15) FPC: SARGENT, DAVID, DO
01 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, RAY L

~~XXXXXXXXXX~~, MARY K 1:45 PM 15K(15) FPC: SARGENT, DAVID, DO
01 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, MICHAEL B

~~XXXXXXXXXX~~, MARY ELLEN 1:00 PM 30K(30) FPC: ZIMMER, JAMES, MD
01 ~~XXXXXXXXXX~~ SPON: ~~XXXXXXXXXX~~, REFERRER M

23 MAR 82
CLINIC: FPC

3:59 PM

APPOINTMENT BACKUP LIST

PAGE: 59

/15-MINUTE SLOTS FOR ZARINCZUK, JAMES, MD\

	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM
23 MAR 82	----	!!!!	!!!!	!!!!	!!!!	!!!!	!!!!	!!!!	!!!!	!!!!	----	----
24 MAR 82	----	!!!!	1111	1W**	****	****	2111	1111	1W1*	**--	----	----
25 MAR 82	----	1111	1111	1W**	****	****	11	!!!!	!!!!	**--	----	----
26 MAR 82	----	2111	1111	1W**	****	****	!!!!	!!!!	!!!!	**--	----	----
29 MAR 82	----	!!!!	!!!!	****	****	****	!!!!	!!!!	!!!!	**--	----	----
30 MAR 82	----	!!!!	!!!!	****	****	****	!!!!	!!!!	!!!!	**--	----	----
31 MAR 82	----	!!!!	!!!!	****	****	****	!!!!	!!!!	!!!!	**--	----	----

TABLE OF APPT. TYPES
FAMILY PRACTICE CLINIC 01 MAR 82-23 MAR 82

DATE	ROUTINE	INAPPROPRIATE	LATE	NIGHT CALL	NO SHOW	TOTAL
01 MAR 82	189	0	0	0	4	193
02 MAR 82	181	0	0	0	2	183
03 MAR 82	121	0	1	0	2	124
04 MAR 82	154	0	0	0	4	158
05 MAR 82	127	0	0	0	4	131
06 MAR 82	144	0	0	0	10	154
07 MAR 82	172	0	0	0	3	175
08 MAR 82	111	0	0	0	2	113
09 MAR 82	159	0	0	0	7	166
10 MAR 82	141	0	0	0	1	142
11 MAR 82	2	0	0	0	0	2
12 MAR 82	1	0	0	0	0	1
13 MAR 82	183	0	0	0	3	186
14 MAR 82	153	0	0	0	1	154
15 MAR 82	137	0	0	0	4	141
16 MAR 82	124	0	0	0	7	131
17 MAR 82	104	0	1	0	4	118
18 MAR 82	4	0	0	0	0	4
19 MAR 82	83	0	0	0	0	83
20 MAR 82	39	0	0	0	0	39
21 MAR 82	2323	0	2	0	42	2367
TOTAL						

TABLE OF APPT. CLASS
FAMILY PRACTICE CLINIC 01 MAR 82-23 MAR 82

PAGE 1

UDAT	EMERGENCY	FOLLOW UP	INITIAL	INPATIENT	PHONE CALL	RENEW	WALK IN	OTHER	TOTAL
01 MAR 82	0	43	44	0	49	0	7	10	193
02 MAR 82	1	53	41	0	31	0	1	36	163
03 MAR 82	0	29	47	0	33	0	2	13	124
04 MAR 82	0	37	46	0	32	0	1	22	138
05 MAR 82	0	31	54	0	29	0	7	10	131
06 MAR 82	0	40	54	0	41	0	2	18	174
07 MAR 82	1	49	57	0	35	0	0	23	175
08 MAR 82	0	36	35	0	31	0	2	8	113
09 MAR 82	0	45	50	0	36	0	10	25	166
10 MAR 82	0	46	53	0	31	0	1	11	142
11 MAR 82	0	0	0	0	2	0	0	0	2
12 MAR 82	0	0	1	0	0	0	0	0	1
13 MAR 82	0	0	50	0	53	0	2	17	184
14 MAR 82	0	33	28	0	33	0	0	28	148
15 MAR 82	0	49	41	0	31	0	0	22	143
16 MAR 82	0	37	47	0	7	0	2	18	131
17 MAR 82	0	40	39	0	22	0	1	11	113
18 MAR 82	0	0	0	0	4	0	0	0	4
19 MAR 82	0	28	18	0	28	0	0	9	83
20 MAR 82	0	14	8	0	1	0	0	16	39
21 MAR 82	2	758	755	0	531	0	39	302	2387
TOTAL									

FPC WORKLOAD REPORT
TUMBLESON-SHIRLEY 01 MAR 82-23 MAR 82

UDAT	PHONE CALL	UCLASS	OTHER	TOTAL
01 MAR 82	25		9	34
02 MAR 82	16		7	23
03 MAR 82	13		4	17
04 MAR 82	9		10	19
05 MAR 82	18		12	30
06 MAR 82	19		7	26
07 MAR 82	17		25	42
08 MAR 82	19		7	26
09 MAR 82	17		25	42
10 MAR 82	19		7	26
11 MAR 82	24		23	47
12 MAR 82	13		7	20
13 MAR 82	0		0	0
14 MAR 82	0		0	0
15 MAR 82	19		12	31
16 MAR 82	20		4	24
17 MAR 82	10		4	14
18 MAR 82	10		7	17
19 MAR 82	10		2	12
20 MAR 82	0		0	0
21 MAR 82	14		2	16
22 MAR 82	0		0	0
23 MAR 82	0		0	0
TOTAL	248		142	390

TOTAL 01 MAR 82-23 MAR 82

PRO	TOTAL
DRESSING CHANGE	18
CYST REMOVAL	2
SUTURE	2
SUTURE REMOVAL	3
EAR IRRIGATION	0
PROCTOSCOPY OR SIGMOIDOSC	5
PELVIC EXAMINATION AND OR	34
VASECTOMY	8
TOTAL	72

APPENDIX C

AD HOC REPORT GENERATOR

TEST REPORTS

ROSTER AND SELECTED PATIENT DATA FOR DR. [REDACTED]

06 APR 82

PAGE 2

NAME	FHP	AGE	HOME TELEPHONE	WORK TELEPHONE	ADDRESS	CITY AND STATE
DAVIS, KAREN I	01	7	394-2000	242-2000	309 [REDACTED] RD	FT ORB-C
DAVIS, KATERINA J	03	3	394-2001	242-2000	309 [REDACTED] RD	FT ORB-C
DAVIS, SHEREEN	04	3	394-2002	242-2000	309 [REDACTED] RD	FT ORB-C
DAVIS, ANNETTE M	30	22	384-2000	242-2000	837 [REDACTED] CIR	FT ORB-C
DAVIS, BERNELL B	30	18	N	242-2000	3306 [REDACTED] APT 600	MARINA-C
DAVIS, CERVANTES E	20	22	N	242-2000	3306 [REDACTED] APT 600	MARINA-C
DAVIS, MONDOE R	01	0	N	242-2000	3306 [REDACTED] APT 600	MARINA-C
DAVIS, WILLIE E	20	24	384-2000	242-2000	837 [REDACTED] CIR	FT ORB-C
DAVIS, ESPERANZA	50	58	899-2000	242-2000	1774 [REDACTED] ST	SEASIDE
DAVIS, ELIZABETH A	30	38	899-2001	242-2000	325 [REDACTED] ROAD	FT ORB-C
DAVIS, KATHLEEN M	03	3	899-2002	242-2000	325 [REDACTED] ROAD	FT ORB-C
DAVIS, MICHAEL A	02	11	899-2003	242-2000	325 [REDACTED] ROAD	FT ORB-C
DAVIS, PAUL E	20	36	899-2004	242-2000	325 [REDACTED] ROAD	FT ORB-C
DAVIS, SHARON A	01	15	899-2005	242-2000	325 [REDACTED] ROAD	FT ORB-C
DAVIS, JOHN E	20	63	625-2000	N	27450 [REDACTED]	CARMELEC
DAVIS, LONETTA M	30	61	425-2000	N	27450 [REDACTED]	CARMELEC
DAVIS, BELINDA K	02	12	384-2000	242-2000	3064 [REDACTED] DRIVE	MARINA-C
DAVIS, HELEN J	30	30	384-2001	242-2000	3064 [REDACTED] DRIVE	MARINA-C
DAVIS, JOHNNY B	01	17	384-2002	242-2000	3064 [REDACTED] DRIVE	MARINA-C
DAVIS, RODOLFO M	20	45	384-2003	242-2000	3064 [REDACTED] DRIVE	MARINA-C
DAVIS, BERENDA K	30	22	384-2004	242-2000	341 [REDACTED] COURT	FORT ORB
DAVIS, STEVEN F	20	27	384-2005	242-2000	341 [REDACTED] COURT	FORT ORB
DAVIS, TANYA W	01	0	384-2006	242-2000	341 [REDACTED] COURT	MARINA-C
DAVIS, BINA	30	21	384-2007	N	3306 [REDACTED] BLVD	MARINA-C
DAVIS, HERBERT L	20	22	384-2008	N	3306 [REDACTED] BLVD	MARINA-C
DAVIS, CHARITO L	30	24	899-2000	N	1700 [REDACTED] STREET	SEASIDE
DAVIS, JENNIFER	01	15	899-2001	N	1700 [REDACTED] STREET	SEASIDE
DAVIS, CARL D	02	45	433-2000	242-2000	15375 [REDACTED] BLVD	SALINAS
DAVIS, KENNETH H	20	45	433-2001	242-2000	15375 [REDACTED] BLVD	SALINAS
DAVIS, LORNA R	30	42	433-2002	242-2000	15375 [REDACTED] BLVD	SALINAS
DAVIS, JINEZ A	01	3	375-2000	242-2000	2 [REDACTED] APT 60	PACIFIC
DAVIS, JOHNNIE M	20	31	375-2001	242-2000	2 [REDACTED] APT 60	PACIFIC
DAVIS, DEBRA A	30	22	394-2000	242-2000	204 [REDACTED] ST	FORT ORB
DAVIS, MICHAEL S	01	2	394-2001	242-2000	204 [REDACTED] ST	FORT ORB
DAVIS, ROGER K	20	23	394-2002	242-2000	204 [REDACTED] ST	FORT ORB
DAVIS, TASHINA R	02	0	394-2003	242-2000	204 [REDACTED] ST	FORT ORB
DAVIS, ALYSSA S	03	1	394-2004	242-2000	315 [REDACTED] ROAD	FORT ORB
DAVIS, COREY A	02	4	394-2005	242-2000	315 [REDACTED] ROAD	FORT ORB
DAVIS, KATHERINE K	30	26	394-2006	242-2000	315 [REDACTED] ROAD	FORT ORB
DAVIS, PATRICK T	01	4	394-2007	242-2000	315 [REDACTED] ROAD	FORT ORB
DAVIS, TIMOTHY P	20	28	394-2008	242-2000	315 [REDACTED] ROAD	FORT ORB
DAVIS, FRED D	20	35	384-2000	N	2140 [REDACTED] AVENUE APT 60	SALINAS
DAVIS, TABITHA R	01	7	384-2001	N	1827 [REDACTED] ST	SALINAS
DAVIS, MARIA S	30	58	449-2000	N	1827 [REDACTED] ST	SALINAS
DAVIS, WILLIAM H	20	57	449-2001	N	1827 [REDACTED] ST	SALINAS
DAVIS, MARIE SUZANE	30	32	384-2002	N	3005 [REDACTED] ST	MARINA-C
DAVIS, GARY J	01	6	384-2003	242-2000	117 [REDACTED] CIRCLE	FORT ORB
DAVIS, JOHNNIE M	30	25	384-2004	242-2000	117 [REDACTED] CIRCLE	FORT ORB
DAVIS, KRISTY M	02	4	384-2005	242-2000	117 [REDACTED] CIRCLE	FORT ORB
DAVIS, ANNETTE	20	25	384-2006	242-2000	3128 [REDACTED] STREET APT 60	MARINA-C
DAVIS, CHAUNCEY D	01	3	N	242-2000	3128 [REDACTED] STREET APT 60	MARINA-C
DAVIS, JERRY M	20	27	384-2007	242-2000	3128 [REDACTED] STREET APT 60	MARINA-C
DAVIS, KATHA TIUANA	02	0	384-2008	242-2000	3128 [REDACTED] STREET APT 60	MARINA-C
DAVIS, CANDACE E	30	27	384-2009	242-2000	184 [REDACTED] AVE	MARINA-C
DAVIS, DANIELLE R	01	0	384-2010	242-2000	184 [REDACTED] AVE	MARINA-C
DAVIS, DUANE R	20	24	384-2011	242-2000	184 [REDACTED] AVE	MARINA-C

