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An Ambulatory Care Case-Mix Methodology for Management and Reimbursement

by

Charles Lindsay Rogerson

DISSERTATION

Submitted in partial satisfaction of the requirements for the degree of

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An Ambulatory Care Case-Mix Methodology for Management and Reimbursement

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ABSTRACT

A problem-oriented medical information system for the study of case mix and resource use has been developed for a primary-care outpatient clinic at the San Francisco Veterans Administration Medical Center. This system has been used to develop and compare two case-mix methods for ambulatory care. A method combining diagnosis with certain patient characteristics was found to correlate better with charges than a method based solely on diagnosis. The system is a mini-computer based, dedicated system which does not require a computerized medical record or a hospital information or billing system, but relies on encounter forms and abstracting done within the clinic. This system has two important features: 1) it can describe case mix, in terms of medical problems, for each physician and for the entire clinic; 2) it can link each use of resources in the treatment of patients to a specific patient problem. This linkage enables the system to describe resource use over time for specific problems, patients, groups of patients, physicians, and the clinic. By aggregating the resources used in the treatment of each problem, and by developing appropriate charges for each resource, an important step is made in the development of case-mix cost-accounting in ambulatory care. Such case-mix cost-accounting has been proposed for hospitals, largely in response to the proposed adoption of prospective reimbursement by the Health Care Financing Administration (HCFA), and is under development at several sites. Much of this work is based on the use of diagnostic-related groups (DRG's) as products. DRG's have not, however, been extended to outpatient care, and an accepted case-mix methodology for ambulatory care has not yet been developed. The system described here extends case-mix methodology to ambulatory care. Such information is essential for the development of an input-output, multi-product model of ambulatory care using treatment of patient medical problems as the products.

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CHAPTER 1

INTRODUCTION

1.1. The Problem of Health Care Financing

Health care providers in general and hospitals in particular face an increasingly severe problem of rising costs and growing pressure on reimbursements[1]. Medicare and Medicaid programs are declining to approve an increasing percentage of claims as part of an effort to limit federal expenditures[2]. The State of California has put Medi-Cal contracts out to bid on a competitive basis and has shifted responsibility for reimbursements for the care of Medically Indigent Adults (MIA's) from the state to the county. The U.S. Department of Health and Human Services (DHHS), faced with large Medicare deficits in the late 1980's, has announced its intention of changing the method of reimbursing inpatient care for Medicare subscribers. DHHS Secretary Richard Schweiker has stated that he would like to convert Medi-Care from its present cost-based reimbursement system to a fixed-rate prospective reimbursement system based on the system of diagnostic categories known as diagnostic-related groups (DRG's) by October 1, 1983[3]. Providers are limited in their responses to these changes. One possible response is to

shift costs in the direction of private insurance programs by raising charges in general to make up for revenue shortfalls associated with limited federal reimbursements. This cost-shifting may lead to insurance programs raising their premiums, or adopting competitive rate-fixing programs of their own such as the "Selected Provider Option" (SPO) being developed by Blue Cross in California and Florida. Another possible response is for providers to pay increased attention to their own internal economics[4]. Much of the justification used by public and private payers for these cost-containment measures (Medi-Cal contracts, DRG's, SPO's) relies on the assertion that there exist widespread inefficiencies in the health care system in the form of waste, duplication, and inappropriate use of resources. The adoption of these measures is defended on the grounds that they are designed to promote the efficient use of resources by the introduction of a system of incentives and disincentives. If there do exist inefficiencies in the delivery of health care, then such measures may be appropriate, and the identification and reduction of these inefficiencies by providers might help to contain rising costs of operation. If such inefficiencies do not exist on any important scale, and if the cost of care can only be contained by containing or lowering the quality of care, providers need to be able to provide comparative measures of cost and efficiency to support their

position. In the absence of compelling evidence that inefficiencies do not exist in the delivery of health care, the federal and state governments, as well as private insurers, will continue to take actions to encourage efficiency through the use of competition and prospective reimbursement[5].

The present cost-based reimbursement system is retrospective in the sense that detailed claims are submitted by providers for services already provided to patients such as nursing care, hospital days, and ancillary services such as medications, laboratory tests, and X-rays. This system can be considerably simplified, and incentives added to increase efficiency, by devising methods for establishing the case-mix of providers, that is, some measure of the types and numbers of cases seen in a given reimbursement period, and establishing standards of minimum, usual, and maximum resource use in the treatment of each type of case. With the establishment of reasonable standards of resource use for each type of case, knowing case-mix for a provider would then enable prospective reimbursement based on that case-mix[6].

The use of case mix measures is not restricted to the establishment of case mix adjusted prospective reimbursement schemes. Other uses of case mix measures include:

(1) monitoring quality of care, both in terms of outcome and process of care, by case;

(2) measuring utilization by case;

(3) developing case mix cost-accounting methods to measure detailed resource use by case.

The primary focus of the study reported here is the development of case mix measures suitable for prospective reimbursement and cost-accounting in ambulatory care. The importance to providers of the potential impact of the fiscal and budgetary constraints now being put into place justify this emphasis. However, any case-mix method should be considered in light of the full range of possible applications.

Since case mix is felt to be a direct measure of hospital output[7], a great deal of attention has been paid to the development of case-mix measures for hospitals[8,9,10,11]. Initially, surrogate measures of case-mix (bed size, services, facilities) were used to predict output, but these were only partially successful. Researchers are now focusing their attention on direct measures of diagnostic case mix[7]. The most well developed measure of diagnostic case mix is that of diagnostic-related groups (DRG's), developed at Yale by Fetter et al [12,13], with the use of the AUTOGRP patient grouping system [14]. DRG's were developed by aggregating diagnostic codes based on

physiopathological similarity and similar use of resources. In 1976 a group of hospitals in New Jersey were asked to cooperate in a project to develop a method of prospective reimbursement based on DRG's[15,16]. DRG's are also being adopted in prospective reimbursement programs in New York and Maryland[13]. The intention is to shift the measure of a provider's output from the single-output measures now used (admissions, days) to multiple-output measures, such as number of admissions in each DRG. If it were possible to establish a reasonable or usual cost for each DRG, then reimbursement could be established by case-mix. This would require the ability to establish and compare costs of care for each DRG by each provider in order to establish reasonable ranges for reimbursement. By agreeing to provide only a certain reimbursement for each DRG, a strong economic incentive would be provided for health care facilities to create the internal economic measures needed to provide care more efficiently[17].

A great deal must be done in order to implement such a method, however. Methods of measuring resource use by DRG must be developed and put in place before data can be collected and sent to reimbursers for evaluation. Since DRG-based reimbursement was first proposed in New Jersey, a great deal of initial effort has gone into simply attempting to get the participating hospitals to agree on

a standard data set of charge information to be submitted for analysis[18]. Few hospitals have created the internal data acquisition procedures which will be necessary to provide new DRG-based charge information[19].

DRG's have not been met with universal acceptance; they have been criticized as having been developed from an inaccurate and geographically restricted data base and the homogeneity, in terms of resource use, of the groups themselves has been challenged[20,21,22,23]. Other case-mix measures, such as the use of a severity of illness index combined with diagnostic categories, have been asserted as producing groups more homogeneous in their use of resources than DRG's[24,25]. Whatever the final verdict on DRG's, however, the HCFA has made it clear that some sort of case-mix reimbursement method will be adopted for hospitals[26].

1.2. Extending Case-Mix to Ambulatory Care

Hospital care is not all of health care, however; ambulatory care consumes a significant amount of health care resources and must be taken into account when trying to contain health care costs. Patients go back and forth between these two modes of care, and attempts to modify patterns of inpatient care will have an impact on outpatient care. For example, many HMO's do not own their own hospitals and must pay hospital fees for patients that

they admit. This creates an incentive for the HMO to reduce LOS's. However, as Iglehart[3] has pointed out, if an HMO is required to pay a fixed fee, based on diagnosis, to a hospital for each patient it admits, regardless of their length-of-stay (LOS), the economic incentives which formerly would have acted on the HMO to promote shorter LOS's may be lost. HMO's which had succeeded in reducing LOS for certain types of patients, obstetric patients for example, may find themselves being penalized by being required to pay fees to the hospital based on a higher national or statewide average LOS for that diagnostic category.

With fees set by diagnostic category, hospitals may lose money by caring for severely ill patients within a given diagnostic category, and make money caring for minimally ill patients within that category. This may create an economic incentive to admit marginally ill patients who might better be cared for on an outpatient or home care basis. If providers of ambulatory care are evaluated for purposes of inclusion in a SPO plan solely on the basis of their outpatient charges, efficient providers with low hospitalization rates and shorter LOS's might be penalized for providing home care, preventive care, well-baby and prenatal care, because of the increased costs these add to ambulatory care.

For these and other reasons, ambulatory care should not be separated from inpatient care in the development of cost-containment measures, or some costs will simply be shifted from one to the other. As case-mix based prospective reimbursement systems are adopted for hospitals, it is likely that some sort of case-mix reimbursement will eventually be proposed for outpatient facilities as well, but little has been done to prepare for this. In particular, an accepted outpatient case-mix measure is lacking. The existing set of DRG's was developed using an inpatient data set and inpatient criteria, such as LOS and surgery. It is thus not suitable for application to outpatient care[13], and a methodology for creating a similar measure for outpatient care has yet to be developed.

In addition, significant conceptual differences exist in the requirements of inpatient and outpatient case-mix systems. The problem of linking resource use to problems in an outpatient environment differs significantly from the problem of inpatient linkage. In in an inpatient environment all resources used during a single hospitalization can usually be charged against a single discharge primary diagnosis, with the presence or absence noted of secondary diagnoses, complications, or surgery. Outpatient visits often address multiple problems over time, so that the task of charging each separate resource used

against an appropriate diagnosis acquires significant complexity. Chronically ill older patients may have several problems addressed at each visit, many of which may be followed for long periods of time. Younger, healthier patients may have a single different short term problem addressed at each visit.

Problems also vary in severity over time and interact with each other; episodes of acute care and flareups of chronic illness may alternate with controlled or symptom-free periods. Because patients present with multiple problems over time and at each visit may present with different subsets of these problems, in various severities, different sets of resources will be used over time in the treatment of different problems. The problem of resource linkage in ambulatory care thus becomes one of untangling threads of problem-specific resource use from the fabric of care delivered to the patient as a whole over time. These conceptual problems make the definition of "case" in ambulatory care, and the explication of the allocation of resources to these "cases" over time, an important conceptual and methodological problem. A review of the ambulatory-care information system literature found no reports of systems which have addressed or solved these problems, let alone the larger problem of generating case-mix based resource use information based on such

methods.

As Kuhn and Wiederhold have noted[27], ambulatory care information systems have concerned themselves either with financial-administrative functions or with medical record functions. Some, such as COSTAR [28], have been enhanced by the addition of financial-administrative functions to existing automated medical record systems. Yet in order to track the use of resources and the generation of costs in ambulatory care, systems need to be developed which link together parts of both these functions and can provide case-mix based resource use information.

There are several reasons why the development of such ambulatory care case-mix information systems (ACCMIS) is important at this time. First, in the process of developing a useful case-mix methodology for ambulatory care, different methods need to be developed and compared; in order to do this, information systems are needed to capture case and resource use data in order to make such comparisons possible. Second, providers will need to be able to respond to future federal requirements for such information in the event that a reimbursement method based on case-mix is adopted. Further, it is in the interest of the health care system and the economy in general that more sophisticated cost-accounting methods, similar to those used in other industries, be developed and evaluated

in the furtherance of cost-containment strategies (CCS's) and more cost-effective delivery of care.

The research reported here is concerned with furthering the development of case-mix methodology in ambulatory care through the development of an information system capable of linking resource use and associated charges to specific medical problems. This resource use data was then grouped in various ways, and the different groupings were compared by the coefficients of variation of their mean charges.

1.3. Problem-Oriented Resource Use Data

The site for this study was Group Practice I (GP I), a primary care group practice at the San Francisco Veterans Administration Medical Center. In order to collect detailed problem-oriented resource use data in this outpatient setting, it was necessary to design and implement an information system that would collect such resource use data and generate reports without interfering with normal clinic operations, and without imposing additional tasks on staff and clinicians[29]. The feature of problem-resource linkage was key to the development of problem-resource use reports and such linkage required data of a higher quality than that usually found in the medical record. It was necessary to develop the ability to acquire this data in real-time, during clinic

operations.

The requirement of resource linkage required that each resource consumed in the course of care be reliably linked to a specific problem with the use of the medical record, encounter forms, and, if necessary, queries to physicians. GP I at the SFVAMC uses a record which is partially problem-oriented and partially source-oriented. Problem and medication lists are maintained by the physician and notes are problem-oriented. Through the encounter forms routinely generated at each visit, and by abstraction from the record at the end of each patient visit, each visit and each use of resources was captured and linked to specific problems.

The data necessary to support the goals of this particular research were essentially a limited, codable subset of the record. For each patient, the following data were collected: a "mini-database", which identified and described the patient and listed their current and prior physicians; a problem-list; a medication-list; a coded description of each visit to the clinic from 1975 through 1980; for each year, a list of sub-specialty clinics visited; and a coded description of each hospitalization. The most powerful feature of the data was that each use of resources, be it a visit to the clinic, a prescription, a lab test, a referral to a sub-specialty clinic, or a hos-

pitalization, was linked to a specific problem on that patient's problem list. This enabled not only the aggregating of resource use by clinic, clinician, and subgroups of patients, but the detailed reporting of resource use by a single patient, in the treatment of a single problem of that patient, and in the treatment of a single specific problem for some or all patients with that problem.

All data were numerically coded and entered into files maintained by the system. In order to allow the numeric coding of problems, medications, and resources, we developed a nomenclature of problems encountered in the clinic and a formulary of medications prescribed by the clinic. This was done concurrently with the design of the information system, and relied heavily, as did design of the system, on the active involvement of the clinic staff.

Over a five-year period, 1975 to 1980, data was collected on each patient and visit to GP I. Approximately 1300 patients were seen in the course of over 20000 visits. Ten physicians were associated with GP I over the course of the period studied, with four usually present at any given time, as well as several nurse-practitioners and health technicians. Each visit record contained data describing the type of visit, the care-giver(s) seen, the problem(s) addressed, the resources used, and any refer-

rals. Each use of resources and referral was linked to a specific problem on that patient's problem list.

Charge tables were developed for each category of resources: medications, lab tests, X-rays, EKG's, EMG's, and so on.. Since the VA does not charge for services provided, these tables were developed using charges for services provided by a similar primary care clinic, General Internal Medicine Group Practice I, of the Ambulatory Care Center at the University of California at San Francisco.

1.4. Developing and Comparing Two Case-Mix Methods

Development of case-mix resource use information systems for health care is a recognized problem in health services research[6,19,30,31,32,33,34]. This study addresses several aspects of this problem as it relates to ambulatory care. Research is now in progress at many sites towards developing information processing tools to describe case-mix and resource use in the inpatient setting. The ability to generate similar information in the outpatient setting remains to be demonstrated and requires the solution of two additional problems:

(1) the development of a case-mix method for ambulatory care;

(2) a method for linking resources used in outpatient visits to specific "cases".

The system described in this study began with a multiple-output theoretical construct taking treated patient problems as the outputs. Patients were described in terms of sets of problems and their care in terms of chains, or vectors, of visits and resources linked to each individual problem in their problem set. This allowed a description of the process of care for each problem in terms of visits and resources used. By aggregating this information over all patients who have that problem in their problem-list, resource use vectors for the treatment

of that problem within the patient population being seen can be described. By ascribing charges to each use of each resource and to each visit, total charges for care for that problem can be approximately calculated.

Problems alone may not be adequate for the description of case-mix, since they may not form iso-resource groups; that is, the treatment of the same problem in different patients may consume differing amounts of resources, thus forming different 'products'. Further analysis of resource use by problem will be necessary for the development of more suitable case-mix measures. In this study two case-mix measures were developed, one based solely on diagnosis (problem), and the other based on a combination of primary diagnosis and the presence or absence of significant secondary diagnoses. These methods were then compared in terms of their ability to form homogeneous patient groups, in terms of resource use over time.

CHAPTER 2

REVIEW OF LITERATURE

2.1. Case Mix

Research in case-mix has followed two main approaches. The first is an attempt to better understand the internal workings of hospitals by focusing on the effect of their diagnostic mix on their use of resources. The second is concerned with characterizing the outputs of hospitals in order to classify them for purposes of comparison and reimbursement. These two approaches are now merging into a case-mix cost-accounting approach that would develop case-mix information to be used internally by clinicians and administrators to allocate resources more efficiently, and externally by reimbursers to provide financial disincentives to those providers whose use of resources seems inappropriate for their case-mix.

2.2. Early Case-Mix Studies: Proxies

Two main approaches have been used in the description and measurement of hospital case-mix. The earliest was the use of proxy variables, such as hospital size or types of services offered, as an estimator of case-mix. In 1967, Carr and Feldstein [35] studied differences in the services offered by hospitals as a means of accounting for

variations in output and costs. An article by Lave and Lave [36] in 1970 used hospital bed size, while an article in the same year by Berry [37] used the presence or absence of 40 services and facilities. Shuman, Wolfe and Hardwick [38] took this approach further by assigning weights based on the judgement of an expert panel to a group of services.

In a study using 1973 data from over 5000 hospitals, Philip and Hai[39] analyzed hospital cost variation using variables such as the availability of certain facilities, the presence of accredited programs, staffing patterns, the availability of physicians, the ratio of inpatient to outpatient visits, and the ratio of births to inpatient stays. These variables were only able to account for 34% of the variation in costs among the hospitals surveyed.

2.3. Use of Diagnostic Measures in Case-Mix

At this point, researchers began to look at ways to measure output more directly, in terms of diagnosis. Watts and Klastorin[40], in their comparison of different case mix studies, describe several which used diagnostic measures. Feldstein, [41] using data from 177 British hospitals, analyzed the relation of variation in operating expenses per case to their mix of cases in 28 diagnostic categories, and accounted for 42% of the variation in average total costs. In 1972 Lave, Lave and Silverman

[42] examined costs using several variables including diagnostic proportions. In 1971 Evans[43] studied cost variation based on 41 diagnostic categories in addition to other variables such as bed size. This study was followed by one by Evans and Walker[44] in which diagnostic data was used to form a complexity measure for each of 90 hospitals in British Colombia. This enabled them to account for 73% of the variation in costs.

In 1975, Thompson, Fetter and Mross[30] made a strong argument for the use of diagnostic case mix measures in the study of resource use within and among hospitals. They also addressed the implications of such an approach for hospital planning, management, and reimbursement. In 1980, Fetter et al [12] published the results of their work in developing a case-mix system that could be used in this way. Using AUTOGRP[14], a classification system that groups patients into diagnostic categories based on similar patterns of resource use (using length of stay as a surrogate), they analyzed data from 119 hospitals in New Jersey and Connecticut. The diagnostic data in this data base was coded using the ICD8 classification system[45]. These diagnoses were then divided into 83 Major Diagnostic Categories (MDC's) by a committee of clinician, using three general principles:

(1) Each MDC must have consistency in terms of their anatomic or physiopathologic classification, or in the manner in which they are clinically managed.

(2) Each MDC must have a sufficient number of patients.

(3) The MDC's must form a mutually exclusive and exhaustive classification of the ICD8 codes.

A classification algorithm based on the Automatic Interaction Detector of Sonquist and Morgan[46] was then applied to the records in each MDC to indicate groups of diagnoses that might be different with respect to LOS. The independent variables used by the algorithm were limited to those describing the patient, the disease condition, and the treatment process which were readily available on discharge summaries. Specifically, these were diagnoses, age, sex, clinical service and surgical procedures. This partitioning process was guided by several criteria:

(1) the groups formed were to be homogeneous from a clinical perspective;

(2) groups were formed using those independent variables which yielded the highest reduction in variance; yielded a manageable number of groups; and created groups whose means were significantly different.

This process led to 383 terminal groups, known as diagnosis-related-groups (DRG's), defined by some set of the following patient attributes: primary diagnosis; secondary diagnosis; primary surgical procedure; secondary surgical procedure; and age.

In 1979 the HCFA awarded a grant to develop a new set of DRG's using ICD-9-CM[47] coded data from a national cross-section of hospitals[26]. Twenty-four MDC's were developed based on organ system and anatomical site. In developing DRG's from these MDC's, LOS was used as the major criteria, and clinical homogeneity within DRG's became a major objective. The overall goal was to define categories of cases that were similar in terms of LOS and treatment patterns. The presence or absence of surgery was always used as the first variable in splitting MDC's, thus creating surgical and medical cases. The other variables used were the presence or absence of complications and co-morbid conditions, and age. This classification method was then repeated on regional data bases to test whether the category definitions were consistent across regions.

The 1980 DRG study was preceded by a paper published in 1979 from the same group[6], describing case-mix cost-accounting. This earlier paper presented the conceptual basis for using a diagnostic-centered case mix system,

such as DRG's, to extend the usual departmental hospital accounting system into a true product-centered cost-accounting system that would combine prospective reimbursement and hospital management by involving medical staff in the economic allocation of hospital resources.

This new approach to hospital management has been accepted by some hospitals. Iglehart, in his recent review of New Jersey's experience with DRG's[3], writes:

> There are hospitals ... that have accepted the new management challenge of DRG's. This phenomenon seems to occur only in hospitals in which administrators and attending physicians make a committment to adapt to the new system.

He quotes the vice-president of a New Jersey teaching hospital: "It became evident that ... if cost containment was to occur, it required physician participation," and states that the vice-president "discusses DRG-related data with attending physicians ... on a continuing basis." A cardiologist, president of a 700-bed hospital, is quoted as becoming "... an advocate of it (DRG's) because of its value as a management tool."

This use of a case-mix method as a management tool in addition to its role as an analytic model is a result of building on the economic understanding gained from earlier proxy-oriented case-mix methods by adding an aspect of clinical meaningfulness to that of economic meaningful-

ness.

2.4. Comparison of Proxy and Diagnostic Methods

In order to compare the abilities of proxy and diagnostic variables to explain interhospital variations in cost per admission, Watts and Klastorin[40] used regression analysis on an equation containing five proxy and five diagnostic-related variables. The variables were chosen from previous studies, and included number of beds, mix of services, facilities, DRG's, and a diagnostic-based resource need index (RNI), developed by the Commission on Professional and Hospital Activities (CPHA). The previous studies had all utilized different data sets in evaluating the performance of their methods, making comparison of the different methods difficult. This study evaluated all ten variables against a common set of data from 315 hospitals and found that the diagnostic case-mix variables performed better in explaining interhospital cost variation than the single-valued proxy variables.

2.5. Case Mix Theory

Wood et al[9], investigated some of the basic requirements of case-mix theory. They proposed the development of a theory of case-mix measurement which would include the following features:

(1) the specification of the desirable qualities of case type classification systems;

(2) the specification of criteria for assessing different case-mix systems on the basis of such qualities;

(3) the construction of various case-mix measures using these systems.

They then proposed the use of such a theory to assess existing case type classification systems and case-mix measures. As a first step towards the development of such a theory, they proposed six desirable qualities for classification systems: medical, economic, and administrative meaningfulness; reliability; practicality; and versatility.

Medical meaningfulness is defined as the extent to which knowledge of a patient's case type alone informs physicians of what may be clinically expected and enables them to communicate this clinical information with other physicians. Medical meaningfulness is held to be important for cooperation and communication between administrators and medical staff when case types are used in administration and planning, and in the use of case type for reimbursement.

A case type classification system is held to be economically meaningful if, within each case, homogeneous

vectors of goods and services are required for the treatment of each patient. They point out that such vectors are not generally available, either in terms of standards (what a group of physicians would agree was needed for each patient), or in terms of norms (what is usually delivered). They also point out that since such resource vectors are not available, scalars representing total costs, total charges, or length of stay have been substituted.

A classification is held to be administratively meaningful if it is useful in hospital planning and administration. The main argument for this is basically the same as that of economics: patients in a given type should require similar days in hospital units and similar amounts of nursing time. It is pointed out that classifications intended for reimbursement use need to be meaningful to administrators so that they can respond appropriately to different case type reimbursement rates.

2.6. Case Mix in Ambulatory Care

The case-mix literature for ambulatory care is much smaller and less developed than that for inpatient care. While an accepted method, DRG's, is being implemented for inpatient care, no such method or set of procedures exists for ambulatory care. Record and Blomquist[48] have studied one aspect of outpatient case-mix, the ratio of

routine to non-routine visits, by examining the difference in this ratio between an HMO setting and a fee-for-service setting. This was done by comparing data from Kaiser-Permanente of Oregon with data from the National Ambulatory Medical Care Survey (NAMCS). A higher ratio of routine visits was found in the Kaiser setting, but no attempt was made to develop or extend the notion of case-mix.

Fetter[49] has made a start towards an ambulatory care case-mix method by applying the AUTOGRP methods used in developing DRG's to the NAMCS data-base to develop Ambulatory Patient Groups (APG's) which consumed similar amounts of resources. Since neither actual resource use or charges are in the NAMCS data-base though, it was necessary to use time spent with physician as a proxy. Whether physician time is actually a good proxy for overall resource use is unclear. No attempt was reported to develop an information system to actually collect resource-use and charges in order to create a data-base for case-mix analysis.

Other coding systems applicable to the classification of ambulatory care exist. One of these is the International Classification of Diseases adapted for use in the United States (ICDA-8)[45], containing over 3000 diagnostic categories. This system has been revised as ICD-9[50]

and ICD-9-CM[47], a clinical modification for use in the United States. Both of these contain more diagnostic categories than ICDA-8. Other coding systems have been developed that are oriented towards use in ambulatory care. They include the United States Modification of the Royal College of General Practitioners Classification, with 567 categories[51], the Canadian Modification of ICD, with 385 categories[52], the International Classification of Health Problems in Primary Care (ICHPPC), with 371 categories[53], and its revision, ICHPPC-2, with 362 categories[54]. Another approach, reported by Greenlick et al[55], has been to expand the 17 ICD chapters into 33 headings.

Schneeweiss, et al[56], have recently developed a set of diagnosis clusters for the analysis of ambulatory care data using the NAMCS data-base. These clusters are essentially a simplified nomenclature for ambulatory care based on the consensus of a group of clinicians. They are compatible with ICD-9, and may form a first step in developing the clinical aspect of a useful case-type classification method, but no attention was paid to the relation of resource use or charges in the formation of these clusters.

2.7. Ambulatory Care Information Systems

A great many ambulatory care information systems have been reported. Surveys of such systems have been done by Henley and Wiederhold[57], and more recently by Kuhn and Wiederhold[27], that provide an overview of many of these systems. None of the systems they surveyed were concerned with the development of case-mix methods. The COSTAR system[58] was originally intended as a total information system with the primary goal of supplanting the paper record with an electronic record linked to the clinic, pharmacy, laboratory, and other functional units. The original concept did not include the integration of financial data with the clinical data, but this has now been changed. There have been no reports of using the COSTAR data-base in the development of case-mix systems.

Many other ambulatory care information systems have been reported[59,60,61,62,63,64,65,66,67], but though some of these may be capable of creating data-bases useful in the study of ambulatory care case-mix, this has not been reported.

CHAPTER 3

CONCEPTUAL FRAMEWORK

3.1. General Concepts

Medical information systems have been developed in several areas, and may be classified in broad categories such as administrative, financial, patient records, and research. Systems used in the administrative operations of large in- and out-patient units were among the first to be developed, and include computerized financial and payroll systems. Systems exist which assist in the management and operation of laboratory, radiology and pharmacy services, and the communication of their results to clinical units. Research systems have been developed which are largely concerned with the collection and evaluation of research data. In the area of management information systems, however, development in the medical field has lagged behind that of other industries. Two factors have retarded this development:

(1) an emphasis on attempting to automate certain key functions such as records and communications, which has consumed a large portion of available resources and proved more difficult than anticipated;

(2) the attitude among many clinicians and administrators that health care is not an industry in the usual sense of the word; this has slowed the introduction of the types of methods used by other industries to monitor and control the production of their product.

As an example, in the steel industry managers of production units know, in a detailed way, what products their unit produces (sheet, flat, rolled, pipe, rod, and so on), and in what amounts they are produced. The quality of each product is monitored and measured by accepted criteria and production processes are modified as needed to attain the quality required by customers. The production process for each product is known, as are the inputs (labor, capital, materials, fixed assets, technique, etc.) at each stage of the production process, and the cost of each of these inputs. Cost of production is thus known for each product, and factors contributing to high costs can be identified. Measures can be formulated and implemented to make processes more efficient by focusing on those inputs, stages, and products which contribute most to high overall costs, and, importantly, the success or failure of these measures can be objectively evaluated.

Management information systems in this sense do not yet exist in health care, except in an informal way, and then only in those institutions where there is an economic

incentive to constrain costs and the use of resources. Management in health care functions largely to provide clinicians with the environment, facilities, personnel, and resources which clinicians feel are necessary to provide medical services to their patients. The specification of these requirements, the scope of the services provided, and the amount of resources consumed are decided not by management but by the clinicians, who are often unaware of the costs involved.

Clinicians see patients and order resources to be used in their treatment; one of the major responsibilities of those who manage medical institutions is to insure that these resources can be provided in sufficient quantity and quality to meet the demand created by the orders of the clinicians. Given this structure, no mechanism exists for constraining costs or for detecting and reducing waste and inefficiencies in the delivery of care in any overall sense. Managers of specialized units which perform functions internal to the overall process of care, such as radiology, clinical laboratories, pathology laboratories, and pharmacy may monitor and control those processes required to produce specific outputs such as tests and medications in an efficient, cost-effective, and/or profitable way, but such management control does not extend to the larger health care system. In fact, in as much as

such units may be profit production centers for the institution, there may exist an indirect economic incentive to expand and facilitate the use of such services, thereby increasing any existing inefficiencies or unnecessary costs.

One of the key concepts being presented then, is that of extending some of the basic cost-accounting approaches used in other industries to the health care system. In order to do this, a conceptual framework needs to be elaborated within which health care processes and their attendant resource use can be described and measured. Towards this end, we will use the following formulation:

(1) Patients enter the health care process as a collection of problems, each of which is, at any given time, in a certain state which is observed and evaluated by the clinician.