TABLE OF APPT. CLASS
TOTAL 06 APR 82

PAGE 1

UDAT	EMERGENCY	FOLLOW UP	INITIAL	IMPATIENT	UCLASS PHONE CALL	RENEWAL	WALK IN	OTHER	TOTAL
01 MAR 82	0	63	66	0	49	0	1	10	185
02 MAR 82	1	54	42	0	31	8	2	28	127
03 MAR 82	0	29	49	0	34	0	2	13	127
04 MAR 82	0	38	46	0	32	13	1	7	159
05 MAR 82	0	31	54	0	29	0	7	10	131
06 MAR 82	0	41	56	0	41	2	2	11	173
07 MAR 82	0	51	58	0	35	12	0	21	178
08 MAR 82	1	38	35	0	31	0	3	8	113
09 MAR 82	0	45	50	0	37	4	10	19	167
10 MAR 82	0	47	54	0	32	0	1	11	185
11 MAR 82	0	0	0	0	2	0	0	0	2
12 MAR 82	0	0	0	0	0	0	0	0	0
13 MAR 82	0	0	1	0	0	0	0	0	1
14 MAR 82	0	65	50	0	53	2	2	15	187
15 MAR 82	0	58	28	0	35	8	0	22	187
16 MAR 82	0	51	46	0	32	1	0	21	151
17 MAR 82	0	71	54	0	30	3	2	13	177
18 MAR 82	0	53	43	0	26	0	1	11	134
19 MAR 82	0	0	0	0	0	0	0	0	0
20 MAR 82	0	0	0	0	0	0	2	10	147
21 MAR 82	0	59	45	0	31	0	0	13	134
22 MAR 82	0	31	43	0	18	7	3	12	148
23 MAR 82	1	44	61	0	27	0	1	11	138
24 MAR 82	1	41	50	0	21	3	1	14	158
25 MAR 82	0	67	54	1	19	0	0	13	172
26 MAR 82	0	71	88	0	40	0	0	22	186
27 MAR 82	0	43	39	0	27	5	0	11	182
28 MAR 82	0	30	32	0	7	0	2	332	2469
29 MAR 82	0	1159	1124	1	727	74	48	0	0
TOTAL	4								

UNNAMED

	TUMBLESON, SHIRLEY	KILIAN, CHERYL	CORPS, PERSON	SHAW, PHYLLIS	TOTAL
31	JENNIFER L				2
32	FRESTON C				1
33	FRED M				1
34	BETTY J				1
35	STEPHEN J				1
36	KRISTIN K				1
37	DOROTHY				1
38	JERI K				1
39	JACOB E				1
40	BILLY J				1
41	JENNIFER EL				1
42	AUDREY A				1
43	IKE JR				1
44	J GARETT				1
45	SHELLA L				1
46	JENNIFER L				1
47	CARLA				1
48	CLYDE				1
49	HAZEL				1
50	ROBERT				1
51	DOROTHY D				1
52	MARIE M				1
53	CURTIS				1
54	KERI L				1
55	ALICE L				1
56	EDWARD W				1
57	PATRICIA				1
58	MARY E				1
59	JESSIE C				1
60	YANG S				1
61	BLAND W				1
62	MATTHEW K				1
63	ANDREW U				1
64	CHARLES J				1
65	CHRISTINE				1
66	STANLEY D				1
67	CHRISTINE E				1
68	BRENDA				1
69	ESPERANZA B				1
70	SUSAN				1
71	JENNIFER LEI				1
72	JOE A				1
73	MARY T				1
74	KRISTINA D				1
75	NICHELLE				1
76	VELENA A				1
77	WESLEY III				1
78	CURT W				1
79	BRANDY M				1
80	SHELLEY L				1
81	PATRICK				1
82	MICHAEL J				1
83	TOTAL	19	23	11	54

DIABETES AUDIT PANEL

PAGE 1

NAME	FMF	06 APR 82	SPON SSN	DOCTOR	HOME TELEPHONE	BIRTHDATE	AGE	DATE
SAUEL F	20			MORRISON, JIMMIE D, MD	449-XXXX	16 JUL 28	53	24 OCT 80
LILLIAN V	30			MORRISON, JIMMIE D, MD	449-XXXX	10 NOV 18	63	20 APR 81
JEWELL L	30			MORRISON, JIMMIE D, MD	424-XXXX	30 APR 19	62	21 AUG 81
DOROTEA L	30			MORRISON, JIMMIE D, MD	394-XXXX	07 FEB 00	82	22 MAY 80
ROBERT D	20			ARMSTRONG, CHALMERS, M	484-XXXX	23 AUG 20	61	09 DEC 81
KIYONO	30			MORRISON, JIMMIE D, MD	449-XXXX	22 OCT 34	45	17 DEC 81
BLUMIE	30			MORRISON, JIMMIE D, MD	394-XXXX	14 JUL 19	62	02 JUL 81
BETTY L	30			MORRISON, JIMMIE D, MD	449-XXXX	02 APR 42	40	24 MAR 81
ROBERT L	20			MORRISON, JIMMIE D, MD	449-XXXX	30 AUG 26	55	03 NOV 80
BILLIE J	30			MORRISON, JIMMIE D, MD	394-XXXX	31 AUG 62	19	18 DEC 81

APPENDIX D

DIAGNOSTIC LISTING

The diagnostic listing represents the first attempt by the ad hoc report generator to produce a listing of all diagnoses in their order of frequency. In addition, each diagnosis was also listed by the percentage it constituted among all diagnoses. Only the first page of each rank order method is shown. However, over three hundred diagnoses were ranked by both frequency and percentage.

The generation of this report indicates the system's capability to search large quantities of data and make retrievals in heretofore, impossible formats. The use of such a report for research and teaching is far reaching. For example, it can be used to assure equal distribution of cases by complexity to residents. Moreover, it can be applied to studies dealing with short and long term trending.