(2) When the state of a certain problem, in the judgement of the clinician, is such that it crosses a given threshold, a diagnostic or treatment process is initiated (or restarted), consisting of a set of inputs (visits, inpatient days, therapies, diagnostic tests and procedures, education, referrals, and so on). These inputs may be thought of as resources, which have associated with them a certain cost or charge.

(3) This treatment process continues, with its inputs being varied according to the judgement of the clinician as influenced by outputs from the patient which are observed or measured by tests.

(4) At some point, the state of the problem again crosses the desired threshold (in the opposite direction), at which time treatment is discontinued or continued at a maintenance level.

(5) When and if the state again crosses the threshold, the process is resumed.

If it were possible to link each use of resources with the treatment of specific problems of specific patients, profiles could be developed over time for selected problems showing the pattern of resource use associated with the treatment of that problem. By associating costs or charges with each use of a particular resource, a cost of care could be calculated for that problem. If, in addition, outcomes could be measured for that problem (a difficult task, in most cases), it would begin to be possible to not only describe the process of care and the cost of care for selected problems, but to measure the quality of care associated with given patterns and costs of care. The framework would then exist for detecting inefficiencies in the care process, for comparing the efficiency of different providers of care, for

developing strategies and tactics for the containment of costs, and for measuring the effects of implementing such measures.

This is, admittedly, a simplification of the task; medical problems do not exist as discrete independent entities. Their course and response to treatment, and thus the resources required in their treatment, are affected by patient characteristics such as age, general state of health, and compliance with therapies, as well as by the presence of other medical problems. It is whole patients who are treated, not separate problems.

3.2. A Multiple-Output Model of Health Care

In the delivery of health care we are witnessing an increase in the total cost to society of the product. In order to be able to better analyze why this is happening, we need to identify the set of products (cases), describe the product-mix (case-mix) at each point of production, and describe the production process(es) for each product. These descriptions, along with measures of resource use in each production process, will allow the generation of product-specific resource-use reports. Such reports can give clinicians and administrators a common basis for the formation of analyses aimed at increasing efficiency and reducing inappropriate use of resources.

However, the notion of a product in health care is necessarily imprecise. No two patients are exactly alike, and even the same patient varies over time. The kinds of care that they require will therefore differ, even for patients with the same problem. In trying to identify the products of health care, we are dealing with complex bundles of goods and services that are delivered over time. How are we to classify these bundles into a stable set of "products"? These bundles of resources used in the treatment of patients are allocated by physicians. This allocation of resources occurs in two major stages, diagnosis and treatment, although the two may be concurrent. Treatment of a complaint or problem may be initiated before a definitive diagnosis is made, but typically additional resources will be used to assist the physician in classifying the problem as a definite clinical entity. This diagnosis-centered allocation of resources makes the diagnosis-centered multiple-output model of health care attractive.

In developing a case type classification system, a high degree of medical meaningfulness should be preserved. Physician-administrator cooperation is important in the successful application of such a system to the development of cost-containment measures. Information concerning resource use by case type will be difficult for physicians

to accept and utilize if the case types do not make clinical sense to them. Basing the classification methods proposed here on this diagnosis-centered model will enhance its medical meaningfulness.

Economic meaningfulness is also a key goal in such a system if it is intended to be used in case mix cost accounting or in case mix based prospective reimbursement. As Wood et al[9], point out:

> A classification is economically meaningful if, within its case types, the vectors of amounts of the various goods and services needed for the patient's clinical management are homogeneous. This means that the patients in any case type use about the same array of goods and services and that the required amount of any particular good or service is fairly consistent from patient to patient.

If a proposed case type classification system produces cases (products) whose total charges (costs of production) vary greatly from instance to instance, its suitability as a mechanism for cost-accounting and prospective reimbursement would be compromised. Given the large differences that exist among patients, it is likely that total charges, even for the treatment of the same problem, will vary significantly.

By linking each use of resources to a specific problem on a patient's problem-list, we can transform the complex bundle of goods and services utilized over time in the treatment of each patient into several problem-linked

resource-vectors. Each resource-vector then represents the production process for a diagnosed and treated patient-problem. By assigning appropriate charges to each resource, each vector can then be summed to a scalar representing the total charge, over a given period of time, for the diagnosis and treatment of that patient-problem. By aggregating vectors for the same problem from the set of patients with that problem, mean charges, and their variance, for the treatment of that problem over a given period of time can be developed and analyzed. This can be done for each problem addressed in the patient population. Different diagnosis-centered case type classification methods can be proposed, and mean charges, with their variances, can be developed using each method. These variances are indicative of the relative homogeneity of total resource use, as expressed in charges, by patients within each type. A method that produces types associated with a high degree of variance in total resource use will be less economically meaningful than a method producing types with lower variance in total charges. Thus, comparing such variances allows the comparison of the relative economic meaningfulness of different methods.

3.3. Towards a Case-Mix Methodology for Ambulatory Care

The process of developing an ambulatory care case mix methodology can be broken into several stages:

(1) A preliminary basic classification scheme, called the basic nomenclature, should be developed and coded. It should be clinically meaningful, and capable of being easily used in the clinical setting. It should be as basic as possible while still corresponding to the form in which physicians describe the clinical processes they are treating.

(2) The actual set of resources used in the treatment of the patient population should then be listed, classified, and coded. Other case mix methods have avoided this; for example, in developing the DRG system, LOS was used as a surrogate for total resource use, and in developing APG's[49], time spent with physician was used as the dependent variable.

(3) A method should then be developed to link each use of a resource to a problem from the nomenclature at each visit. This will allow the capture of actual resource use and the creation of a set of vectors, over time, for each patient-problem. A patient treated over time for several problems will generate one vector for each problem.

(4) By assigning a charge to each use of resources, these vectors can be transformed to a set of scalars representing total charges for the care of each patient-problem.

(5) By acquiring a data base of visits in which each use of resources is linked to a problem, a data set can be generated consisting of vectors and total charges for each problem addressed in the patient population.

(6) The mean, standard deviation, and coefficient of variation of total charges can then be calculated for each problem. The larger the coefficient of variation, The greater the variance in total charges for that problem, and the less homogeneous it is. The less homogeneous the basic nomenclature, the less suitable it is for economic purposes.

(7) At this point, the observed variance can be used to evaluate the basic classification system. This system can then be modified to create a new case type classification method, with the goal of making the types more homogeneous in terms of resource use (iso-resource). In creating DRG's, this was done by adding variables such as patient age and the presence or absence of surgery or a secondary diagnosis.

(8) Using the data base of visits and the new classification system, new resource-vectors can be generated,

new means and variances can be calculated for each case and the new system can be evaluated.

(9) After several iterations of this process, a case type classification system which is relatively iso-resource for the patient population being studied, can be developed. This system will yield a set of mean charges for each case, with associated coefficients of variation, The system can then be applied at other sites to test whether these can be replicated.

The goal of such a process would to develop a case-mix system for ambulatory care that could be useful in several applications:

(1) prospective reimbursement as a framework for financial incentives and disincentives for cost-containment;

(2) case-mix cost-accounting by providers;

(3) the formation of joint administrator-physician committees to provide guidelines for cost containment by case, on a consensus basis;

(4) Comparison of the charges incurred by different providers in the treatment of certain tracer cases;

(5) quality of care monitoring through the use of resource vectors as indicators of process of care;

(6) quality of care monitoring by associating outcome measures with tracer cases;

(7) the correlation of outcome and process measures with charges by case in order to test the hypothesis that cost containment can be accomplished without lowering quality of care.

CHAPTER 4

HYPOTHESES AND GOALS OF RESEARCH

4.1. Creation of the Data Set

The first goal of this research was to design and implement an ambulatory care information system for GP I that would allow the creation of a data set of resource use vectors linked to specific medical problems on individual patient's problem-lists. Existence of the data set led to the formulation of hypotheses concerning possible case mix methods for ambulatory care.

4.2. Two Case Mix Methods for Ambulatory Care

4.2.1. The Problem-Visit-Piece (PVP) Method

In the PVP method, patients are seen as a collection of problems, where each problem represents a "piece" of a patient. By looking at total charges accrued in the treatment of each of these problems individually, a mean charge per patient year can be developed for each diagnosis treated in the patient population of the clinic.

4.2.2. The P-Index Method

Because problems do not exist independently, but rather present as a facet of a total patient, they are

affected by other aspects of the patient, such as age, condition, severity of the problem, and other problems that the patient might have. These other factors may affect the response of the problem to treatment, and thus may have an effect on charges comparable to the effect of the intrinsic characteristics of the problem. For example, the asthma of an elderly patient who is obese and smokes may require more resources in its treatment than the asthma of a younger patient who does not smoke and is not obese. Because of this problem of interdependence, a second method, called the P-index method, was developed to classify patients. This method characterizes patients by their mix of problems and examines their total charges for the treatment of all their problems.

All patients have a primary problem, that is, a problem which accounts for more charges than any of their other problems, but they differ in their mix of problems. At one extreme, there is the patient that presents, over the course of a year, with only one problem. This problem generates all their charges. At the other extreme, there is the patient that presents with multiple problems, all of which require treatment, with one problem generating perhaps 25% of their total charges, a second generating 20%, a third responsible for 15%, a fourth for 10%, and so on. This patient still has a primary problem, the one

which generated 25% of their charges, and it might even be the same primary problem as that of the patient who presented with only one problem, but their mix of problems is different.

The P-index describes and classifies these problem mixes. The P-index corresponds to the number of problems required to account for the majority of a patient's total charges. In other words, if a patient's most expensive problem, D, accounted for more than 50% of their total charges in a given period of time, than that patient would have a P-index of 1, and would be classified as diagnosis D, type P1. A P1 patient may be thought of as a patient with a single primary problem.

A patient whose primary (most expensive) problem, q, accounted for less than 50% of their total charges, but whose primary and leading secondary problems taken together accounted for over 50% of their charges would be classified as diagnosis q, type P2. Similarly, patients could be classified as primary problem r, type P3, and so on.

4.3. Comparison of the Two Methods

Both these methods can be evaluated in terms of their relative success in meeting the three criteria that we established earlier for a successful case mix methodology:

(1) Does the method make economic sense? The classification method should produce classes (products) with stable charges. If it does, each instance of the class will generate similar charges, close to the mean charge for that class.

(2) Does the method make medical sense? Classes produced by the method should be understandable to clinicians in terms of how they practice medicine in a detailed way. This is necessary in order that charge overruns for a particular class of patients can be analyzed by physicians to generate conclusions capable of being translated into changes in the way that they practice medicine on that class.

(3) Does the method make administrative sense? It is administrators that deal with reimbursers, and it is administrators who are responsible for the fiscal health of their facilities. The method must be capable of aggregating patients in ways that administrators are familiar with, and it must be capable of serving as a basis for communication between administrators and physicians concerning charges and cost-containment.

Any method having a diagnostic axis based on organ systems and capable of relating detailed charges (at the level of individual physician orders) to diagnosis will

satisfy, in large measure, criteria two and three. Both of the methods proposed in this research have a diagnostic index. The difficulty lies in the first criterion, that of economic meaningfulness. The performance of a given method relative to this criterion can be measured, however, by examining the variance of charges for each instance of a class around the mean for that class. A method which classifies patients such that the charges in each class have a smaller coefficient of variation (cv) than the charges for classes produced by another method will be more economically meaningful, and all other things being equal, will be a better case mix method. Mean charges and their cv's were developed for the classes produced by both methods presented in this study and these cv's were used to compare the methods.

A question then remains as to what amount of variance is a reasonable amount; in other words, is the variance associated with a given case-mix method low enough to make that method useful for purposes of management, comparison, and reimbursement? The question of 'how low is low enough' has not been addressed in any systematic way in the literature. One approach, then, is to look at the cv's obtained with a case mix method that is in fairly wide use, that of DRG's. The cv's associated with the methods reported in this study were compared to those that

have been reported with some ICD-8-based DRG's. These comparisons, both of the two methods with each other and with DRG's, are reported in chapters six and seven.

CHAPTER 5

METHODOLOGY

5.1. The Information System

5.1.1. Goals

In order to create the required data set, it was necessary to design and implement

(1) procedures for data capture;

(2) data structures that would store the data and allow the creation of the problem-oriented resource use vectors;

(3) software that would allow entry of the data into the data structures;

(4) software that would create the resource-use vectors, classify patients, and develop total and mean charges by class.

5.2. Some Design Principles

Several design principles were used in guiding the design of the information system.

(1) The staff responsible for the operation of the clinic, including the clinic manager, physicians, nurse-practitioners, health technicians, and data

collectors, were involved in the design process[68]. Such involvement increased the likelihood that the system would function in the clinic environment, that it would not hinder the day-to-day operations of the clinic, and that it would be accepted by the staff, whose cooperation would be essential to the task of data acquisition.

(2) The system was designed to be unobtrusive to the staff. It was felt that the information system should create no new tasks for the staff, excepting the data-collectors, except in cases where their memory, knowledge or expertise was needed to resolve ambiguous resource-problem linkages, determine correct codes, and so on. Data was collected using encounter forms and record-keeping procedures already in use.

(3) There was no attempt to make this a general-purpose record-keeping or information system. The system was designed to be small, easily managed, dedicated to the research project and strongly goal-oriented.

(4) The system was designed, as much as possible, to allow changes during and after implementation. Specifically, new codes were expected to be added to the nomenclature and formulary, new reports were expected to be desired. The system was first

implemented using batch entry of data, and was then enhanced to allow on-line entry from the clinic office.

5.3. Basic Structure of the Design Phase

The clinic staff was involved in the design and test phases, before the system was put into operation. Codes were then assigned to all problems in the clinic nomenclature (see Appendix I), all medications in the clinic formulary, and to the lab tests, x-rays, procedures, and referral clinics. A new encounter form and intermediate data collection forms were developed. These forms are shown in Appendix II and are described more fully below. Data on hospitalizations and the use of other clinics was captured by retrospective chart review at the end of each calendar year. A data capture process was designed to enable the data clerks to capture data on these intermediate forms for interactive entry to the data base via CRT terminal.

At that point, meetings were held where the staff sat around a large table and attempted to collect data from the records of patients seen in the clinic. This exercise discovered flaws and shortcomings in the nomenclature, formulary and other coded lists. It also showed the staff the importance and difficulty of linking each use of a resource to a particular problem on a patients problem

list. The quality and accuracy of a case mix system is highly dependent upon the accuracy of the data which is abstracted from the record or generated from the care process[69]. In this system, where data clerks would be trying to reconstruct the allocation by physicians of clinic resources to specific patient problems, it was essential that the actions of the physicians and the records that they kept of their actions be as clear as possible to the data clerks without interfering with or creating extra work for the physicians.

By putting the clinic staff and data clerks around the same table and having them attempt to accomplish, efficiently and harmoniously, the basic data capture tasks of the system, both were educated somewhat to the others' role. The physicians, especially, were made aware of the complexity of the data clerks' role, and the effect that sloppy record keeping would have upon it. This design process laid the basis for a team approach to the research process that reduced friction and made dealing with subsequent problems easier.