08 MAR 82

DX	TOTAL
ADVICE & HEALTH INSTRUCTI	667
HYPERTENSION, UNCOMPLICAT	629
PRENATAL CARE	552
MEDICAL EXAM	463
ACUTE UPPER RESPIR TRACT	409
LETTER, FORMS, PRESCRIPTI	399
DMA3NAME	211
DIABETES MELLITUS WO COMP	209
GENERALIZED OSTEOARTHROSI	142
CHRONIC ISCHEMIC HEART DI	140
ACUTE OTITIS MEDIA	131
TGA2NAME	128
BACK PAIN WO RADIATING SY	117
BHN3NAME	116
QLA1NAME	108
MED OR SURG PROCEDURE WO	103
ASTHMA, EXTRINSIC	98
BRONCHITIS & BRONCHIOLITI	95
CHEST PAIN	95
OTHER SKIN & SUBCUTANE TI	88
PAIN & OTHER LIMB SYMPTOM	85
PAIN OR STIFFNESS IN JOIN	81
PNEUMONIA	80
PROPHYLACTIC IMMUNIZATION	78
RJA4NAME	71
GHA3NAME	69
CYSTITIS & URINARY INFECT	63
HYPERTENSION INVOLVING TA	59
CONTACT & OTHER DERMATITI	58
RASH & OTHER NONSPECIFIC	57
STREP THROAT, SCARLET FEV	55
YJA6NAME	52
ACUTE & CHRON SEROUS OTIT	51
SINUSITIS, ACUTE & CHRONI	50
DEPRESSIVE DISORDER	48
EMPHYSEMA & COPD	42
JLA3NAME	38
VJA2NAME	37
OTITIS EXTERNA	36
HEADACHE	36
ABNORMAL UNEXPLAINED BIO	34
RJA6NAME	34
ALLERGIES	33
MLB3NAME	29
OTHER EYE DISEASES	29
HYPOTHYROIDISM, MYXEDEMA,	28
OTHER BURSTITIS & SYNOVITI	28
PJA1NAME	26
OTHER MUSCULOSKEL, CONNEC	25
CONJUNCTIVITIS & OPHTHALM	25
QLB4NAME	24
ALCOHOL ABUSE & ALCOHOLIC	24
DIZZINESS & GIDDINESS	23
MJB4NAME	23
FLA5NAME	23

08 MAR 82

DX

TOTAL

DKN5NAME	22
QHA2NAME	22
PHA1NAME	22
PALPITATIONS	21
IRRIT BOWEL SYNDR OR INTE	21
HX OF ALLERGY TO MEDICINA	20
MALIG NEOPL GASTROINTESTI	20
ACNE	20
OTHER ADVERSE EFFECTS NEC	19
DERMATOPHYTOSIS & DERMATO	19
DIVERTICULA OF INTESTINE	19
OTHER RESPIRATORY SYSTEM	19
DEAFNESS, PARTIAL OR COMP	18
JHA2NAME	18
PRESUMED INFECTIOUS INTES	18
OTHER NERVOUS SYSTEM DISE	18
QHA1NAME	18
CKN2NAME	17
SHOULDER SYNDROMES	17
BRUISE, CONTUSION, CRUSHI	17
OTHER EAR & MASTOID DISEA	17
HYPRPLASIA PROSTAT	16
WHABNAME	16
QGA1NAME	16
DIAGNOSING PREGNANCY	16
YKA3NAME	16
OTHER HEART DISEASES NEC	16
DIAPER RASH	16
OTHER ENDOCR, NUTRITN, ME	15
OTHER FEMALE GENITAL ORGA	15
JJA1NAME	15
GLA2NAME	14
TUBERCULOSIS	14
OTHER URINARY SYSTEM DISE	14
SIGN, SYMPTOM, ILL DEFINE	14
MARITAL PROBLEM	14
RHEUMATOID ARTHRIT & ALLI	14
FEVER OF UNDETERMINED CAU	13
TJA4NAME	13
SPRAIN OR STRAIN ANKLE	13
ARTHRITIS NEC OR DIFF CON	13
BOIL & CELLULITIS INCL FI	13
POLYDRUG ABUSE	12
IMPETIGO	12
HIATUS OR DIAPHRAGMATIC H	12
NONTOXIC GOITER & NODULE	12
VLE6NAME	12
REFERRAL WO EXAM OR INTER	12
STERILITY & REDUCED FERTI	12
CLB2NAME	11
MHASNAME	11
OTHER INFECTIONS SKIN OR	11
OTHER PEPTIC ULCER	11
BHV1NAME	11
PHLEBITIS & THROMBOPHLEBI	11

X TOTAL
DX

08 MAR 82

	TOTAL
ADVICE & HEALTH INSTRUCTI	8.1
HYPERTENSION, UNCOMPLICAT	7.7
PRENATAL CARE	6.7
MEDICAL EXAM	5.6
ACUTE UPPER RESPIR TRACT	5.0
LETTER, FORMS, PRESCRIPTI	4.9
DMA3NAME	2.6
DIABETES MELLITUS WO COMP	2.6
GENERALIZED OSTEOARTHROSI	1.7
CHRONIC ISCHEMIC HEART DI	1.7
ACUTE OTITIS MEDIA	1.6
TGA2NAME	1.6
BACK PAIN WO RADIATING SY	1.4
BHN3NAME	1.4
QLA1NAME	1.3
MED OR SURG PROCEDURE WO	1.3
ASTHMA, EXTRINSIC	1.2
BRONCHITIS & BRONCHIOLITI	1.2
CHEST PAIN	1.2
OTHER SKIN & SUBCUTANE TI	1.1
PAIN & OTHER LIMB SYMPTOM	1.0
PAIN OR STIFFNESS IN JOIN	1.0
PNEUMONIA	1.0
PROPHYLACTIC IMMUNIZATION	1.0
RJA4NAME	0.9
GHA3NAME	0.8
CYSTITIS & URINARY INFECT	0.8
HYPERTENSION INVOLVING TA	0.7
CONTACT & OTHER DERMATITI	0.7
RASH & OTHER NONSPECIFIC	0.7
STREP THROAT, SCARLET FEV	0.7
YJA6NAME	0.6
ACUTE & CHRON SEROUS OTIT	0.6
SINUSITIS, ACUTE & CHRONI	0.6
DEPRESSIVE DISORDER	0.6
EMPHYSEMA & COPD	0.5
JLA3NAME	0.5
VJA2NAME	0.5
OTITIS EXTERNA	0.4
HEADACHE	0.4
ABNORMAL UNEXPLAINED BIO	0.4
RJA6NAME	0.4
ALLERGIES	0.4
MLB3NAME	0.4
OTHER EYE DISEASES	0.4
HYPOTHYROIDISM, MYXEDEMA,	0.3
OTHER BURSITIS & SYNOVITI	0.3
PJA1NAME	0.3
OTHER MUSCULOSKEL, CONNEC	0.3
CONJUNCTIVITIS & OPHTHALM	0.3
QLB4NAME	0.3
ALCOHOL ABUSE & ALCOHOLIC	0.3
DIZZINESS & GIDDINESS	0.3
MJB4NAME	0.3
FLA5NAME	0.3

APPENDIX E

MEDICATION PROFILE

The medication profile will be a routine report produced upon implementation of Phase Two, pharmacy input. It represents an accurate method of cataloging all medications to insure a complete patient record. More importantly, the report will assure that prescription abuse can readily be identified as well as the ability to more accurately identify those cases where conflicting medications have been prescribed.

Since the medication profile represents information ordered by the FPC, processed by the pharmacy, and ultimately reported back to the FPC, it serves as an example of how the CMRIS can integrate health care personnel (health care provider and pharmacist) and facilities (FPC and Pharmacy).

The medication profile can also act as an alert to high-risk medication situations. Conflicting medications can be immediately identified, prescription abuse is expeditiously reported, and drug recalls will be simplified. Finally, because of the system's ability to "recognize" prescription abuse, there exists the indirect benefit of cost control by reducing the number of duplicate prescriptions as well as the number of refills.

DATE PRESCRIBED	CLINIC	PREScriBER NAME
RX NUMBER	MEDICATION FORM STRENGTH DOSE ROUTE FREQUENCY	
	ADDITIONAL ISTRUCTIONS R:REFILLS	REFILL DATES...

123457R ...

APPENDIX F

"OVER 40" AND IMMUNIZATION REPORT

The capability of the CMRIS to alert the health care provider of high risk situations is the single most important potential benefit of the system's QA capability. Full utilization of this mechanism is not possible until both laboratory and pharmacy come on-line.

Two attempts were made, however, to use data currently available on the system to identify "risk" situations. The first was developed from the requirement to identify active duty Army personnel who are over 40 years of age for screening prior to beginning physical training programs. The medical screening program for Army personnel over 40 aims to safeguard from overactivity those soldiers susceptible to developing heart disease. Although the report generator used only age and sex criteria, other factors such as cigarette smoking, blood pressure, diabetes, cholesterol level, and electro-cardiogram abnormalities could also become part of the high risk alert.

The second attempt generated a report which alerts the health care provider of those children not fully immunized against childhood diseases. A standard FPC immunization protocol was used to program the selection criteria for this report. With the increasing emphasis on preventive medicine and health promotion such reports can prove to be a valuable tool in identifying risk situations before conflicting actions are taken or unattended risks proceed to adverse events.