5.4. Basic Parameters of the Information System

5.4.1. Nomenclature

After examining several existing nomenclatures, including ICD-8, the physicians in GP I felt that none of

them were suitable for routine use in a primary care clinic. The main criticism was that they were too detailed to be used in the course of practice by physicians maintaining a problem-oriented record. It was also felt that they did not adequately describe the actual clinical picture encountered in the clinic. This problem of developing an adequate nomenclature for ambulatory care has recently been addressed by Schneeweiss et al[56].

We then created our own nomenclature. containing 1018 entries, in 16 categories. Each physician in the group took responsibility for developing the nomenclature for an organ system or other clinical area. These were then circulated within the group and changes were made until a consensus had been reached. Each problem was then assigned a four-digit code and the data clerks created coded problem lists from the problem lists contained in each patient's medical record. No attempt was made to force the physicians to maintain their problem lists in the same terms used in the nomenclature. In cases where the correspondence from one to the other was unclear, the physicians were asked to provide it; if the problem was not described adequately in the nomenclature, it was referred to the medical director, who would either resolve the ambiguity or add a new term to the nomenclature.

5.4.2. Formulary

The SFVAMC maintains a handbook detailing its formulary, since prescribed medications from the formulary are dispensed free of charge at the medical center. Eliminating medications that would only be used for inpatients left an outpatient formulary. This was coded into four-digit codes, and medication lists from patient records were coded onto data forms for data entry. Since the VA does not charge for medications, there was no billing information available, but the prescribing information (number of units of medication, number of refills), was captured for each prescription. Since information was not available from the pharmacy as to which prescriptions were actually filled, charges were developed based on what was ordered by the physician.

5.4.3. Charge Tables

Since the VA does not bill for treatment, there do not exist tables of charges for the resources used in the care of patients. There are also no well-developed accounting systems within the pharmacy, laboratory, or radiology department, although this is changing as the VA introduces computerized pharmacy and laboratory systems. The task of developing actual VA costs or charges was beyond the scope and means of this study, so it was decided to use resource charges from the primary care

clinics at the University of California Medical Center at San Francisco. The various charge tables required were developed from several sources within the clinics:

(1) medication charges were taken from the schedules of the outpatient pharmacy;

(2) charges for laboratory tests and X-rays were taken from the Chart of Accounts used by the UC Accounting Dept.;

(3) charges for visits and EKG's were taken from the schedules of the General Internal Medicine Practice, Group I.

In all cases, the charges used were those in use during the fall of 1981.

5.4.4. Costs vs. Charges

It should be noted that there is a difference between costs and charges. and that by using charge tables taken from the UC Chart of Accounts, the biases, similar to those described below, inherent in the charge structure of any institution, will be reflected to some extent in our results. As discussed by Finkler[70], hospital charges represent list prices, not the actual economic costs to the hospital, for the goods and services used in treatment. Costs to the hospital are allocated to various departments according to various departmental accounting

systems. These allocated costs may include the costs of services provided by other departments, such as housekeeping, laundry, and admitting, as well as direct department costs such as supplies and salaries. These departmental costs are then assigned to the units of goods and services used in patient care. The methods of assigning costs may include procedure weighting, hourly rates, surcharges and per diem costs. There is also cross-subsidization: certain departments such as maternity may be charged below their departmental costs because the administration wishes to attract patients for certain reasons, such as keeping the maternity unit utilized at a certain level, fostering community attachment to the hospital, or attracting parents and their children to outpatient clinics attached to the hospital. This under-charging will be subsidized by over-charging in other departments. Because of the economic and legal power possessed by the large reimbursers, such as Medicare, Medicaid, and Blue Cross, they are able to obtain discounts off the list price (charges); hospitals must then set charges high enough so that those who are unable to obtain discounts, such as self-payers and other insurance companies, will partially offset these discounts.

For these and other reasons, the process of transforming economic costs to accounting costs and then

to patient charges may be such that charges are not a good proxy for actual costs. Because of this, Finkler recommends that actual resource use be used as a measure of cost. In our study we have captured actual resource use and assigned representative unit charges from another institution to these resources. This would not be accurate if we were trying to find the actual cost of care to the VA for each case in its case mix. If, however, we were trying to compare the relative costliness of the pattern of care by case at the VA to that for similar cases at another institution, it would be accurate, provided we used the actual resource use vectors by case at each institution and used the same unit charges in assigning charges. Similarly, in our study, where we were comparing the variance in total charges obtained using two different case type classification methods, we used the same resource use vectors and the same unit charges in each method. The difference between costs and charges raises no problems in this comparison.

5.5. Data Acquisition Function

Data collection began January 1, 1975. This necessitated the development of two forms of data acquisition: a batch-oriented phase, and an on-line phase. The first phase required the abstracting of problem-lists (PL's), medication-lists (ML's), and visits from patient records.

Problem and medication-lists were coded for each patient and entered as records into PL and ML files. Data describing each visit, such as date and type of visit, reason for visit, who the patient was seen by, the problems addressed, and each use of resources, was abstracted and coded onto data-entry forms. Information describing each use of resources, based on physician orders, was also captured. This information included the type of resource (Rx, lab, X-ray, etc.), the resource code (med code, lab code, etc.), the number of units prescribed if it was a Rx, and the problem number from the patient's problem-list for which the resource was intended as treatment. These forms were then batch-entered via CRT terminal by the data clerks, using a data-entry program which supplied menus and prompts, verified patient ID, checked data for range, displayed records for verification after entry, and entered them into the appropriate file.

About two-thirds of the way through the study, a new computer system was became available, making it possible to link a CRT in the clinic office to the computer via modem and phone line. We were then able to code and capture visits in the clinic office as they occurred, using the clinic encounter forms in conjunction with the record. Because coding was occurring in real-time, with the physicians and nurses available to answer questions, the data

clerks were able to code visits more quickly.

The key function within this process was that of linking each use of resources to a specific problem on the patient's PL. This was done by the data clerks, using the PL, ML, the visit data capture form, and the encounter form. These are all shown in Appendix II. Each problem on the PL had a unique number, and an associated nomenclature code. Primary problems were numbered as 1.0, 2.0, 3.0, and so on. Problems which were secondary to a primary problem were indicated by use of the decimal point. A problem secondary to problem 3.0 would be numbered 3.1, for example. Each PL was entered into the data base and kept in a PL file. Similarly, each medication on the medication list had a formulary code and the problem number, from the PL, of the problem for which it was intended as therapy.

The visit data capture form contained fields describing the type of visit, the problems addressed, who the patient was seen by, and what was done at the visit, in terms of resources used in treatment. The problem number, from the PL, was captured for each problem addressed; these problems were entered by the physician on the encounter form and entered onto the data form by the data clerks, who received the encounter form, copies of the order and Rx slips, and the medical record after each

visit. Codes describing the type of visit, as noted by the physician, were entered onto the form, as were the code(s) for the physician and/or the nurse-practitioner who had seen the patient.

The use of resources was noted in the Disposition fields. Several categories of resource (in addition to the visit itself) existed: prescriptions, lab tests, X-rays, and EKG's. The first element in each disposition was a code indicating the category of resource. The second element was a code from the formulary, lab test list, or X-ray list specifying which specific medication, lab test, or X-ray had been ordered. In the case of a medication, the third field specified the number of units (tablets, capsules, bottles, and so on) which had been prescribed. The final field specified the problem, using the problem number from the patient's PL, for which that resource was intended as treatment, further diagnosis workup, periodic check, and so on. After the study progressed to the on-line phase, it was possible to dispense with the visit data capture forms and enter the data directly from the encounter form and the record after each visit.

The problem-resource linkage needed for the final field was usually clear from the physician's notes in the record, since physicians in the clinic were encouraged to use the problem-oriented format and had also been involved

in the design of the study and the forms. When it was not clear from the notes, the linkage could usually be resolved by looking at the medication list (in the case of prescriptions) or by looking at the notes from previous visits. Both data clerks had been trained in medical terminology and quickly became experienced at medical record abstracting. The small percentage of linkages that could not be resolved in this way were then referred to the physician. This had the effect not only of resolving ambiguities but of communicating to the physicians how to avoid such ambiguities in the future. Giving feedback to the physicians as to the legibility and clarity of their notes in this way, combined with the increasing familiarity by the data clerks with the records of the clinic patients, steadily reduced the incidence of these ambiguous problem-resource linkages.

5.6. Analysis of the Data

5.6.1. Allocation of Visit Charges

With patient visits captured in a form linking resource use to problems, it was possible to construct resource vectors describing the treatment of individual patient problems. There remained a conceptual problem, namely that of allocating the basic visit charge (BVC) for each clinic visit among the multiple problems that might

be addressed at each visit. The BVC represents primarily a charge for physician time, though it also incorporates charges for nursing, staff, and facility overhead. Because it was not feasible to ask the physicians to estimate their percent of time spent on each problem, the BVC was divided equally among the problems addressed. If one problem was addressed, the entire BVC was allocated to that problem, along with the charges for the other resources used, such as medications or lab tests. If two problems were addressed, each was allocated 50% of the BVC, and so on.

5.6.2. Allocation of Resources Over Time

The clinic began seeing patients late in 1974, and data was collected on each visit from January 1975 until mid-1980. Each patient's clinic history, beginning from their first visit, was divided into integral patient-years, starting with Year 1. Visits that occurred after a patient's last full calendar year were discarded. For example, if a patient was seen from April 1975 until July 1980, five patient-years of visits were counted in the study and the final three months of visits were discarded. Other periods of time, such as patient-months or patient-quarters could have been used. Illness-related lengths of time, such as 'episodes', might be useful in deriving charges by episode, or acute phase, of an illness. This

aspect of optimal length of time for characterizing the charge per case has not been addressed in the case mix literature. Patient-years are a familiar unit in the literature; lacking any indication that some other period of time might be more suitable to the study of the process of care, the patient-year was selected.

Because the treatment patterns of different problems in the same patient varied over time, not all of each patient's problems would be addressed in each patient-year. A common pattern was that all of the patient's problems would be noted and addressed in the first year, but that by the second or third year, one or more problems were no longer being addressed. For instance, a patient might have two problems, with both addressed at each of four visits during the first year, while in the second year, problem 2 was addressed at only three of four visits, in the third year at only one in three, and not at all in the fourth year, while problem 1 was addressed at every visit in each year. In addition, there might be exceptional cases in which a problem was dormant or so well-controlled that no resources were used in its treatment during a year, only to have it become active later and require treatment. In such a case, it could be argued that the allocation of resources over the history of the problem should include the year in which it was dormant.

It was decided that a problem's resource use would be allocated only over those patient-years in which the problem was addressed.

5.6.3. Dividing Visits Into Problem-Visit-Pieces

Inherent in the hypothesis of the problem-oriented case-mix method is the concept that each patient can be seen as a set of problems, each requiring treatment over time. From this it follows that each patient visit can be divided into pieces, which, for want of a better term, are called "problem-visit-pieces" (PVP's). Each PVP has associated with it a diagnostic code, a patient-year, a portion of the BVC, and the set of resources linked to that PVP at that visit. Each resource has, through the use of the charge table appropriate to its type, an associated charge. Software was written to examine each visit record and break it into discrete PVP's. For example, if in 1975 there were 4000 visits, and at each visit an average of three problems were addressed, 12000 PVP's, each with an associated total charge, would be created.

5.6.4. Creation of Resource Use Vectors

Sorting this file of PVP's by diagnostic code, patient, and date, creates a time-ordered vector for each patient-problem detailing resource use. With each resource is associated a charge. Summing these charges

over patient-year gives a total charge for the treatment of that patient-problem for each patient-year in that patient's clinic history. These total charges, aggregated by diagnostic code, are then used to find the mean total charge, the standard deviation, and the coefficient of variation for the treatment of each diagnosis for a patient-year.

5.6.5. Classifying Patients By P-Index

Sorting the same file of PVP's by patient and patient-year yields a set of more complex vectors, showing, by patient-year, all the PVP's for each patient and their associated charges. Summing, by problem, all the PVP's in each patient-year, gives the total charges for each problem in each patient-year. It is then possible to determine, for each patient-year, both the total charges for all problems and the percentage of those charges incurred by each problem. This allows the determination of the P-index of each patient during each patient-year, and the primary problem, in terms of charges, during that year.

Sorting by P-index and by primary problem within P-index gives subsets of patients with the same P-index and primary problem, with their total charges for each patient-year. Using these subsets, the mean total charges, standard deviations, and coefficients of

variation can be calculated for each primary problem. For each P-index, this gives a set of mean total charges, with variance, for each primary problem found among patients of that P-index.

5.6.6. Comparison of the Two Methods

The PVP method yields mean charges, with an associated variance, for the treatment of a piece of a patient, say their HTN, for a year. It does this for each problem treated in the patient population studied. The P-index method yields mean charges, with an associated variance, for each primary problem in each P-index. These represent the mean total charges, for all problems, for one year, of a patient with that P-index and that primary problem.

By comparing the cv's associated with each problem, conclusions can be drawn as to which method has smaller cv's, indicating that its cases are more homogeneous in their use of resources (more iso-resource), and thus more economically meaningful, These cv's can also be compared to those obtained with DRG's, and an assessment made as to each method's suitability for use in case-mix cost-accounting and prospective reimbursement in ambulatory care.

CHAPTER 6

RESULTS

The results obtained are based on all visits made to the clinic by 1234 patients between 1975 and 1980; during this time, 21085 visits were made to the clinic, resulting in 46086 problem-visit-pieces (PVP's). 2457 full patient-years resulted, approximately two for each patient, and 598 different problems were treated. Total charges for all patient-years was $1,147,476.00; the mean charges were $467/ptyr with a coefficient of variation of 71.6. The tables shown in this chapter are partial, giving results for those cases represented by the largest number of patient-years. Complete case tables may be seen in the Appendices.

An interesting result was the breakdown by percentage of the P-indexes for these patients (see Table 1). As can be seen, over 95% of the patient-years were classified as either P1 or P2; that is, one or two problems were responsible for the majority of charges during almost every patient-year. That almost all the patients fell so cleanly into the P1-P2-P3 framework was an unexpected result. Because there were so few P3 and P4 patients, they were excluded from further analysis.

TABLE 1: Relative Frequency of Types P1, P2, P3, P4

	Ptyrs		charges/ptyr (mean)	cv	
Type P1:	1293	52.63%	$397.19	73.2	
Type P2:	1058	43.06%	$538.36	59.3	
Type P3:	97	3.95%	$601.88	42.3	
Type P4:	9	.37%	$681.07	--	
Total:	2457	100.00%	$467.02	66.4	(weighted mean)

6.1. Results With Two Non-Diagnostic Methods

In order to test whether useful results might be obtained by using simple, non-diagnostic methods of classifying patients, we grouped patients by age (in decades) and by the number of current problems on their problem lists. We then developed mean charges, by patient-year, for each group, and their coefficient of variation (CV). The results by decade are given in Table 2, and the results by number of problems are in Table 3. The mean weighted CV for grouping by decade was 71.4; that for grouping by number of problems was 69.1. These are somewhat better than that obtained using the PVP method (see below), and comparable to those obtained using the P-Index method. However, there is an inherent drawback associated with the use of non-diagnostic methods: the loss of clinical information. Even if age turned out to predict total

charges with low variance, such a method would provide little information to physicians or administrators in understanding the ways in which resources are used in the treatment of patients. Physicians allocate resources not on the basis of age, but as treatment for specific clinical entities. Resource use information, in order to provide physicians with a basis upon which to develop a more cost-effective allocation of resources, needs to be clearly and directly related to these clinical entities.