PAGE 1

NAME	FMP	ACTIVE DUTY 40 OR OLDER 16 MAR 82-16 MAR 82	SPON SSM	BIRTHDATE	AGE	SEX	DOCTOR
ARMSTRONG, RAY M	20			09 APR 40	41	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, JOHNNY	20			11 OCT 39	42	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, JOHN E	20			25 APR 39	42	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, WILLY C	20			28 JUL 41	40	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, ANTONIO M	20			04 SEP 41	40	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, ROBERT P	20			01 AUG 33	48	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, GLENN G	20			18 JAN 32	50	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, MORRIS W	20			24 AUG 39	42	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, EDWIN D	20			28 JUL 41	40	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, JERE L	20			11 APR 32	49	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, THOMAS E	20			06 FEB 40	42	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, ROSAURD, L	20			30 AUG 36	45	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, JAMES V	20			06 JAN 39	43	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, JAMES L	20			23 JUL 23	58	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, JOHN W	20			22 FEB 34	48	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, ROBERT L	20			12 MAY 40	41	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, JOHN A	20			24 FEB 42	40	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, BILLY D	20			04 JUN 39	42	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, ROBERT G	20			06 APR 41	40	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, CYRUS M	20			08 OCT 38	43	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, WILLIAM T	20			13 DEC 39	42	MALE	ARMSTRONG, CHALMERS, M
ARMSTRONG, MEREDITH R	20			20 NOV 35	44	MALE	ARMSTRONG, CHALMERS, M

**FAMILY PRACTICE CLINIC
IMMUNIZATION SCHEDULE**

Recommended Immunizations for Children:

6 weeks to 2 months.....#1 DPT, Polio #1
 4 months.....#2 DPT, Polio #2
 6 months.....#3 DPT, Polio #3
 11 to 12 months.....Tine
 15 months.....Measles, Mumps, Rubella
 18 months.....#4 DPT, Polio (Boosters)
 4 to 6 years.....#5 DPT, Polio, Tine (Boosters)
 Thereafter.....D.T. (adults) every 10 years
 Tetanus Toxoid following injury

VACCINE	DOSE	INITIAL SERIES	BOOSTER	REIMMUNIZATION SCHEDULE
DPT	0.5 cc SC or IM	6 wk; 4 mo; 6 mo	15-18 mo; 4-6 yrs (on entering school)	Reimmunization beyond basic series is not required.
Polio	2 gtts.	6 wk; 4 mo; 6 mo	15-18 mo; 4-6 yrs (on entering school)	Reimmunization beyond basic series is not required.
Tine		11-12 months	6 yr; pre school once every 6 yrs.	Depends on exposure
Measles, Mumps, Rubella	0.5 cc	15 months		
Tetanus Toxoid	1cc	after 6 yrs of age	every 5 yrs if injury. Every 10 years if no injury	As necessary
Smallpox	Intra- dermal	Pre-school.	Every 3 yrs	Only on request in Hawaii

REACTIONS:

1. DPT....Fever, irritability and painful swelling of the injection site may occur 2-12 hours after injection. This may be treated by giving tylenol (or other fever medicine) according to the directions on the bottle.
2. MMR....A small number of children will develop fever and/or rash 7 to 10 days after the injection. This may last 2-5 days. This may be treated with tylenol (or other fever medicine).

PEDIATRICS IMMUNIZATION AUDIT PANEL

PAGE 1

19 APR 82

NAME	FMF	MONTHS	DATE	DOCTOR
SARAH E	03	18	27 JAN 82	NORTON, LARRY, MD
JOHNNY L	01	22	09 FEB 82	SCHIRNER, WAYNE, DO
MARK B	02	4	14 APR 82	ZARINCZUK, JAMES, MD
REX	02	18	12 APR 82	SARGENT, DAVID, DO
NATALIE V	02	19	19 DEC 80	SCHIRNER, WAYNE, DO
JADRINA A	03	4	07 DEC 81	POTTS, JEROME, MD
JR. ANTHONY L	03	5	10 MAR 82	ALMON, WILLIAM, MD
BRETT	03	11	19 JAN 82	NORTON, LARRY, MD
ANTHONY P	03	11	01 APR 82	ELLINGTON, DAVID, MD
ANTHONY W III	02	7	02 FEB 82	WHITTAKER, PAUL, MD
KRISTINA D	01	8	04 MAR 82	ZINSER, JAMES, MD
STEVEN T	01	19	08 MAR 82	SCHIRNER, WAYNE, DO
LINNEA C	03	14	19 FEB 81	NICKS, TONNY, MD
CLAIRE ELIZABETH	03	14	15 JAN 82	ARMSTRONG, CHALMERS, M
JUDITH A	02	1	12 APR 82	NORTON, LARRY, MD
CASSANDRA J	01	0	04 DEC 81	SCHIRNER, WAYNE, DO
NATALIE A	03	7	04 DEC 81	SCHIRNER, WAYNE, DO
WESLEY III	03	14	04 MAR 82	BOYD, JOHN, MD
TERICA E	01	4	23 FEB 82	NICKS, TONNY, MD
ALEXIS	02	19	12 APR 82	PEEPLES, WILLIAM, MD
SYLVANIA	01	18	31 MAR 82	ARMSTRONG, CHALMERS, M
TYSON J	02	2	08 FEB 82	MELI, JAMES, DO
SATURINA A	30	4	17 FEB 82	ALMON, WILLIAM, MD
HEATHER	01	8	11 APR 82	NICKS, TONNY, MD
CRISTAL S	02	8	26 JAN 82	PEEPLES, WILLIAM, MD
JR. ROBERT	02	8	30 MAR 82	MELI, JAMES, DO
WENDY	01	15	26 MAR 82	RANPTON, MARK, MD
TIMOTHY	02	11	30 MAR 82	WHITTAKER, PAUL, MD
RICHARD E	02	13	30 MAR 82	WHITTAKER, PAUL, MD
SHAWN P	01	153	29 MAR 82	ZARINCZUK, JAMES, MD
ARTHUR	20	10	29 MAR 82	ZINSER, JAMES, MD
CHRISTINE	02	20	09 APR 82	POTTS, JEROME, MD
WILLIAM	03	15	16 FEB 82	BOYD, JOHN, MD
MARCUS A	01	15	16 FEB 82	BOYD, JOHN, MD
MARK A	02	15	16 FEB 82	BOYD, JOHN, MD
MICHAEL A	03	8	18 FEB 82	MELI, JAMES, DO
JENNIFER N	02	19	31 MAR 82	NICKS, TONNY, MD
MARIA C	01	19	05 MAR 82	ARMSTRONG, CHALMERS, M
DAVID M	02	6	29 MAR 82	WHITTAKER, PAUL, MD
DIANNA	02	15	28 JAN 82	NORTON, LARRY, MD
RAUVEL ADAM	04	23	14 APR 82	ZARINCZUK, JAMES, MD
MICHAEL S	01	15	02 APR 82	PEEPLES, WILLIAM, MD
RUSSELL N	02	8	02 APR 82	PEEPLES, WILLIAM, MD
LEWIS A	02	17	25 MAR 82	PEEPLES, WILLIAM, MD
JENNIFER L	02	10	18 MAR 82	SARGENT, DAVID, DO
TODD	01	4	18 MAR 82	NICKS, TONNY, MD
ANY L	01	5	07 APR 82	SARGENT, DAVID, DO
MICHAEL D	01	15	02 FEB 82	POTTS, JEROME, MD
CHRISTINE	01	17	31 JUL 81	PEEPLES, WILLIAM, MD
JENNIFER A	01	15	08 MAR 82	LECLAIR, BRUCE, MD
MICHAEL I	02	14	14 JAN 82	LECLAIR, BRUCE, MD
CHRISTOPHER	02	15	30 MAR 82	GOODELL, THOMAS, MD
KATHRYN M	01	22	05 MAR 82	ARMSTRONG, CHALMERS, M
KATHRYN A	02	23	05 APR 82	SARGENT, DAVID, DO
ORRIN C	01	9	01 MAR 82	NORTON, LARRY, MD
ANDREW D	05			

APPENDIX G

DIABETIC AND OBSTETRICAL CHART

AUDIT REVIEW

In an effort to determine how helpful the CMRIS Phase One capability could be for chart auditing, a listing of current diabetic patients was produced using the ad hoc report generator function. One hundred and one patients were identified by name, FMP, SSN, age, and primary physician. In addition, the listing provided the number of visits made to the FPC by the patient. This report, shown at Inclosure 1, was considered an important advance in auditing procedures since it represented a selection of ambulatory patients by diagnoses. Heretofore, this was a monumental task requiring manual searches of hundreds of outpatient records.

From this listing ten patients were selected to have their most current status reports produced and reviewed (Inclosure 2). Although a full professional audit was not done under the guidance of a physician, it was apparent that the status reports alone could not verify or deny the criteria for diabetes established by the FPC (Inclosure 3). In fact, only item four (follow up visits) could be determined to any degree of certainty.

The same technique was used for obstetrical patients selected from the listing at Inclosure 4 using specific criteria developed by the FPC (Inclosure 5). The outcome was essentially the same and the status reports (Inclosure 6) no more definitive.

The chart audit review represents what is perhaps a premature attempt to use CMRIS status report data to access compliance with established criteria. Obviously, the entire medical record will always be needed to conduct a complete audit. However, the potential for reviewing a large number of patients for critical items does exist. With the full implementation of Phase Two, it is possible that all criteria can be quickly reviewed since they will appear on the status report. The next logical step would be the use of a "plan set" (Inclosure 7) to identify deviations and automatically report only those not meeting the criteria. Such an approach is graphically outlined in Figure 4.

DIABETES AUDIT PANEL

PAGE 2

NAME	FMP	OB	AFK	SSN	AGE	DOCTOR	AGE	NUMBER
ISAIAH L	20				60	MORRISON, JIMMIE D, MD	60	11
HILDE E	30				54	RAMPTON, MARK, MD	54	2
THEODORE J	20				74	RAMPTON, MARK, MD	74	16
JUANA	30				52	SCHIRNER, WAYNE, DO	52	20
JENNIFER	30				24	SCHIRNER, WAYNE, DO	24	16
WILLIE M	30				62	SCHIRNER, WAYNE, DO	62	13
CONSTANCE J	30				59	SCHIRNER, WAYNE, DO	59	17
BLUNIE	30				42	MORRISON, JIMMIE D, MD	42	2
RONALD R	20				69	RAMPTON, MARK, MD	69	20
ANGEL	20				75	RAMPTON, MARK, MD	75	5
JAMES	20				61	RAMPTON, MARK, MD	61	6
BARBARA	30				46	RAMPTON, MARK, MD	46	2
DETTY L	30				40	MORRISON, JIMMIE D, MD	40	7
HIROKO S	30				45	SCHIRNER, WAYNE, DO	45	4
RHODY P	30				42	MORRISON, JIMMIE D, MD	42	13
MARY E	30				60	RAMPTON, MARK, MD	60	4
THOMAS H	20				60	RAMPTON, MARK, MD	60	2
IOLA A	30				63	SCHIRNER, WAYNE, DO	63	4
VIRGINIA M	30				58	RAMPTON, MARK, MD	58	13
ALICE L	30				55	RAMPTON, MARK, MD	55	14
PERCY W	20				71	RAMPTON, MARK, MD	71	4
CONSCORIA B	30				64	RAMPTON, MARK, MD	64	7
EMILIO A	20				70	MORRISON, JIMMIE D, MD	70	18
ANITA S	30				81	RAMPTON, MARK, MD	81	13
DOROTHY M	30				47	RAMPTON, MARK, MD	47	4
WILLIE J	20				54	RAMPTON, MARK, MD	54	18
CATALINA P	30				55	RAMPTON, MARK, MD	55	13
KATHERINE E	03				16	MORRISON, JIMMIE D, MD	16	14
KAY	30				47	RAMPTON, MARK, MD	47	4
ROBERT L	20				55	MORRISON, JIMMIE D, MD	55	5
WALTER M	20				78	BRITTAKER, PAUL, MD	78	3
ROBERT	20				42	MORRISON, JIMMIE D, MD	42	14
BARBARA	30				66	RAMPTON, MARK, MD	66	8
JAMES R	20				51	LECLAIR, BRUCE, MD	51	8
MARY B	40				66	BRITTAKER, PAUL, MD	66	18
BERALD D	20				53	RAMPTON, MARK, MD	53	13
EILEEN E	30				67	RAMPTON, MARK, MD	67	6
LOIS	30				41	ARMSTRONG, CHALMERS, M	41	12
DENNIE	20				48	SCHIRNER, WAYNE, DO	48	4
JACOB E	20				45	RAMPTON, MARK, MD	45	41
BILLIE J	30				19	MORRISON, JIMMIE D, MD	19	12
ELINOR L	30				73	SCHIRNER, WAYNE, DO	73	10
SURMER S	20				70	BRITTAKER, PAUL, MD	70	11
GOLDINE Y	30				56	RAMPTON, MARK, MD	56	13
ARTHUR	20				60	MORRISON, JIMMIE D, MD	60	8

STATUS REPORT

FMP:30 SSN: [REDACTED]

PRINTED: 12 APR 82

[REDACTED] F (F) 48 YRS (30 DEC 33)
239 [REDACTED] RIVE SALINAS, CA 93905
HOME: 422- [REDACTED] WORK: 422- [REDACTED]

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

RJAL4-1 VAGINITIS NOS, VULVITIS	25MAR82-2-30MAR82
NON-SPECIFIC	
EHAZ6-1 DIABETES MELLITUS	25MAR82-2-30MAR82
BMBF2 ADVICE & HEALTH INSTRUCTION	29MAR82-3-30MAR82

----- RECORDED ALLERGIES/SENSITIVITIES -----

* ALLERGIES	30MAR82
RASH	

----- VITAL SIGNS - LAST VISIT -----

* TEMPERATURE	97.8	25MAR82-2-30MAR82
WEIGHT	125.75	25MAR82-2-30MAR82
BLOOD PRESSURE	117/76	25MAR82-2-30MAR82

87

STATUS REPORT

FMP:30 SSN: [REDACTED]

PRINTED: 12 APR 82

[REDACTED] LILLIAN V (F) 63 YRS (10 NOV 18)
15660 [REDACTED] PL SALINAS, CA 93907
HOME: 633-[REDACTED] WORK: N

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

EHAZ6-1	DIABETES MELLITUS	18MAR80-4-20APR81
VLEL6-1	SPRAIN OR STRAIN KNEE & LOWER LEG	17NOV80
WLDF9	DIZZINESS & GIDDINESS	18MAR80
MHAEB	HYPERTENSION, UNCOMPLICATED	18MAR80
TJAF6	CYSTITIS & URINARY INFECTION NOS	18MAR80

WORK: N

~~TMC: NONE~~

DJCF2	PROPHYLACTIC IMMUNIZATION	26SEP79-17-21AUG81
WGAW5	HEADACHE	21AUG80-2-05MAY81
RJAB6-1	MENOPAUSAL SYMPTOMS & POST MENO BLEED	19NOV79-3-08DEC80
BHNY8	LETTER, FORMS, PRESCRIPTION WO EXAM	20MAR80
EHAZ6-1	DIABETES MELLITUS	19OCT79
QKBS4	MALIG NEOPL GASTROINTESTINAL TRACT	19OCT79

STATUS REPORT

FMP:50 SSN: [REDACTED]

PRINTED: 12 APR 82

[REDACTED] DOROTEA L (F) 82 YRS (07 FEB 00)
1751 [REDACTED] SEASIDE, CA 93955
HOME: 394-[REDACTED] WORK: N

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

YMBG3	OTHER MENTAL & PSYCHOLOGIC DISORDER	22MAY80
QJCH9	PRESUMED INFECTIOUS INTESTIN DISEAS	22MAY80
TJAF6	CYSTITIS & URINARY INFECTION NOS	16MAY80
WLCK7	SIGN, SYMPTOM, ILL DEFINED COND NEC	08APR80
GLGY3	MED OR SURG PROCEDURE WD DIAGNOSIS	24MAR80-3-31MAR80
KKBJ1	NEOPL NYD AS BENIGN OR MALIGNANT	18MAR80
CLHE1	A VITAMIN & NUTRITIONAL DISORDER NEC	29FEB80
EHAZ6-1	DIABETES MELLITUS	29JAN80
MHAEB	HYPERTENSION, UNCOMPLICATED	29JAN80

STATUS REPORT

FMP:20 SSN: [REDACTED]

PRINTED: 12 APR 82

[REDACTED], GERMANO P (M) 46 YRS (21 DEC 35)

642 [REDACTED] SALINAS, CA 93906

HOME: 449-[REDACTED]

WORK: 242-[REDACTED]

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

MHAEB HYPERTENSION, UNCOMPLICATED

08JAN81-3-17NOV81

EHAZ6-1 DIABETES MELLITUS

08JAN81-3-17NOV81

QLAS1-1 OBESITY

21JAN81-2-17NOV81

CGAT3 HEART MURMUR NEC, NYD

08JAN81

----- VITAL SIGNS - LAST VISIT -----

TEMPERATURE

98.2

17NOV81

WEIGHT

238

17NOV81

BLOOD PRESSURE

150/80

17NOV81

STATUS REPORT

FMP:20 SSN: [REDACTED]

PRINTED: 12 APR 82

[REDACTED], RAY J (M) 60 YRS (28 FEB 22)
 621 [REDACTED] ST SALINAS, CA 93905
 HOME: 422-[REDACTED] WORK: N

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

EHAZ6-1	DIABETES MELLITUS	06JUN80-14-05FEB82
MHAEB	HYPERTENSION, UNCOMPLICATED	05FEB82
GJBX4	BOIL & CELLULITIS INCL FINGER & TOE	27JUL81
GLAF5-1	CHRONIC SKIN ULCER	21NOV80-5-23DEC80
JJBR6	OTITIS EXTERNA	03NOV80
GLAH2-1	INGROWN TOENAIL & NAIL DISEASE NEC	17OCT80
VLGE7	CERVICAL SPINE SYNDROMES	23SEP80
VLHX2	SPRAIN OR STRAIN SHOULDER & ARM	06SEP80
FLAY1-1	IRON DEFICIENCY ANEMIA	25FEB80
BHAA7	MEDICAL EXAM	19FEB80
VLGPS	SHOULDER SYNDROMES	10SEP79

----- SURGERIES, PROCEDURES, AND IMMUNIZATIONS -----

PROCEDURES

BLOOD PRESSURE PROCEDURE	05FEB82
VITAL SIGNS PROCEDURE	05FEB82
PATIENT CONSULT	06JAN82

----- VITAL SIGNS - LAST VISIT -----

TEMPERATURE	97.2	06JAN82-2-05FEB82
WEIGHT	213	06JAN82-2-05FEB82
BLOOD PRESSURE	138/70	06JAN82-2-05FEB82

----- REFERRALS AND APPOINTMENT - LAST VISIT -----

APPOINTMENT IN 1 MONTHS

06JAN82

STATUS REPORT

FMP:30 SSN: [REDACTED]

PRINTED: 12 APR 82

[REDACTED] KIYONO (F) 45 YRS (22 OCT 36)

1582 [REDACTED] SALINAS, CA 93906

HOME: 449-[REDACTED]

WORK: 242-[REDACTED]