TABLE 2: CHARGES BY AGE (DECADES)

	pts	ptyrs	% of ptyrs	mean total charges (ptyr)	cv
1. Age < 35	120	200	8.1%	$ 263.79	100.9
2. Age 35-44	81	160	6.5%	$ 328.03	87.7
3. Age 45-54	193	313	12.7%	$ 496.21	73.5
4. Age 55-64	400	818	33.3%	$ 482.76	70.5
5. Age 65-74	232	505	20.6%	$ 520.91	62.2
6. Age > 74	208	461	18.8%	$ 494.69	63.1
Total	1234	2457	100.0%	$ 467.02	71.4

TABLE 3: CHARGES BY NUMBER OF CURRENT PROBLEMS

Number of problems	pts	ptyrs	mean total charges/ptyr	cv
1	43	60	$209.46	120.4
2	98	100	$249.61	93.9
3	153	223	$304.85	81.1
4	160	268	$373.36	89.4
5	149	222	$400.96	64.4
6	132	268	$407.23	67.3
7	123	259	$474.57	64.4
8	99	255	$526.40	64.3
9	66	156	$574.95	50.6
10	64	175	$602.83	61.5
11	45	123	$552.17	58.7
12	29	100	$576.25	54.4
13	30	102	$730.21	54.1
14	15	50	$592.19	56.3
15	6	18	$601.42	47.4
16	9	35	$641.53	76.5
17	6	25	$661.27	56.2
18	5	12	$637.15	73.7
19	1	5	$727.32	--
20	1	1	$694.59	--
Total	1234	2457	$467.02	69.1

6.2. Diagnostic Prevalence - The PVP Method

Tables 4-6 show the most prevalent problems, using the PVP method, in the following terms:

(1) Number of patients who received treatment for the problem during their clinic history (Table 4);

(2) Number of patient-years in which the problem was addressed (Table 5);

(3) Overall number of visits at which the problem was addressed (Table 6).

6.3. Charges by Problem, Using PVP Method

Table 7 shows the 12 problems with the greatest total charges incurred over the clinic history for the treatment of each problem, the percentage of the total clinic charges, and mean charges per patient-year. Because of their prevalence, these problems had a substantial economic impact on the clinic.

Table 8 shows the most expensive problems, as measured by mean charges per patient-year, treated in the

TABLE 4: PROBLEMS ADDRESSED, BY NO. OF PATIENTS

		pts treated for problem	percent of all pts
1.	HEALTH MAINTENANCE	861	69.55%
2.	SELF-RESOLVING TEMPORARY PROBLEM	831	67.12%
3.	HYPERTENSION, ESSENTIAL (HTN)	322	26.01%
4.	OBESITY, EXOGENOUS	147	11.87%
5.	BENIGN PROSTATIC HYPERTROPHY (BPH)	94	7.59%
6.	COPD, NOS	88	7.11%
7.	ANGINA PECTORIS	84	6.79%
8.	DIABETES MELLITUS (DM)	83	6.70%
9.	ABUSE OF ALCOHOL	80	6.46%
10.	LOW BACK PAIN, NOS	67	5.41%
11.	GOUT	62	5.01%
12.	ARTERIOSCLEROTIC HEART DISEASE (ASHD)	60	4.85%

TABLE 5: PROBLEMS ADDRESSED, BY NO. OF PTYRS

		ptyrs	percent of total ptyrs
1.	SELF-RESOLVING TEMPORARY PROBLEM	1854	75.46%
2.	HEALTH MAINTENANCE	1730	70.41%
3.	HYPERTENSION, ESSENTIAL	818	33.29%
4.	OBESITY, EXOGENOUS	250	10.18%
5.	DIABETES MELLITUS	210	8.55%
6.	COPD, NOS	171	6.96%
7.	ANGINA PECTORIS	159	6.47%
8.	ARTERIOSCLEROTIC HEART DISEASE (ASHD)	157	6.39%
9.	BENIGN PROSTATIC HYPERTROPHY (BPH)	146	5.94%
10.	ABUSE OF ALCOHOL	132	5.37%
11.	GOUT	129	5.25%
12.	ANXIETY, NOS	120	4.88%

TABLE 6: PROBLEMS ADDRESSED, BY NO. OF VISITS

		No. of visits	percent of total visits
1.	SELF-RESOLVING TEMPORARY PROBLEM	6346	30.10%
2.	HYPERTENSION, ESSENTIAL	4233	20.01%
3.	HEALTH MAINTENANCE	3511	16.65%
4.	DIABETES MELLITUS	1004	4.76%
5.	COPD, NOS	777	3.69%
6.	ASHD	598	2.84%
7.	ANGINA PECTORIS	562	2.67%
8.	OBESITY, EXOGENOUS	547	2.59%
9.	ANXIETY STATE, NOS	425	2.02%
10.	CONGESTIVE HEART FAILURE (CHF)	414	1.96%
11.	GOUT	413	1.96%
12.	ABUSE OF ALCOHOL	349	1.66%

TABLE 7: PROBLEMS , BY TOTAL CHARGES (over clinic history)

		TOTAL	MEAN (ptyr)	CV	% of total clinic chgs
1.	TEMP PROBLEM	$213657.94	$115.24	118.5	17.58%
2.	HTN	$154836.78	$189.29	87.8	11.75%
3.	HEALTH MAINT	$131515.34	$ 76.02	97.2	9.98%
4.	DM	$ 39400.53	$187.62	78.7	2.99%
5.	COPD	$ 25642.55	$149.96	109.4	1.95%
6.	ASHD	$ 19330.64	$123.13	129.2	1.47%
7.	ANGINA	$ 16800.60	$105.66	106.3	1.27%
8.	CHF	$ 15214.85	$146.30	160.4	1.15%
9.	GOUT	$ 14677.64	$113.78	81.2	1.11%
10.	DUOD ULCER, WOB	$ 10483.30	$ 98.90	117.0	.78%
11.	ANXIETY, NOS	$ 10307.59	$ 85.90	113.2	.78%
12.	ASTHMA	$ 8905.12	$159.02	90.1	.68%

clinic. Because of their low prevalence, their economic impact is small compared to the more common problems.

TABLE 8: PROBLEMS, RANKED BY MEAN CHARGES/PTYR

		MEAN	CV	ptyrs
1.	ENDOCARDITIS, INFECTIVE	$ 725.76	18.6	3
2.	CROHN'S DIS, w/o BLDG	$ 522.63	33.2	8
3.	ANEMIA, DUE TO B12 DEF.	$ 439.49	42.7	6
4.	IDIOP. ULC. COLITIS, WOB	$ 376.13	68.7	4
5.	CARDIOMYOPATHY	$ 374.17	77.9	4
6.	MALIG NEOP OF THYROID	$ 363.08	91.3	3
7.	CIRRHOSIS, OF UNK CAUSE	$ 356.34	77.3	8
8.	HTN, SECONDARY	$ 323.52	72.0	10
9.	URINARY TRACT INFECTION	$ 299.80	80.6	7
10.	MALIG NEOP OF BRAIN & CNS	$ 285.07	72.7	5

6.4. Results Using the P-Index Method

Table 9 shows mean charges and their variances for the 10 most common types of P1 patients. P1 patients are those for whom the majority of charges during a patient-year were incurred by one problem. They may be thought of as patients with one primary problem during the year. Within the P1 category, patients are typed by primary problem; for example, P1 hypertensives are patients with hypertension whose hypertension, during a given patient-year, was responsible for over 50% of their total charges. A P1 diabetic is a patient whose diabetes was responsible for more than 50% of his total charges, and so on.

TABLE 9: Mean Charges and CV for P1 Patients
(10 most prevalent problems by # of ptyrs)

Primary Problem	mean chgs (pytr)	cv	No. of ptyrs
1. TEMP PROBLEM	$ 342.14	93.9	297
2. HTN	$ 453.12	66.4	223
3. HEALTH MAINT	$ 244.38	65.6	166
4. DM	$ 462.53	52.5	51
5. COPD	$ 493.17	74.4	27
6. ASHD	$ 417.44	110.6	25
7. DUOD ULCER, WOB	$ 237.96	69.6	20
8. ANGINA	$ 411.29	56.7	19
9. ASTHMA	$ 431.13	61.6	14
10. CHF	$ 558.59	114.7	12

Table 10 shows mean charges by patient-year and their variances for the 10 most prevalent types of P2 patients. Patients are classified as P2 if no single problem accounts for over 50% of their total charges during a given patient-year, but two problems do. P2 patients may be thought of as patients with a primary problem and a significant secondary problem. They are typed by their primary problem, that is, the problem which accounts for the most charges. A P2 asthmatic, then, is a patient whose primary problem is asthma, but who has a significant secondary problem.

TABLE 10: Mean Charges and CV for P2 patients
(10 most prevalent problems by # of ptyrs)

		mean chgs (ptyr)	cv	No. of ptyrs
1.	TEMP PROBLEM	$ 506.05	63.5	202
2.	HTN	$ 574.13	55.4	168
3.	HEALTH MAINT	$ 359.49	62.1	148
4.	COPD	$ 683.10	57.9	27
5.	DM	$ 721.82	63.5	25
6.	ASHD	$ 499.56	62.9	23
7.	GOUT	$ 655.87	68.4	17
8.	ANGINA	$ 628.21	58.8	16
9.	ANXIETY STATE, CHRONIC	$ 260.80	61.9	15
10.	DUODENAL ULCER, WOB	$ 465.50	73.5	14

6.5. Comparison of the Two Methods

Table 11 shows the variances in mean charges for the most prevalent problems in this patient population. As can be seen, the variances obtained using the P-Index method are lower than those obtained using the PVP method. The variances were compared using a paired t test to see if these differences were statistically significant.

(1) The weighted mean for the PVP variances was 113.2.

(2) The weighted mean for the P1 variances was 73.2.

(3) The weighted mean for the P2 variances was 59.3.

(4) The weighted mean cv for all patient-years, using the P-Index method, was 66.4.

The paired t test, comparing the PVP cv and the P-Index cv for each diagnosis, gave an F value of 248.12 with a P-value of $< .0001$, indicating that the differences between the pairs of variances were significant.

TABLE 11: Comparison of PVP method vs. P-Index method (15 most prevalent problems, by # of ptyrs)

Problem	cv as PVP	cv as P1	cv as P2
1. Temp Problem	118.5	93.9	63.5
2. Health Maintenance	97.2	65.6	62.1
3. Hypertension	87.8	66.4	55.4
4. Obesity	196.4	80.7	116.6
5. Diabetes M.	78.7	52.5	63.5
6. COPD	109.4	74.4	57.9
7. Angina	106.3	56.7	58.8
8. ASHD	129.2	110.6	62.9
9. BPH	159.8	56.0	57.6
10. Abuse of Alcohol	195.1	52.4	112.4
11. Gout	81.2	73.5	68.4
12. Anxiety, NOS	113.2	80.4	43.2
13. Low Back Pain	156.3	153.6	86.0
14. CHF	160.4	114.7	69.8
15. ASCVD	175.3	95.0	25.3
Mean weighted cv (for all cases > 1 ptyr)	113.2	73.2	59.3

CHAPTER 7

DISCUSSION

7.1. Use of Aggregate Measures of Resource Use

The coefficient of variation (cv) associated with the mean annual (patient-year) charges for all patients seen in GP I is 71.6. This indicates that mean annual charges are fairly stable for GP I patient population; it might be suggested, then, that this aggregate figure could be used for purposes of management, comparison, and reimbursement. Figures at this level, however, do not provide information as to how this stability came about. They are also insufficient in other important areas:

(1) If this figure (mean annual charge) changes over time, managers and reimbursers, lacking other measures, have no way to account for this change. The patient mix may have changed, in terms of age, severity of problems, or diagnostic proportions, necessitating changes in treatment. Or the technology of certain procedures may have changed, increasing the cost of these procedures. Or certain physicians may be ordering higher levels of tests or procedures. Highly aggregate measures, such as mean annual charge, though allowing us to measure changes in

resource use, do not provide enough information to analyze and understand such changes.

(2) Aggregate charges are not very helpful in comparing resource use at GP I with that at other sites, such as other VA clinics or at HMO's, such as Kaiser. A more detailed understanding of the numbers, composition, and use of resources by patient subgroups is necessary in order to match patient populations for meaningful comparisons of "peer" outpatient clinics.

(3) An aggregate charge such as mean annual charge, even with a low cv, does not provide insight into the process of care since it lacks a diagnostic measure. In order to be useful as a management tool, information is needed about patient subgroups which describes their resource use over time and which measures the amount of variation in resource use within each group. Groups with high variation in resource use may be inappropriately grouped, may encounter high variations in physician style, or may have large differences in their severity of their illnesses. Highly aggregate measures will not provide this detail of information.

7.2. Use of Non-Diagnostic Measures

Non-diagnostic measures exist which are less aggregate than mean annual charge but are still easily obtained. We examined charges using two of these, age by decades (see Table 2), and number of problems on the problem-list (see Table 3). The mean weighted cv's obtained with these measures, 71.4 and 69.1 respectively, are similar to that for mean annual charge, and only slightly higher than those obtained with the P-Index method. However, the same problems of management and comparison discussed above apply to these measures also. What would it mean to the manager of a clinic or to a primary care physician to know that mean annual charges for those patients aged 45 to 54 increased by, say, 10% last year? Or that charges for those patients with less than four problems on their problem-list increased 3%, while those for patients with four or more problems increased by 9%? Patients are treated according to their medical problems, their response to therapy, and other diagnosis-centered factors. Because of this, diagnosis-centered information on resource use by subgroups of patients is needed in order to understand resource use in ambulatory care.

7.3. Use of Diagnostic Measures

The problem with diagnostic measures in ambulatory care, which makes it difficult to classify outpatients as readily as the DRG method classifies inpatients, is that many chronically ill patients have multiple diseases and are treated for different illnesses at different times in the course of care. One approach to this problem is to look at charges in terms of individual visits and the diagnosis addressed at each visit, in somewhat the same way that the DRG method looks at hospital stays. This approach, taken by Fetter[49] in the development of Ambulatory Visit Groups, does not deal with the problem of multiple diagnoses at a single visit, or the variation in resource use found at different visits over the course of episodes of illness (see below, "Other Measures", for more discussion of Fetter's approach).

Another approach, which relies more on diagnosis, is to link resource use at each visit to the actual diagnoses addressed in order to get a mean annual charge for the treatment of each diagnosis treated in the patient population. In order to reimburse treatment or to obtain management information on a per-patient basis, these mean annual charges could be aggregated according to the problems on each patient's problem-list. A year's care of a patient with hypertension and diabetes, for example, could

be reimbursed at a level found by adding the mean annual charge associated with hypertension to that associated with diabetes. Alternatively, an outpatient clinic could be compared or reimbursed on the basis of caring for so many cases of asthma, so many cases of diabetes, so many prostate problems, and so on. This appproach was the basis of the PVP method. Two main drawbacks were found in the use of this method:

(1) a good deal of effort is required to link each charge to a specific diagnosis when several problems are addressed at each visit;

(2) the results of this study indicate that the variation in mean annual charges associated with each diagnosis is uncomfortably high.

The final approach that was tried is analagous to DRG's in that it is both diagnosis- and patient-centered. Patients were classified by primary diagnosis and by an index based on their problem-mix. This approach, called the P-Index method, yielded mean charges by patient-year with substantially reduced variation over those obtained with the PVP method. The results from both the PVP method and the P-Index method are described in more detail below.

7.4. Variance with the PVP Method

The cv in the PVP method, with a weighted mean of 113.3, is large enough that the mean charges developed with the method may not be useful for prospective reimbursement or case-mix cost-accounting. The method does yield resource-use vectors which are tightly linked to diagnoses. These vectors are useful in examining and comparing patterns of care, but require an effort on the part of data clerks to perform the resource-diagnosis linkage. As discussed below, it should be possible to use the P-Index method without the detailed linkage required by the PVP method.

Intuitively, the large cv's associated with the PVP method make sense, since we are looking at charges for the treatment of a piece of a patient, not the whole patient. Patient-problems are not really independent entities; they are affected by the general state of the patient, the patient's history and age, and the other problems which the patient may have. The asthma of a 70-year old man with ASHD will quite probably be more expensive to treat and control than the asthma of a 30-year old with hay fever. These cv's might be improved by adding variables such as age and number of problems on the problem-list to the method.

7.5. Variance with the P-Index Method

The P-Index method is an improvement in that it deals with the whole patient and with the presence of other problems by clustering patients by P-index as well as by primary problem. The resulting cv's, with a weighted mean of 73.2 for type P1 and 59.3 for type P2, are a significant improvement. An interesting counter-intuitive result is that the cv's associated with the P2 patients are lower than those for the P1 patients. It might be expected that the presence of a significant secondary problem would introduce more variation in charges to the P2 cases, not less. This result may be related to the higher charges associated with P2 patients. No methods have been reported which perform better in describing ambulatory care case-mix, but this is because there is almost no literature in the area.

7.6. Comparison with DRG Variances

The above cv's are comparable to those reported for the earlier set of ICD-8-based DRG's developed from LOS data from Connecticut, New Jersey, and Western Pennsylvania. As examples of some specific DRG's, the following cv's were reported in the original article by Fetter, et al[12], for the four urinary calculus DRG's:

(1) DRG 239: Urinary Stone w/out Surgery w/out Secondary Diagnosis: cv = 87.8;

(2) DRG 240: Urinary Stone w/out Surgery with Secondary Diagnosis: cv = 94.2;

(3) DRG 241: Urinary Stone with Surgical Procedure: cv = 67.6;

(4) DRG 242: Urinary Stone with Surgery: cv = 49.3.

Young and Swinkola[22], in their assessment of the AUTOGRP classification method used in the development of DRG's, used AUTOGRP on a data set of patient discharge abstracts from hospitals in Western Pennsylvania. They included in their report the cv's obtained using this data for four (again, ICD-8 based) DRG's:

(1) DRG 136: Disease of the Heart, Inflammation, Valve Problem, with Cardiac Catheterization w/out Secondary Diagnosis or with Minor Secondary Diagnosis: cv = 66.9;

(2) DRG 145: Circulatory Dysfunction in Brain with Surgery: cv = 72.2;

(3) DRG 245: Bladder Disease (Abn. Passage, Pouching, Other) w/out Surgery with Secondary Diagnosis with Age < 46: cv = 53.8;

(4) DRG 250: Disease of Bladder and Urethra with Surgery (Removal of Bladder, Removal of Prostate, Other

Major): cv = 68.0.

Horn[25], in comparing the performance of DRG's to a severity index in forming homogeneous case mix groups, reported cv's from four hospitals for DRG 121, Acute Myocardial Infarction, as 38.43, 44.28, 45.89, and 66.18.

In addition to these specific DRG's, cv's have been calculated for each DRG in the New Jersey prospective reimbursement system. (Again, these DRG' are from the earlier, ICD-8 based grouping) 81.2% of the DRG's had a cv of 50 or greater[71]. This would indicate that the mean New Jersey DRG cv is higher than the mean cv's obtained with the P-Index method.

7.7. Feasibility of the P-Index Method

A strong point in favor of the P-Index method is its operational simplicity. It would be quite feasible to use the method in a large ambulatory care clinic to acquire a much larger data base for the further development of case-mix methods. Patients could be classified by P-index by having the physician note on an encounter form at each visit which problem was primary. That visit would then be linked to that problem. This would involve an assessment by the physician of which problem received the most resources, in terms of both physician attention and ancillary services. This would be similar to the process by

which physicians decide what to put down for "Diagnosis" or "Diagnostic Impression" on the encounter forms already in use in many hospital-based outpatient clinics and emergency departments.

At the end of the year, the visits for each patient, and the set of primary problems linked to those visits would be available to an information system. For each patient-year, that problem marked as primary at the most visits would be designated the primary problem. The P-index could then be determined not by the number of problems necessary to account for 50% of the total charges, but by the number of problems necessary to account for 50% of the visits. The patient's case would then be determined by the primary problem and the P-index, and the total charges for all visits in that year, readily available from the patient's bill, would be linked to that case. This would be much simpler than the method, used in this study, of linking each separate use of resources to a specific problem on the problem-list. This method would greatly facilitate the creation of a large data set for the study of ambulatory care case mix.

An alternative method of implementation would be possible if the clinic charge system was able to associate ancillary charges (pharmacy, labs, radiology, etc.) with specific visits. This is not presently done; ancillary

charges simply on the patients' bill as individual items, seperate from visit charges. If ancillary charges were linked to visits, it would be possible to associate these charges with the primary problem at each visit. The primary problem for each patient-year could then be calculated on the basis of overall charges associated during that year with each problem, rather than simply on the basis of the number of visits associated with each problem.

The creation of a large, case-oriented ambulatory care data base, using either of these methods, would also aid in the study of refinements to the P-index method. One refinement would be determining the optimal threshold for the P-index, as discussed below. Another refinement would be to look at combinations of problems seen in P2's. Certain combinations, such as HTN plus diabetes, or diabetes plus obesity may form cases that are similar in resource use and are clinically meaningful. Other refinements might include the clustering of problems to reduce the number of cases in the method through the use of major diagnostic categories or diagnosis clusters such as those proposed by Schneeweiss.

The PVP method and the P-Index method do have one major shortcoming: they assume that all outpatient visits made by each patient during the patient-year are either

made to the same provider or that information describing every outpatient visit is available to the information system. This is not a problem for an HMO setting or for a large medical center encompassing a full range of subspecialty clinics; it could be a problem in attempting to characterize patients who receive care from more than one provider in an environment of dispersed solo and small-group fee-for-service subspecialty practices if patients 'hop' from one provider to another. This would not present a problem to an insurance company like Blue Cross; standard forms describing each visit are already in use and could be modified for use in a case mix system.

7.8. Other Measures of Ambulatory Care Case Mix

Perhaps because of this problem, Fetter[49] has attempted to develop an ambulatory care case-mix method based on single office visits. The classification system, Ambulatory Visit Groups, was developed using time spent with physician as a proxy for charges. There are several problems with this approach, however. Length of visit is probably a poor proxy for charges, as it deals only with physician time, and not with ancillary charges such as medications, lab tests and X-rays. These ancillary charges are frequently more expensive than physician charges.

Another problem is the episodic nature of illness, which may results in a large variation in charges by visit. Prescriptions with their refills, diagnostic work-ups generated at the first visit for a new problem or at the beginning of a flare-up of a chronic problem, and periodic tests used in following a chronic problem, occur in an episodic, not a uniform, pattern. Even during the course of a single episode, the intensity of treatment may vary substantially at each visit. The P-Index method deals with this episodic aspect of ambulatory care by classifying patients based on their care over a patient-year.

A case mix reimbursement method based on visits is attractive because of its similarity to the DRG method of visit-based reimbursement for inpatient care. However, there are many controls over the admission of patients to hospitals: criteria for admission, reluctance of patients to be admitted unnecessarily due to time lost from work, monitoring of admissions and LOS by administrators and other clinicians, deductibles and copayment requirements set by Medi-Care and insurance companies, and so on. Even though hospitals and physicians could increase their reimbursements under a DRG system by simply increasing their admissions, these controls would act to minimize this. In ambulatory care most of these controls are absent;

patients are far more willing to visit a doctor than they are to be hospitalized, and visits are not subject to the same kinds of scrutiny as admissions. Thus,an ambulatory care case mix reimbursement method based on visits, while it might create incentives for controlling the cost of individual visits, could tend to encourage multiple visits. Again, the P-Index method avoids this problem.

Another promising method of characterizing care is the use of a severity index, as proposed by Horn[24]. One of the causes of variation in charges in both the PVP method and the P-Index method is undoubtedly the differences in the severity of a given problem across patients. In the example used above of the two asthmatics, one a 70-year old who also had ASHD, and the other a 30-year old with hay fever, the ability to control for severity, though it might produce a greater number of case types, would quite likely reduce variance. Horn's method, based on 23 MDC's using a 4-level severity index and the presence or absence of surgery, would create 184 case types, and might reduce variance below the level associated with DRG's. Severity might be added to the P-Index method using a proxy such as number of problems on the problem list or the number of current medications, or by using physician judgement to assign a severity to each problem each year, at the visit when it was first addressed.

7.9. The Group Practice I Patient Population

In discussing the results of this study, it should be noted that the patients cared for by GP I are 95% male, with an average age of 55.6 years in 1978[72], and thus differ from patients seen by community-based group practices[73] and from patients seen in hospital outpatient departments[74]. It is difficult to quantify how ill a population is, but GP I patients had an average of 6.1 problems on their problem lists, and an average of 4 medications on their medication lists[72]. The figure for the average number of problems is overstated by one, because one problem on each problem list is reserved for "health maintenance". This is a device required for linking resources such as periodic screening tests to a specific problem. This means that our patients had an average of 5.1 "permanent" medical problems. Temporary, self-limiting problems such as colds and flus are lumped together under one category: "Self-Resolving Temporary Problems".

From this, we can characterize our patient population as one composed of fairly old, chronically ill males who are taking several medications. This makes the population a good one for the study of the care of chronic illnesses, but one that differs from the popualtion that uses hospital outpatient departments in the United States[74].

7.10. Factors Affecting Cost in Ambulatory Care

Several factors may affect costs in ambulatory care besides case mix. Physician style may contribute to variations in cost of care. The availability of technology may tend to increase costs. The relative efficiency of a medical center, clinic, HMO, small group, or solo practice will affect costs. Because we collected data from only one clinic within a medical center, the study of most of these non-case-mix effects was outside the scope of this study.

7.11. The P-Index Mix

The P-index mix shown in Table 1 (P1: 52.6%; P2: 43.1%; P3: 3.9%; P4: 0.4%) was obtained using a percent-of-total-charges threshold set at 50%. That is, patients were classified as type P1 for a given year if the charges for their primary problem were greater than 50% of their total charges for that year. Clearly, if this threshold were raised to say, 66%, the resulting P-index mix would change. The number of P1's would drop, and the number of P2's, P3's, and P4's would rise. We might observe the emergence of P5's. The setting of the threshold at 50% for this study was decided on as a logical first cutpoint; if a patient has a problem that is responsible for most of their charges in a given year, then that is their dominant problem.

However, a patient could have one problem which incurred 51% of total charges and a second problem which incurred 49%. With our 50% threshold, such a patient would be classified as type P1, suggesting that he had a primary problem with either a minor or no secondary problem. It would be more accurate to describe this patient as a P2, having a primary problem with one significant secondary problem. It could be argued that in order to avoid problems of this sort, the threshold should be raised to 66% (two-thirds of total charges) or even 75%. Raising the threshold in this way would insure that resulting P1's, though fewer in number, had secondary problems that were definitely minor. It should be possible to create different breakdowns of P1's, P2's, and P3's at different thresholds, and to obtain the main cv's for each group at each threshold. By plotting mean cv's against threshold, it should be possible to select that threshold which creates groups with the least variation in mean charges. More work needs to be done in this area to examine the effect of different thresholds on P-index mix, the prevalence of primary diagnoses in the changed P-groups, and the resulting charge variances for the primary diagnoses in the new P-groups.

7.12. Patterns of Ambulatory Care

The development of outpatient classification methods which are clinically meaningful, operationally and administratively feasible, and useful for reimbursement and cost-accounting will also be of great importance in studying patterns of care by case. Ambulatory care, though not subject to as much scrutiny as inpatient care, is of great medical and economic importance, and since it is delivered over long periods of time is actually quite complex. In analyzing ambulatory care, two important factors are those of time and the presence of multiple problems. While hospital care is delivered in stays that average around a week, with usually one diagnosis being treated, ambulatory care is delivered over long periods of time, for a varying mix of problems.

The development of the P-index is a first step in describing this problem mix, but in this study our consideration of the effect of time has been limited to looking at care and charges in terms of patient-years. We have treated each patient-year as basically similar, and have not looked at differences between say, the first year in which a patient received care, and the following years. Nor have we looked at the changes in the P-index of patients over time.

Future research should be directed along these lines, with the goal of investigating questions such as these:

(1) does the first year of care from a provider result in higher total charges than succeeding years, because of factors such as higher use of resources for diagnostic workups, finding treatment modalities to which the patient responds, and the time required to bring problems under control? If so, how much higher are these initial charges?

(2) More specifically, does the appearance of a new, non-self-resolving problem incur higher charges during the initial workup/control period than in the followup period? If so, to what extent? What do charges for problems look like over time?

(3) Is the number of problems addressed in the care of the patient higher in the first year of care than in subsequent years ? That is, do problems "drop out" as they are controlled? If they do, can we characterize how long this takes?

(4) Does the number of problems addressed steadily rise over time during a patient's lifetime, as might be expected?

(5) Do both 3 and 4 occur, in a sort of cyclic, but slowly increasing pattern?

(6) Do problems occur in clusters? Are certain problem combinations more expensive to treat than would be expected from their charges when they occur separately?

(7) Does the primary problem tend to remain constant over time, or does it change? Do some primary problems tend to remain dominant more than others?

(8) How does the P-index change over time? Does it start off high, and slowly decrease, or do P3's tend to remain P3's?

Questions such as these are important to our understanding of ambulatory care and have not been addressed in the literature. With the development of case mix methods we can begin to collect the data needed to address them.

7.13. The Importance of Ambulatory Care

As the population ages, the potential for vastly increased requirements for medical care of the elderly threatens to bankrupt the federal programs responsible for funding such care. Chronic illness can often be controlled by good ambulatory care. Chronic illness, when uncontrolled, often leads to increased disability and expensive inpatient care. The study of ambulatory care, the introduction of case-mix cost-accounting, and the development of consensus-based cost-effective care may not

only maintain the health of patients, but that of the health-care system itself.