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

EHAZ6-1 DIABETES MELLITUS

20JUL81-2-17DEC81

MHBX3 ATRIAL FIBRILLATION OF
FLUTTER

17DEC81

BMBF2 ADVICE & HEALTH INSTRUCTION

30APR80-2-01MAY80

----- SURGERIES, PROCEDURES, AND IMMUNIZATIONS -----

PROCEDURES

VITAL SIGNS PROCEDURE

17DEC81

----- VITAL SIGNS - LAST VISIT -----

TEMPERATURE

98

16NOV81-2-17DEC81

WEIGHT

124

16NOV81-2-17DEC81

BLOOD PRESSURE

100/70

16NOV81-2-17DEC81

----- REFERRALS AND APPOINTMENT - LAST VISIT -----

APPOINTMENT IN 3 MONTHS WITH KUGLER (NO
SUSPENSE DATE)

17DEC81

REFERRALS

GYNECOLOGY

17DEC81

STATUS REPORT

FMP:30 SSN: [REDACTED]

PRINTED: 12 APR 82

[REDACTED], JENNIFER (F) 24 YRS (19 MAR 58)

405 [REDACTED] FT ORD, CA 93941

HOME: 384-[REDACTED]

WORK: 242-[REDACTED]

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

DMAM3-1 VIRAL INFECTION NOS	07APR82
EHAZ6-1 DIABETES MELLITUS	02JUN81-13-31MAR82
INSULIN DEPENDENT	
BHMK3-1 POSTNATAL CARE	11DEC81-2-28JAN82
EJAX2 OTHER ENDOCR, NUTRITN,	15JAN82-2-28JAN82
METABOL DISORD	
HYPOGLYCEMIA	
RMGJ8 PRENATAL CARE	02JUN81-9-21AUG81

----- SURGERIES, PROCEDURES, AND IMMUNIZATIONS -----

PROCEDURES

VITAL SIGNS PROCEDURE	11DEC81-4-28JAN82
COMPLETE PHYSICAL EXAMINATION	28JAN82
PELVIC EXAMINATION AND OR PAP SMEAR	28JAN82
PARTIAL PHYSICAL EXAMINATION	11DEC81-2-31DEC81

----- VITAL SIGNS - LAST VISIT -----

TEMPERATURE	98.7	11DEC81-4-07APR82
WEIGHT	124.5	11DEC81-5-07APR82
BLOOD PRESSURE	110/68	11DEC81-4-07APR82

STATUS REPORT

FMP:30 SSN: [REDACTED]

PRINTED: 12 APR 82

[REDACTED], BARBARA (F) 66 YRS (03 OCT 15)

637 [REDACTED] SALINAS, CA 93901

HOME: 422-[REDACTED]

WORK: N

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

EJAX2	OTHER ENDOCR, NUTRITN,	23MAR82
	METABOL DISORD	
	GLUCOSE INTOLERANCE	
VLGP5	SHOULDER SYNDROMES	23MAR82
	SHOULDER PAIN-L	
EHAZ6-1	DIABETES MELLITUS	21AUG81-3-22JAN82
TGAT2-1	ABDOMINAL PAIN	21JAN81-2-03AUG81
BMBF2	ADVICE & HEALTH INSTRUCTION	16OCT80

----- SURGERIES, PROCEDURES, AND IMMUNIZATIONS -----

PROCEDURES

VITAL SIGNS PROCEDURE	22JAN82
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----- VITAL SIGNS - LAST VISIT -----

* TEMPERATURE	98.5	22JAN82-3-23MAR82
WEIGHT	163.5	22JAN82-3-23MAR82
BLOOD PRESSURE	122/70	22JAN82-3-23MAR82

STATUS REPORT

FMP:20 SSN: [REDACTED]

PRINTED: 12 APR 82

[REDACTED] PERCY W (M) 71 YRS (13 AUG 10)

1711 [REDACTED] SEASIDE, CA 93955

HOME: 394 [REDACTED]

WORK: N

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

BHNY8	LETTER, FORMS, PRESCRIPTION	18AUG81-2-01APR82
	WO EXAM	
JJBP9	ACUTE UPPER RESPIR TRACT	09MAR82
	INFECTION	
EHAZ6-1	DIABETES MELLITUS	24AUG81
MHAEB	HYPERTENSION, UNCOMPLICATED	24AUG81
QJDA4	IRRIT BOWEL SYNDR OR INTEST	24AUG81
	DISOR NEC	

----- VITAL SIGNS - LAST VISIT -----

TEMPERATURE	97.9	09MAR82
BLOOD PRESSURE	120/80	09MAR82

Physician: _____

7. P.E.: Fundus, BP, C.V., Skin Peripheral Sensation, DTR

[illegible]

evaluating physician: _____

NAME	FME	DOCTOR	NUMBER
SUSAN S	30	MORTON, LARRY, MD	10
MELIA B	30	ZARINCZUK, JAMES, MD	5
FELECIANA G	50	ZARINCZUK, JAMES, MD	3
NANCY W	30	SCHIRNER, WAYNE, DO	14
KAREN C	30	WHITTAKER, PAUL, MD	5
ROSALINDA	30	FOTTS, JEROME, MD	5
JILENE F	30	MORTON, LARRY, MD	12
PETRA E	30	MORTON, LARRY, MD	7
BUDRIA S	30	UNKNOWN, DOCTOR	14
ELISABETH I	02	HICKS, TOMMY, MD	5
JULIA	30	UNKNOWN, DOCTOR	1
ROXANNE	30	WHITTAKER, PAUL, MD	11
CHERYL D	30	ZINSER, JAMES, MD	10
PATRICIA A	30	TUCKER, WILLIAM, DO	6
TERRI L	30	SCHIRNER, WAYNE, DO	18
BERRIE W	30	HICKS, TOMMY, MD	9
TYONNE	30	ZINSER, JAMES, MD	4
MELINDA J	30	MORTON, LARRY, MD	11
V KAYE	30	ARMSTRONG, CHALMERS, M	7
NORMA A	30	LECLAIR, BRUCE, MD	10
PRINCESS J	20	PEEPLES, WILLIAM, MD	7
DEWICE K	30	ZINSER, JAMES, MD	4
LINDA M	30	SCHIRNER, WAYNE, DO	11
MATERINA M	30	ARMSTRONG, CHALMERS, M	4
ERNA J	30	GOODELL, THOMAS, MD	12
MARILYN J	30	BOYD, JOHN, MD	5
MANILDA A	01	ZARINCZUK, JAMES, MD	8
CAROLYN A	30	HICKS, TOMMY, MD	4
DAM M	20	RODDER, THOMAS, MD	8
DONNA M	30	HICKS, TOMMY, MD	2
BERIMA	30	PEEPLES, WILLIAM, MD	7
VERONICA	30	LECLAIR, BRUCE, MD	3
ALEXANDRA M	30	ARMSTRONG, CHALMERS, M	21
CAROL N	20	HICKS, TOMMY, MD	5
SATURINA A	30	HICKS, TOMMY, MD	27
LISA	20	MELI, JAMES, DO	12
DEBORAH K	20	PEEPLES, WILLIAM, MD	5
LINDA M	04	MELI, JAMES, DO	8
SILKE A	30	MELI, JAMES, DO	9
MARY L	30	PEEPLES, WILLIAM, MD	4
LAURA J	30	KARPION, MARK, MD	9
DALENE D	30	SCHIRNER, WAYNE, DO	14
BRENDA C	30	SCHIRNER, WAYNE, DO	12
ANGELA	30	WHITTAKER, PAUL, MD	4
JUDITH A	30	ZINSER, JAMES, MD	12
JOAN F	20	MELI, JAMES, DO	3
JOAN F	30	MELI, JAMES, DO	3
SAUDRA I	20	SARGENT, DAVID, DO	4
YONG OK	30	ARMSTRONG, CHALMERS, M	21
BERNADETTE D	30	WHITTAKER, PAUL, MD	4
MARIA G	30	MORTON, LARRY, MD	8
MICHELLE A	30	PEEPLES, WILLIAM, MD	8
LINDA S	30	ZARINCZUK, JAMES, MD	4
LIAN M	30	WHITTAKER, PAUL, MD	9
MARLENE A	30	HICKS, TOMMY, MD	9

OBSTETRICAL PATIENT CARE AUDIT

Date _____

Chart # _____

Auditing Physician _____

	COMPLETE	INCOMPLETE
1) Patient ID Data		
2) EDC, LMP, or corrected EDC recorded in chart		
3) Appropriate data for each visit recorded (wt, BP, urine, etc)		
4) Lab Data on chart - Type, Rh, Hct, Hgb, PAP smear, Serology		
5) Review of Systems Analysis		
6) Past Medical History and Family History		
7) Previous obstetrical record		
8) Complete P.E.		
9) Pelvic Exam with Obstetrical Prognosis		
10) Chart legible	YES	NO

Comments:

Overall: _____ Acceptable _____ Unacceptable

STATUS REPORT

FMP:30 SSN: [REDACTED]

PRINTED: 19 APR 82

[REDACTED] SHARON L (F) 17 YRS (12 AUG 64)

215 [REDACTED] FORT ORD, CA 93941

HOME: N

WORK: 242- [REDACTED]

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

BMBF2	ADVICE & HEALTH INSTRUCTION	02FEB82-2-24MAR82
RMGJ8	PRENATAL CARE	02FEB82-2-19FEB82
RKCK2	OTHER COMPLICATIONS OF PREGNANCY	02FEB82
	HYPEREMESIS	