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APPENDIX I

PROBLEM LIST NOMENCLATURE

GROUP PRACTICE I
SAN FRANCISCO VETERANS ADMINISTRATION MEDICAL CENTER

TABLE OF CONTENTS

1. COMMUNICABLE DISEASES

1005. AMEBIASIS
1010. BACTERIAL DISEASE, NOS
1015. BLASTOMYCOSIS
1020. PLEURODYNIA, VIRAL
1025. CANDIDIASIS
1030. COCCIDIOMYCOSIS
1035. ERYSIPELAS (SEE ALSO 6525.)
1040. FLU SYNDROME
1045. FUNGAL DISEASE, NOS
1050. GIARDIASIS
1055. GONOCOCCAL INFECTION, NOS
1060. GONOCOCCAL PELVIC INFLAMMATORY DISEASE
1065. GONOCOCCAL PHARYNGITIS
1070. GONOCOCCAL PROCTITIS
1075. GONOCOCCAL URETHRITIS
1080. HERPES SIMPLEX INFECTIONS
1085. HERPES ZOSTER INFECTIONS
1090. HISTOPLASMOSIS
1095. INFECTIOUS DIARRHEA, NOS
1100. INFECTIOUS HEPATITIS A
1105. INFECTIOUS HEPATITIS B
1110. INFECTIOUS HEPATITIS, NOS
1115. INFECTIOUS MONONUCLEOSIS
1120. MALARIA, NOS
1125. MENINGITIS, BACTERIAL (EXCEPT TUBERCULAR)
1130. MENINGITIS, VIRAL OR ASEPTIC
1135. MENINGITIS,TUBERCULAR
1140. MENINGITIS, NOS
1145. OXYURIASIS (PINWORMS)
1150. PARASITIC DISEASE, NOS
1155. POLIOMYELITIS (ACUTE AND SEQUELAE)
1160. RHEUMATIC FEVER, ACUTE (SEE ALSO 7180.)
1165. RICKETTSIAL DISEASE, NOS
1170. SYPHILIS, PRIMARY
1175. SYPHILIS, SECONDARY
1180. SYPHILIS, TERTIARY (SEE ALSO 7096. AND 7099.)
1185. TUBERCULOSIS, NOS
1190. TUBERCULOSIS, PULMONARY, ACTIVE
1195. TUBERCULOSIS, PULMONARY, INACTIVE
1200. TUBERCULOSIS, EXTRAPULMONARY, ACTIVE
1205. TUBERCULOSIS, EXTRAPULMONARY, INACTIVE
1210. VENEREAL DISEASE, NOS
1215. VIRAL DISEASE, NOS

SIGNS AND SYMPTOMS

1305. FEVER WITH RASH (ANY SITE)
1310. FEVER WITHOUT RASH
1315. OTHER S/S OF COMMUNICABLE DISEASE, NOS
1320. POSITIVE TUBERCULIN (PPD) SKIN TEST
1325. POSITIVE VDRL

2. NEOPLASMS, BENIGN

BUCCAL CAVITY AND PHARYNX (ORAL)

1505. BENIGN NEOPLASM OF LIP
1510. BENIGN NEOPLASM OF TONGUE
1515. BENIGN NEOPLASM OF SALIVARY GLAND
1520. BENIGN NEOPLASM OF FLOOR OF MOUTH
1525. BENIGN NEOPLASM OF PHARYN
1530. OTHER ORAL BENIGN NEOPLASMS, NOS

DIGESTIVE

1550. BENIGN NEOPLASM OF ESOPHAGUS
1555. BENIGN NEOPLASM OF STOMACH
1560. BENIGN NEOPLASM OF SMALL INTESTINE
1565. BENIGN NEOPLASM OF LARGE INTESTINE (COLON)
1570. BENIGN NEOPLASM OF RECTUM
1575. BENIGN NEOPLASM OF LIVER (PRIMARY)
1580. BENIGN NEOPLASM OF PANCREAS
1585. OTHER BENIGN NEOPLASMS OF DIGESTIVE SYS, NOS

RESPIRATORY SYSTEM

1605. BENIGN NEOPLASM OF LARYN
1610. BENIGN NEOPLASM OF LUNG
1615. OTHER BENIGN NEOPLASMS OF RESP SYSTEM, NOS

BONE, CONNECTIVE TISSUE, AND SKIN

1655. BENIGN NEOPLASM OF BONE
1660. BENIGN NEOPLASM OF CONNECTIVE TISSUE
1665. BENIGN NEOPLASM OF SKIN

BREAST

1705. BENIGN NEOPLASMS OF BREAST, ALL

GENITAL ORGANS

1755. BENIGN NEOPLASM OF UTERUS, CERVIX
1760. BENIGN NEOPLASM OF UTERUS, BODY, ENDOMETRIAL
1765. BENIGN NEOPLASM OF OVARY
1770. OTHER BENIGN NEOPLASMS OF FEMALE GENITALS
1775. BENIGN NEOPLASM OF PROSTATE
1780. BENIGN NEOPLASM OF TESTIS
1785. OTHER BENIGN NEOPLASMS OF MALE GENITALS

2. NEOPLASMS, BENIGN (CONT.)

URINARY ORGANS

1805. BENIGN NEOPLASM OF BLADDER
1810. BENIGN NEOPLASM OF KIDNEY
1815. OTHER BENIGN NEOPLASMS OF URINARY ORGANS, NOS

EYE

1825. BENIGN NEOPLASMS OF EYE, ALL

BRAIN AND CENTRAL NERVOUS SYSTEM

1855. BENIGN NEOPLASMS OF BRAIN AND CNS, ALL

ENDOCRINE GLANDS

1875. BENIGN NEOPLASM OF THYROID
1880. BENIGN NEOPLASM OF OTHER ENDOCRINE, NOS

OTHER BENIGN NEOPLASMS, NOS

1905. OTHER BENIGN NEOPLASMS, NOS
1920. S/P BENIGN NEOPLASM SURGERY

3. NEOPLASMS, MALIGNANT

BUCCAL CAVITY AND PHARYNX (ORAL)

2005. MALIGNANT NEOPLASM OF LIP
2010. MALIGNANT NEOPLASM OF TONGUE
2015. MALIGNANT NEOPLASM OF SALIVARY GLAND
2020. MALIGNANT NEOPLASM OF FLOOR OF MOUTH
2025. MALIGNANT NEOPLASM OF PHARYNX
2030. OTHER ORAL MALIGNANT NEOPLASMS, NOS

DIGESTIVE

2050. MALIGNANT NEOPLASM OF ESOPHAGUS
2055. MALIGNANT NEOPLASM OF STOMACH
2060. MALIGNANT NEOPLASM OF SMALL INTESTINE
2065. MALIGNANT NEOPLASM OF LARGE INTESTINE (COLON)
2070. MALIGNANT NEOPLASM OF RECTUM
2075. MALIGNANT NEOPLASM OF LIVER (PRIMARY)
2080. MALIGNANT NEOPLASM OF PANCREAS
2085. MALIGNANT NEOPLASM OF DIGESTIVE SYSTEM, NOS

RESPIRATORY SYSTEM

2105. MALIGNANT NEOPLASM OF LARYNX
2110. MALIGNANT NEOPLASM OF LUNG
2115. MALIGNANT NEOPLASM OF RESPIRATORY SYSTEM, NOS

BONE, CONNECTIVE TISSUE, AND SKIN

2155. MALIGNANT NEOPLASM OF BONE
2160. MALIGNANT NEOPLASM OF CONNECTIVE TISSUE
2165. MALIGNANT NEOPLASM OF SKIN

BREAST

2205. MALIGNANT NEOPLASM OF BREAST, ALL

GENITAL ORGANS

2255. MALIGNANT NEOPLASM OF UTERUS, CERVIX
2260. MALIGNANT NEOPLASM OF UTERUS, BODY, ENDOMETR
2265. MALIGNANT NEOPLASM OF OVARY
2270. MALIGNANT NEOPLASM OF OTHER FEMALE GENITAL
2275. MALIGNANT NEOPLASM OF PROSTATE
2280. MALIGNANT NEOPLASM OF TESTIS
2285. MALIGNANT NEOPLASM OF OTHER MALE GENITAL

2. NEOPLASMS, MALIGNANT (CONT.)

URINARY ORGANS

2305. MALIGNANT NEOPLASM OF BLADDER
2310. MALIGNANT NEOPLASM OF KIDNEY
2315. MALIGNANT NEOPLASM OF OTHER URINARY ORG, NOS

EYE

2325. MALIGNANT NEOPLASM OF EYE, ALL

BRAIN AND CENTRAL NERVOUS SYSTEM

2355. MALIGNANT NEOPLASM OF BRAIN AND CNS, ALL

ENDOCRINE GLANDS

2375. MALIGNANT NEOPLASM OF THYROID
2380. MALIGNANT NEOPLASM OF OTHER ENDOCRINE, NOS

LEUKEMIA

2405. LEUKEMIA, ALL

LYMPHOMAS

2425. LYMPHOSARCOMA AND RETICULOSARCOMA
2430. HODGKIN'S DISEASE
2435. MULTIPLE MYELOMA
2440. OTHER LYMPHOMAS, NOS

OTHER MALIGNANT NEOPLASMS, NOS

2455. OTHER MALIGNANT NEOPLASMS, NOS
2470. S/P MALIGNANT NEOPLASM SURGERY, ALL.

4. ALLERGIC, IMMUNOLOGIC, AND CONNECTIVE TISSUE

ALLERGIC DISEASES

2505. ALLERGIC RHINITIS (HAY FEVER)
2510. ALLERGY, NOS
2515. ANAPHYLAXIS, NOS
2520. ANGIONEUROTIC EDEMA
2525. CONTACT ALLERGY (CONTACT DERMATITIS)
2530. DRUG ALLERGY (IF SKIN MANIFESTATION, SEE 6580.)
2535. FOOD ALLERGY
2540. INSECT STING ALLERGY
2545. SERUM SICKNESS
2550. URTICARIA

IMMUNOLOGIC AND CONNECTIVE TISSUE DISEASES

2555. ANGIITIS, NECROTIZING (EXCEPT AS BELOW)
2560. EOSINOPHILIC SYNDROMES, NOS
2565. FIBROSING SYNDROMES, NOS
2570. GRANULOMATOUS DISEASE, NOS
2572. IMMUNOLOGIC DISEASE, NOS
2575. PERIARTERITIS NODOSA
2580. POLYMYOSITIS AND DERMATOMYOSITIS
2585. SARCOIDOSIS, PULMONARY
2590. SARCOIDOSIS, EXTRAPULMONARY
2595. SCLERODERMA (SYSTEMIC SCLEROSIS)
2600. SYSTEMIC LUPUS ERYTHEMATOSUS
2605. TEMPORAL ARTHRITIS, POLYMYALGIA RHEUMATICA
2607. TUMORS METASTATIC TO CONNECTIVE TISSUE,NOS (MAY ALSO CODE PRIMARY)
2610. CONNECTIVE TISSUE DISORDERS, NOS
2615. OTHER SIGNS/SYMPTOMS OF IMMUNOLOGIC OR CONNECTIVE TISSUE DISEASE, NOS

5. PROBLEMS IN LIVING

CGP CODE	NAME
3005.	ABUSE OF ALCOHOL
3010.	ABUSE OF DRUGS
3015.	ADULT SITUATIONAL REACTION, NOS
3020.	ANXIETY STATE, CHRONIC
3025.	ANXIETY STATE, SITUATIONAL
3027.	ANXIETY STATE, NOS
3030.	CHRONIC BRAIN SYNDROME
3035.	DEPRESSION, CHRONIC
3040.	DEPRESSION, SITUATIONAL
3045.	ECONOMIC PROBLEMS
3050.	EDUCATIONAL PROBLEMS
3055.	EMPLOYMENT PROBLEMS
3060.	FAMILY RELATIONSHIP PROBLEMS, MARITAL
3065.	FAMILY RELATIONSHIP PROBLEMS, PARENT/CHILD
3070.	FAMILY RELATIONSHIP PROBLEMS, OTHER
	GRIEF REACTION (CODE AS 3040)
3080.	HYPERVENTILATION, PSYCHOGENIC
3085.	HOUSING PROBLEMS
3090.	IMPRISONMENT
3095.	INSOMNIA
3100.	LEGAL PROBLEMS, NOS
3105.	MULTIPLE LIFE STRESSES
3110.	MULTIPLE SOMATIC COMPLAINTS, CHRONIC
3115.	MULTIPLE SOMATIC COMPLAINTS, SITUATIONAL
3120.	PROSECUTION OR IMPENDING LITIGATION
3125.	PSYCHOSIS, AFFECTIVE
3130.	PSYCHOSIS, ORGANIC
3135.	SCHIZOPHRENIA, ALL TYPES
3140.	SEXUAL DISSATISFACTION
3145.	SOCIAL ISOLATION
3150.	UNEMPLOYMENT, TEMPORARY
3155.	UNEMPLOYMENT, CHRONIC
3160.	UNEMPLOYMENT, DUE TO ILLNESS
3165.	OTHER SIGNS/SYMPTOMS OF LIVING PROBLEMS

6. ENDOCRINE AND METABOLIC

CGP CODE	NAME
	ENDOCRINE
	ADRENAL TUMORS (SEE 1880 OR 2380)
3510.	CARCINOID SYNDROME
	CRIPTORCHIDISM (SEE 6260)
3520.	DIABETES INSIPIDUS
	DISORDERS OF MENSTRUATION (SEE 6325-6370)
3530.	EUTHYROID GOITER
	GONADAL TUMORS (SEE 1780 OR 2280)
3540.	HYPERADRENALISM
3545.	HYPERALDOSTERONSISM
3550.	HYPERPARATHYROIDISM
3555.	HYPERPITUITARISM (ACROMEGALY)
3560.	HYPERTHYROIDISM
3565.	HYPOADRENALISM (ADDISON DISEASE)
3570.	HYPOGONADISM
3575.	HYPOPITUITARISM
3580.	HYPOPARATHYROIDISM
3585.	HYPOTHYROIDISM
3590.	INAPPROPRIATE ADH SYNDROME
	ORCHITIS, ALL CAUSES (SEE 6225)
	OSTEOMALACIA (SEE 8090)
	OSTEOPOROSIS (SEE 8095)
3605.	PHEOCHROMOCYTOMA
3610.	THYROIDITIS
	THYROID NEOPLASM (SEE 1875 OR 2375)
3615.	TUMORS METASTATIC TO ENDOCRINE SYSTEM, NOS (MAY ALSO CODE PRIMARY)
3620.	ENDOCRINE DISEASE, NOS
3630.	S/P ENDOCRINE SURGERY, ALL
	METABOLIC
3655.	ACID-BASE DISORDER
3660.	CARBOHYDRATE INTOLERANCE
3665.	DIABETES MELLITUS
3670.	ELECTROLYTE DISORDER
3675.	GOUT
3677.	ABN CHOLESTEROL; HYPERCHOLESTEROLEMIA
3680.	HYPERLIPOPROTEINEMIA
3682.	HYPERURECEMIA (W/OUT GOUT)
3685.	HYPOGLYCEMIA, NOS
3690.	MALNUTRITION AND/OR VITAMIN DEFICIENCY
3695.	OBESITY, EXOGENOUS
3700.	PROPHYRIA
3705.	OTHER METABOLIC DISEASES, NOS