----- SURGERIES, PROCEDURES, AND IMMUNIZATIONS -----

PROCEDURES

PARTIAL PHYSICAL EXAMINATION	02FEB82
VITAL SIGNS PROCEDURE	02FEB82

----- VITAL SIGNS - LAST VISIT -----

WEIGHT	122	02FEB82-2-24MAR82
BLOOD PRESSURE	100/62	02FEB82-2-24MAR82
* TEMPERATURE	99.7	24MAR82

----- REFERRALS AND APPOINTMENT - LAST VISIT -----

* APPOINTMENT IN 1 MONTHS WITH TUCKER (NO SUSPENSE DATE)	02FEB82
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STATUS REPORT

FMP:30 SSN: [REDACTED]

PRINTED: 19 APR 82

[REDACTED] DONNA L (F) 25 YRS (26 NOV 56)

98 [REDACTED] ROAD FORT ORD, CA 93941

HOME: 899-[REDACTED]

WORK: 242-[REDACTED]

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

RMGJ8	PRENATAL CARE	15AUG80-6-07APR82
JJCJ1	SINUSITIS, ACUTE & CHRONIC	09DEC81-2-03MAR82
	RULE OUT SINUSITIS	
BMBF2	ADVICE & HEALTH INSTRUCTION	09FEB82-2-10FEB82
GLGY3	MED OR SURG PROCEDURE WO	10AUG81
	DIAGNOSIS	
JJBP9	ACUTE UPPER RESPIR TRACT	07AUG81
	INFECTION	
JJCR2	ACUTE TONSILLITIS & QUINSY	05AUG81
JLAV3-1	HAY FEVER	05AUG81
BHMK3-1	POSTNATAL CARE	17FEB81
YMAX9-1	PREGNANCY OUT OF WEDLOCK	24DEC80

----- RECORDED ALLERGIES/SENSITIVITIES -----

* HAY FEVER	09DEC81
-------------	---------

----- SURGERIES, PROCEDURES, AND IMMUNIZATIONS -----

PROCEDURES

VITAL SIGNS PROCEDURE	09DEC81-2-08FEB82
PELVIC EXAMINATION AND OR PAP SMEAR	05JAN82
ASPIRATION	05JAN82

----- REFERRALS AND APPOINTMENT - LAST VISIT -----

0	APPOINTMENT IN 2 WEEKS WITH ZARINCZ	09DEC81
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STATUS REPORT

FMP:30 SSN: [REDACTED]

PRINTED: 19 APR 82

[REDACTED] MAYRA R (F) 27 YRS (16 JUN 54)

347 [REDACTED] FORT ORD, CA 93941

HOME: 899- [REDACTED]

WORK: 242- [REDACTED]

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

QHAH1-1	HEMORRHOIDS	30MAR82
RMGJ8	PRENATAL CARE	22DEC81-2-11FEB82
JJBP9	ACUTE UPPER RESPIR TRACT INFECTION	29DEC81
HLCD3	CONJUNCTIVITIS & OPHTHALMIA	27JAN81

----- SURGERIES, PROCEDURES, AND IMMUNIZATIONS -----

PROCEDURES

PARTIAL PHYSICAL EXAMINATION	29DEC81
VITAL SIGNS PROCEDURE	22DEC81

----- REFERRALS AND APPOINTMENT - LAST VISIT -----

1	APPOINTMENT PRN WITH MELI	29DEC81
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STATUS REPORT

FMP:30 SSN: [REDACTED]

PRINTED: 19 APR 82

[REDACTED] URSEL (F) 33 YRS (24 MAR 49)

150 [REDACTED] ROAD FORT ORD, CA 93941

HOME: 899-[REDACTED]

WORK: 242-[REDACTED]

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

RMGJB PRENATAL CARE

01DEC81-4-25MAR82

----- SURGERIES, PROCEDURES, AND IMMUNIZATIONS -----

PROCEDURES

PARTIAL PHYSICAL EXAMINATION

26JAN82

VITAL SIGNS PROCEDURE

26JAN82

STATUS REPORT

FMP:20 SSN: [REDACTED]

PRINTED: 19 APR 82

[REDACTED], FRANCISA M (F) 26 YRS (01 MAY 55)

13226 [REDACTED] CASTROVILLE, CA 95012

HOME: 633-[REDACTED]

WORK: 242-[REDACTED]

TMC: NONE

DIAGNOSES/PROBLEMS

RMGJ8 PRENATAL CARE

03DEC81-6-25FEB82

DJCF2 PROPHYLACTIC IMMUNIZATION

04FEB82

SURGERIES, PROCEDURES, AND IMMUNIZATIONS

PROCEDURES

PARTIAL PHYSICAL EXAMINATION

06DEC81-4-12FEB82

VITAL SIGNS PROCEDURE

06DEC81-6-12FEB82

PATIENT CONSULT

04FEB82

VITAL SIGNS - LAST VISIT

WEIGHT

172

03DEC81-7-18FEB82

STATUS REPORT

FMP:30 SSN: [REDACTED]

PRINTED: 19 APR 82

[REDACTED] DELORES (F) 22 YRS (05 JUL 59)

109 [REDACTED] FORT ORD, CA 93941

HOME: 899 [REDACTED]

WORK: 242 [REDACTED]

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

RMGJ8 PRENATAL CARE
BHAA7 MEDICAL EXAM26FEB81
23FEB81

STATUS REPORT

FMP:30

SSN: [REDACTED]

PRINTED: 19 APR 82

[REDACTED] UTE (F) 20 YRS (23 MAR 62)

161 [REDACTED] FORT ORD, CA 93941

HOME: 394 [REDACTED]

WORK: 408-242 [REDACTED]

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

YMDY7 MEDICAL CARE PROBLEM

23MAR82

BMBF2 ADVICE & HEALTH INSTRUCTION

22MAR82

RMGJ8 PRENATAL CARE

14DEC81

----- SURGERIES, PROCEDURES, AND IMMUNIZATIONS -----

PROCEDURES

VITAL SIGNS PROCEDURE

14DEC81-2-26JAN82

STATUS REPORT

FMP:30 SSN: [REDACTED]

PRINTED: 19 APR 82

PERSON (F) 25 YRS (01 JUN 56)

408 [REDACTED] FORT ORD, CA 93941

HOME: 384-[REDACTED]

WORK: 242-[REDACTED]

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

BHMK3-1 POSTNATAL CARE

12APR82

RMGJ8 PRENATAL CARE

10DEC81-5-22JAN82

----- SURGERIES, PROCEDURES, AND IMMUNIZATIONS -----

PROCEDURES

PARTIAL PHYSICAL EXAMINATION

22JAN82

OTHER PROCEDURES

22JAN82

VITAL SIGNS PROCEDURE

30DEC81-2-08JAN82

IMMUNIZATIONS

DIPHTHERIA TETANUS AND PERTUSSIS

12APR82

VACCINE

ORAL POLIO

12APR82

----- VITAL SIGNS - LAST VISIT -----

WEIGHT

153

10DEC81-3-22JAN82

----- REFERRALS AND APPOINTMENT - LAST VISIT -----

APPOINTMENT IN 2 WEEKS WITH DR GOODELL

09DEC81

STATUS REPORT

FMP:30 SSN: [REDACTED]

PRINTED: 19 APR 82

[REDACTED] NORMA (F) 24 YRS (27 JUN 57)

3135 [REDACTED] MARINA, CA 93933

HOME: N

WORK: 242 [REDACTED]

TMC: NONE

----- DIAGNOSES/PROBLEMS -----

HLCD3	CONJUNCTIVITIS & OPHTHALMIA	22JUL81
RMGJ8	PRENATAL CARE	03DEC80-2-12DEC80
RKCK2	OTHER COMPLICATIONS OF PREGNANCY	17NOV80
RMFL9	BLEEDING DURING PREGNANCY	05NOV80
BHNY8	LETTER, FORMS, PRESCRIPTION WO EXAM	28OCT80

STATUS REPORT

FMP:30 SSN: [REDACTED]

PRINTED: 19 APR 82

[REDACTED] ANNETTE M (F) 22 YRS (24 SEP 59)

837 [REDACTED] FT ORD, CA 93941

HOME: 384 [REDACTED]

WORK: 242 [REDACTED]

TMC: NONE

DIAGNOSES/PROBLEMS

RMGJ8 PRENATAL CARE

21MAY80-4-18AUG80

GGAM1-1 PRURITIS & RELATED
CONDITIONS

14AUG80

"ASTHMA MEDS" AND LAST "ASA COMPOUNDS" > 0
 THEN RECONSIDER "ASA COMPOUNDS" WHICH MAY INDUCE ASTHMA
 CHECK NASAL POLYPS

ON "ASTHMA MEDS"
 THEN ORDER "FEV1" AND ORDER "VC"

FIRST "BACITRACIN"
 THEN IF FOLLOWED BY LAST "URINE PROT MG%" > 2
 THEN CONSIDER BACITRACIN AS CAUSE OF PROTEINURIA

FIRST "BLEEDING SCREEN" ABNORMAL
 THEN IF NOT FOLLOWED BY "BLEEDING SCREEN"
 THEN ORDER "BLEEDING SCREEN"

FIRST "CARBAMAZEPINE"
 THEN IF FOLLOWED BY LAST "WBC (THOU)" < 3.5
 THEN CONSIDER CARBAMAZEPINE AS CAUSE OF LEUKOPENIA

ON "CARBAMAZEPINE"
 THEN IF FOLLOWED BY LAST "NA+" < 135
 THEN CONSIDER "CARBAMAZEPINE" AS CAUSE OF HYPONATREMIA

PLAN SET PROTOCOL

APPENDIX H

COLON CANCER SCREENING AUDIT

The audit was conducted by a Family Practice resident and represents a good example of both audit/evaluation and research/teaching potential of the CMRIS.

Fifty-one charts were selected based on age criteria. A chart audit of these patients using criteria developed by FPC physicians revealed:

- a. 60% of the cases reviewed had at least one digital rectal exam during the period.
- b. Over half the patients audited (51%) did not have an office guaiac performed.
- c. Only 25% of the patients audited were given hemocult cards.

It is apparent that with improved data entry techniques and the formulation of a more acceptable status report, audits of this type can be greatly simplified thereby increasing the research and teaching value. A plan set developed specifically around the colon cancer audit criteria could be developed to report only those cases where there is a deviation. This would enable the use of a much greater sample size thereby improving data reliability.

FAMILY PRACTICE CHART AUDIT

MARCH 1982

Patient I.D. _____ (FMP & last 4 digits)

Auditor _____

PURPOSE: Assessment of the extent to which Family Practice residents and staff
conduct routine screening for colon cancer in patients over age _____.

During period of January 1980 through January 1982

1) Was a digital rectal exam done?

twice () once () none ()

2) Was an office guaiac performed?

yes () no ()

3) Was the patient given hemocult cards for three consecutive stool samples?

yes () no ()

4) If patient had guaiac positive stool, were any of the following studies done?

proctosigmoidoscopy ()

barium enema ()

colonoscopy ()

APPENDIX I

WORK LOAD REPORT

Although the SBHACH CMRIS version does not include standard accounting parameters normally associated with billing and accounts receivable, itemization of clinical services is possible. The "number of visits by military status" report is one example of a workload report designed to meet clinics, Patient Administration, and Comptroller requirements. This effort represents the first time that outpatient work load data was collected and reported as a by-product of an automated ambulatory system.

Since data collection requirements are an integral part of the clinic personnel's responsibility, it is hoped that such "by-products" will have an indirect effect on patient care by freeing clinic personnel of some administrative tasks.

The work load reporting aspect of the CMRIS is only in its infancy. As Phase Two implementation progresses, it is anticipated that additional benefits can be derived from the pharmacy and laboratory data. Certainly the population served will be more easily identified thereby making long range planning and utilization of resources more efficient.

NUMBER OF VISITS BY MILITARY STATUS
15 APR 82

PAGE
115

MILCAT

TOTAL

DEPN ARMY RETIRED	788
ARMY RETIRED	510
ARMY ACTIVE	328
DECEASED DEPN ARMY RETIRED	62
DEPN AIR FORCE RETIRED	23
DEPN ARMY ACTIVE	1621
DEPN NAVY RETIRED	54
DEPN NAVY ACTIVE	13
NAVY RETIRED	38
DECEASED DEPN ARMY ACTIVE	11
DEPN MARINES ACTIVE	6
DECEASED ARMY RETIRED	1
AIR FORCE RETIRED	12
DEPN AIR FORCE ACTIVE	5
DEPN COAST GUARD ACTIVE	6
DEPN MARINES RETIRED	1
AIR FORCE ACTIVE	3
DECEASED ARMY ACTIVE	2
NAVY ACTIVE	1
DECEASED DEPN NAVY RETIRED	1
MARINES RETIRED	1
DEPN COAST GUARD RETIRED	2
DEPN	2
TOTAL	3491

APPENDIX J

AUDIT FOR ACCURACY OF DATA INPUT
TO THE COSTAR SYSTEM

AUDIT FOR ACCURACY OF DATA INPUT TO THE COSTAR SYSTEM

Method: The data entry clerks have been familiar with the system and have used the system since 12 November 1981. One hundred charts entered between the 9th and 22nd of February were randomly pulled and checked for errors and completeness.

	Last Four	# of Entries	# of Errors	Status Report/ Encounter	Problem
1.	5776	2	2	Status Report	Allergies not entered
2.	5776	2	0	Encounter	OK
3.	2660	5	0	Encounter	OK
4.	3297	2	0	Encounter	OK
5.	0447	2	0	Encounter	OK
6.	0637	5	0	Encounter	OK
7.	7216	5	0	Encounter	OK
8.	1663	5	1	Encounter	Wrong B/P
9.	9402	5	0	Encounter	OK
10.	7923	3	2	Encounter	Wrong B/P, no diagnosis
11.	1040	2	0	Encounter	OK
12.	6679	9	3	Encounter	Wrong Temp & B/P, data not changed
13.	3730	5	0	Encounter	OK
14.	1433	8	2	Encounter	Wrong B/P, free text not entered
15.	6226	6	0	Encounter	OK

	Last Four	# of Entries	# of Errors	Status Report/ Encounter	Problem
16.	8783	6	3	Encounter	Wrong Weight, no diagnosis but they en- tered <u>Advise</u> .
17.	9876	4	3	Encounter	Entered vital signs, none were taken
18.	1815	3	1	Encounter	No diagnosis
19.	9562	3	1	Encounter	No diagnosis
20.	7183	3	2	Encounter	Wrong Temp, no diagnosis
21.	6047	3	1	Encounter	No diagnosis
22.	4442	10	1	Encounter	No diagnosis
23.	9622	5	1	Encounter	Entered data that wasn't on encounter
24.	2695	6	1	Encounter	Entered data that wasn't on encounter
25.	1967	3	0	Encounter	OK
26.	0363	5	0	Encounter	OK
27.	4241	6	1	Encounter	Free text not entered
28.	1785	6	0	Encounter	OK
29.	7671	8	1	Encounter	Free text not entered
30.	6430	9	1	Encounter	Wrong B/P
31.	1671	3	0	Encounter	OK
32.	4817	4	2	Encounter	Vital signs not entered

	Last Four	# of Entries	# of Errors	Status Report/ Encounter	Problem
33.	5496	6	0	Encounter	OK
34.	7773	11	0	Encounter	OK
35.	7725	4	0	Encounter	OK
36.	0227	7	1	Encounter	No diagnosis, but one was entered
37.	7030	4	1	Encounter	Free text not entered
38.	5553	2	1	Encounter	OK
39.	7034	2	0	Encounter	OK
40.	5180	2	0	Encounter	OK
41.	1514	2	1	Encounter	Wrong FMP number
42.	9274	2	0	Encounter	OK
43.	6291	9	0	Encounter	OK
44.	9374	2	0	Encounter	OK
45.	2328	2	0	Encounter	OK
46.	1447	6	0	Encounter	OK
47.	5406	6	1	Encounter	No diagnosis entered
48.	5636	6	0	Encounter	OK
49.	5636	5	0	Encounter	OK
50.	6065	7	1	Encounter	Free text not entered
51.	7270	3	1	Status Report	Data not en- tered

	Last Four	# of Entries	# of Errors	Status Report/ Encounter	Problem
52.	6053	5	2	Encounter	Wrong weight and B/P
53.	8579	2	1	Status Report	Data not en- tered
54.	5575	2	1	Status Report	Data not en- tered
55.	2020	5	4	Status Report	Data not en- tered
56.	2920	2	1	Status Report	Data not en- tered
57.	0824	5	0	Encounter	OK
58.	3753	5	0	Encounter	OK
59.	9302	6	0	Encounter	OK
60.	0478	2	1	Status Report	Data not en- tered
61.	0889	6	0	Encounter	Original copy
62.	1925	5	2	Encounter	Wrong weight, no diagnosis
63.	6600	9	1	Encounter	Wrong B/P
64.	8962	5	0	Encounter	OK
65.	7270	2	1	Encounter	Data not en- tered
66.	1005	2	1	Encounter	Data not en- tered
67.	6848	2	0	Encounter	OK
68.	8579	6	0	Encounter	OK
69.	8169	2	0	Encounter	OK
70.	4597	2	0	Encounter	OK

	Last Four	# of Entries	# of Errors	Status Report/ Encounter	Problem
71.	5814	3	0	Encounter	OK
72.	9711	2	0	Encounter	OK
73.	8848	2	1	Encounter	Data entered on wrong date
74.	8206	3	3	Encounter	Data not en- tered, child not on compu- ter
75.	0807	3	1	Encounter	No diagnosis
76.	5433	7	1	Encounter	B/P not en- tered
77.	9588	2	0	Encounter	OK
78.	2733	2	0	Encounter	OK
79.	6586	1	0	Status Report	OK
80.	1326	1	0	Status Report	OK
81.	7671	1	0	Status Report	OK
82.	0346	5	2	Encounter	Wrong height and weight
83.	8949	9	2	Encounter	Free text not entered
84.	6295	6	1	Encounter	Diagnosis not entered
85.	3076	5	1	Encounter	Diagnosis en- tered on wrong date
86.	9823	5	1	Encounter	Diagnosis en- tered on wrong date
87.	0886	6	1	Encounter	Diagnosis en- tered on wrong date

	Last Four	# of Entries	# of Errors	Status Report/ Encounter	Problem
88.	3428	6	1	Encounter	Diagnosis entered on wrong date
89.	6679	9	0	Encounter	OK
90.	6817	5	0	Encounter	OK
91.	3088	1	0	Status Report	OK
92.	4332	3	0	Status Report	OK
93.	5848	5	0	Encounter	OK
94.	0067	5	1	Encounter	B/P not entered
95.	3467	5	1	Encounter	Wrong B/P
96.	1120	4	1	Encounter	Diagnosis not entered
97.	3279	2	1	Encounter	Diagnosis not entered
98.	3890	6	1	Encounter	Entered diagnosis that was not marked
99.	3562	5	1	Encounter	No diagnosis entered
100.	1907	8	1	Encounter	Head circumference was not entered

100 Charts
53 with errors
47 without errors

Total number of entries: 443
Total number of errors: 73
Error rate: 16.5%

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