6. ENDOCRINE AND METABOLIC (CONT.)

SIGNS/SYMPTOMS OF ENDOCRINE AND/OR METABOLIC DISEASE

3755. ABNORMAL ADRENAL FUNCTION TEST(S), NOS
3757. ABNORMAL GLUCOSE TOLERANCE TEST (SEE ALSO 3660)
3760. ABNORMAL GONADAL FUNCTION TEST(S), NOS
3765. ABNORMAL THYROID FUNCTION TEST(S), NOS
3770. BAND KERATOPATHY
3775. CHVOSTEK'S SIGN
3780. COLD INTOLERANCE, NOS
3785. EXOPHTHALMOS
3787. GLYCOSUREA
3790. HEAT INTOLERANCE, NOS
3795. LID LAG
3800. TETANY (NEUROMUSCULAR)
3805. THYROID NODULE, SINGLE
3810. THYROID NODULES, MULTIPLE
3815. THYROID NODULES, NOS
3820. THYROMEGALY, NOS
3825. TROUSSEAU'S SIGN
3830. OTHER SIGNS/SYMPTOMS OF ENDOCRINE OR METABOLIC DISEASE,NOS

7. DISEASES OF BLOOD AND BLOOD FORMING ORGANS

4005. ANEMIA, DUE TO BLOOD LOSS
4010. AMEMIA, DUE TO BONE MARROW INHIBITION
4015. ANEMIA, DUE TO BONE MARROW REPLACEMENT
4020. ANEMIA, DUE TO B12 DEFICIENCY (INCLUDES PERNICIOUS ANEMIA)
4025. ANEMIA, DUE TO CHRONIC DISEASE
4030. ANEMIA, DUE TO FOLATE DEFICIENCY
4035. ANEMIA, DUE TO HEMOLYSIS
4040. ANEMIA, DUE TO HEREDITARY DEFECT
4045. ANEMIA, DUE TO IRON DEFICIENCY
4050. ANEMIA, DUE TO LIVER DISEASE
4055. ANEMIA, DUE TO PYRIDOXINE DEFICIENCY
4060. ANEMIA, NOS
4065. BASOPHILIA, NOS
4070. EOSINOPHILIA, NOS
4075. ERYTHROCYTOSIS, SECONDARY (ALL CAUSES)
4080. GRANULOCYTOPENIA, NOS
4085. HEMOGLOBINOPATHY (ALL TYPES)
4090. HEMORRHAGIC DISORDER, DUE TO PLATELET DISORDER
4095. HEMORRHAGIC DISORDER, ALL CAUSES EXC PLATELET
4100. LEUKOCYTOSIS, NOS
4105. LEUKOPENIA,NOS
4110. LYMPHADENOPATHY DUE TO REACTION
4115. LYMPHADENOPATHY DUE TO INFILTRATION
4120. MULTIPLE MYELOMA
4125. MYELOID METAPLASIA
4130. POLYCYTHEMIA VERA
4135. SPLENOMEGALY DUE TO CONGESTION
4140. SPLENOMEGALY DUE TO INFILTRATION
4145. SPLENOMEGALY DUE TO REACTIVE HYPERPLASIA
4155. TUMORS METASTATIC TO BLOOD FORMING ORGANS, NOS (MAY ALSO CODE PRIMARY)
4170. S/P SPLENIC SURGERY, ALL
4175. S/P SURGERY OF OTHER BLOOD-FORMING ORGANS

SIGNS AND SYMPTOMS

4205. ABNORMAL COAGULATION TEST
4210. ABNORMAL PLATELET TEST
4215. ABNORMAL RED BLOOD CELL TEST
4320. ABNORMAL WHITE BLOOD CELL TEST
4325. BONE MARROW ABNORMALITY, NOS
4330. ECCHYMOSIS, NOS
4335. LYMPHADENOPATHY, NOS
4340. PETECHIAE, NOS
4345. PURPURA, NOS
4350. SPLENOMEGALY, NOS
4355. OTHER SIGNS/SYMPTOMS OF BLOOD DISEASE

8. DISEASES OF THE CARDIOVASCULAR SYSTEM

4504. ANGINA PECTORIS
4508. AORTIC ANEURYSM, ABDOMINAL W/ DISSECTION
4512. AORTIC ANEURYSM, ABDOMINAL W/O DISSECTION
4516. AORTIC ANEURYSM, NOS
4520. AORTIC ANEURYSM, THORACIC W/ DISSECTION
4524. AORTIC ANEURYSM, THORACIC W/O DISSECTION

ARRYTHMIAS

4532. ATRIAL ARRYTHMIA
4536. VENTRICULAR ARRYTHMIA
4540. SUPRAVENTRICULAR ARRYTHMIA
4544. HEART BLOCK (ALL)
4548. HEMIBLOCK (ALL)
4552. WOLFF-PARKINSON-WHITE SYNDROME
4556. ARTIFICIAL PACEMAKER
4528. ARRYTHMIAS, NOS

4572. ARTERIAL ANEURYSM, NOS
4576. ARTERIAL DISEASE, NOS

ARTERIOSCLEROTIC CARDIOVASCULAR DISEASE

4580. ARTERIOSCLEROTIC CARDIOVASCULAR DISEASE, NOS
4584. ARTERIOSCLEROSIS OBLITERANS
4588. OCCLUSIVE DISEASE OF EXTREMITIES
4592. OCCLUSIVE DISEASE DUE TO EMBOLI AND/OR THROMBI
4596. OCCLUSIVE DISEASE OF HEAD AND NECK (SEE 7111)
4600. OCCLUSIVE DISEASE OF VISCERA (EXCPT HEART)
4610. S/P ARTERIAL SURGERY,ALL
(incl. grafts, bypass,endarterectomy)

ARTERIOSCLEROTIC HEART DISEASE

4620. DIFFUSE CORONARY ARTERY DISEASE
4624. LOCALIZED CORONARY ARTERY DISEASE
4628. MYOCARDIAL INFARCTION, ANTERIOR
4632. MYOCARDIAL INFARCTION, INFERIOR
4636. MYOCARDIAL INFARCTION, POSTERIOR
4640. MYOCARDIAL INFARCTION, SUBENDOCARDIAL
4644. MYOCARDIAL INFARCTION, NOS
4656. ARTERIOSCLEROTIC HEART DISEASE, NOS
4658. S/P CORONARY ARTERY SURGERY, ALL.

8. DISEASES OF THE CARDIOVASCULAR SYSTEM (CONT.)

4660. ARTERIO-VENOUS MALFORMATION, NOS
4664. CARDIAC DISEASE, NOS
4668. CARDIOMYOPATHY, NON-OBSTRUCTIVE
4672. CARDIOMYOPATHY, OBSTRUCTIVE
4676. CONGENITAL HEART DISEASE, NOS
4680. CONGESTIVE HEART FAILURE, NOS
4684. COR PULMONALE, NOS
4688. ENDOCARDITIS, INFECTIVE
4692. ENDOCARDITIS, NOS
4696. HYPERTENSION, ESSENTIAL
4700. HYPERTENSION, MALIGNANT
4704. HYPERTENSION, SECONDARY
4708. HYPERTENSION, SYSTOLIC
4712. HYPERTENSION, NOS
4716. PERICARDITIS, ACUTE
4720. PERICARDITIS, CONSTRICTIVE AND/OR EFFUSION
4724. PERICARDITIS, NOS
4728. RAYNAUD'S DISEASE
4730. RHEUMATIC HEART DISEASE
4732. STOKES-ADAMS ATTACKS
4736. TUMORS METASTATIC TO CARDIOVASC SYSTEM, NOS (MAY ALSO CODE PRIMARY)
4738. S/P HEART SURGERY,ALL (except coronary)
4739. VENTRICULAR ANEURYSM

VALVULAR HEART DISEASE

4740. AORTIC STENOSIS (ALL CAUSES)
4744. AORTIC INSUFFICIENCY (ALL CAUSES)
4748. MITRAL STENOSIS (ALL CAUSES)
4752. MITRAL INSUFFICIENCY (ALL CAUSES)
4756. PULMONIC STENOSIS (ALL CAUSES)
4760. PULMONIC INSUFFICIENCY (ALL CAUSES)
4764. TRICUSPID STENOSIS (ALL CAUSES)
4768. TRICUSPID INSUFFICIENCY (ALL CAUSES)
4772. VALVULAR HEART DISEASE, NOS
4780. VASCULAR DISEASE, NOS

VENOUS DISEASE

4788. THROMBOPHLEBITIS, ACUTE
4792. THROMBOPHLEBITIS, CHRONIC
4796. CHRONIC VENOUS INSUFFICIENCY (MAY ALSO NEED 6565 CODED)
4800. VARICOSE VEINS
4804. VENOUS DISEASE, NOS
4808. S/P VENOUS SURGERY, ALL.

8. DISEASES OF THE CARDIOVASCULAR SYSTEM (CONT.)

SIGNS AND SYMPTOMS

4812. ABNORMAL ARTERIAL PULSE, NOS
4816. CLAUDICATION

ABNORMAL ARTERIAL SOUND

4820. BRUIT OF HEAD OR NECK
4824. BRUIT OF CHEST OR UPPER EXTREMITY
4828. BRUIT OF ABDOMEN OR LOWER EXTREMITY
4832. ABNORMAL ARTERIAL SOUND, NOS

4840. ABNORMAL ARTERIOGRAM
(EXC NEUROLOGIC, 7281, AND PULMONARY, 5320)
4844. ABNORMAL BLOOD PRESSURE, NOS
4848. ABNORMAL CARDIAC CATHERIZATION, NOS
4852. ABNORMAL CARDIAC CONFIGURATION ON X-RAY, NOS
4856. ABNORMAL ECHOCARDIOGRAM, NOS
4860. ABNORMAL ELECTROCARDIOGRAM, NOS

ABNORMAL HEART EXAMINATION

4868. ABNORMAL 1ST OR 2ND HEART SOUND
4872. ABNORMAL 3RD OR 4TH HEART SOUND
4876. SYSTOLIC MURMUR, NOS
4880. DIASTOLIC MURMUR, NOS
4884. EXTRA SOUNDS (EXCEPT S1 ---> S4)
4888. ABNORMAL CARDIAC PALPATION AND/OR PERCUSSION
4896. ABNORMAL HEART EXAMINATION, NOS

4900. ABNORMAL JUGULAR VENOUS PULSE, NOS
4904. ABNORMAL VECTORCARDIOGRAM, NOS
4908. ABNORMAL VENOUS SOUND, NOS
4912. CARDIAC RISK FACTORS, NOS (SEE ALSO 8540)
4916. CHEST PAIN, NOS
4920. CYANOSIS, NOS
4924. DYSPNEA, NOS
4928. HEPATOJUGULAR REFLUX, NOS
4932. ORTHOPNEA, NOS
4936. PALPITATIONS, NOS
4940. PAROXYSMAL NOCTURNAL DYSPNEA, NOS
4944. PERIPHERAL EDEMA, NOS
STASIS DERMATITIS, NOS (SEE 6565)
STASIS AND/OR ISCHEMIC SKIN ULCER(SEE 6535)
4948. SYNCOPE, NOS
4952. S/S OF CARDIOVASCULAR DISEASE, NOS

9. RESPIRATORY TRACT

I. DISEASES OF UPPER RESPIRATORY PASSAGES

NOSE

ALLERGIC, SEASONAL RHINITIS, HAYFEVER(see 2505)
5008. COLD OR UPPER RESPIRATORY INFECTION, NOS
5012. CORYZA OR NASAL DISCHARGE, NOS
5016. DISEASE OF NOSE, NOS
HYPOSMIA, NOS (SEE 7335)
ANOSMIA, NOS (SEE 7305)
5028. NASAL POLYPS
5032. NOSEBLEED, NOS
5036. S/P NASAL SURGERY
5040. VASOMOTOR RHINITIS

PHARYNX

DISEASE OF PHARYNX, NOS (SEE 5521)
5048. PERITONSILLAR ABCESS
5052. PHARYNGITIS, BACTERIAL
5056. PHARYNGITIS, VIRAL
5060. PHARYNGITIS, NOS
5064. S/P OTHER PHARYNGEAL SURGERY (OTHER THAN T&A)
5068. S/P TONSILLECTOMY AND ADENOIDECTOMY
5072. TONSILLITIS, NOS
5076. CONG. LESIONS OF LIPS, ORAL CAVITY, PALATE

SINUSES

5084. ACUTE SINUSITIS
5088. CHRONIC SINUSITIS
5092. SINUSITIS, NOS

II. DISEASES OF LARYNGO-TRACHEO-BRONCHIAL TREE

LARYNX

5104. ACUTE LARYNGITIS
5108. CHRONIC LARYNGITIS
5112. DISEASE OF LARYNX, NOS
5116. LARYNGITIS, NOS
5120. S/P LARYNGEAL SURGERY
5124. VOCAL CORD PARALYSIS, NOS

TRACHEA

5132. ACUTE TRACHEITIS
5136. DISEASE OF TRACHEA, NOS
5140. S/P TRACHEAL SURGERY
5144. TRACHEO-ESOPHAGEAL FISTULA

BRONCHUS

5152. ACUTE BRONCHITIS
5156. CHRONIC BRONCHITIS
5160. BRONCHITIS, NOS
5164. BRONCHIAL ASTHMA OR ASTHMA
5168. DISEASE OF BRONCHUS, NOS
5172. S/P BRONCHIAL SURGERY

III. DISEASE OF THE PLEURA

5180. EMPYEMA
5184. PLEURAL EFFUSION, 2NDARY CHF
5188. PLEURAL EFFUSION, 2NDARY COLLAGEN DISEASE
5192. PLEURAL EFFUSION, 2NDARY INFECTIOUS CAUSE
5196. PLEURAL EFFUSION, 2NDARY MALIGNANCY
5200. PLEURAL EFFUSION, 2NDARY TRAUMA
5204. PLEURAL EFFUSION, NOS
5208. PLEURISY, NOS
PLEURODYNIA, VIRAL (SEE 1020)
5212. S/P PLEURAL SURGERY
5216. DISEASE OF PLEURA, NOS

IV. DISEASE OF LUNGS

5224. CHRONIC EMPHYSEMA
5228. CHRONIC OBSTRUCTIVE PULMONARY DISEASE, NOS
COR PULMONALE, NOS (SEE 4684)
5236. HAMMAN-RICH SYNDROME
5240. INTERSTITIAL LUNG DIS, PULM FIBROSIS, NOS.
5242. LUNG ABCESS, NOS.
5244. LUNG INJURY (TRAUMATIC, THERMAL, OTHER), NOS
5248. PNEUMOCONIOSIS, NOS
5252. PNEUMONIA, BACTERIAL
5256. PNEUMONIA, VIRAL
5260. PNEUMONIA, NOS
5264. PNEUMOTHORAX (ALL TYPES)
PULMONARY COCCIDIOMYCOSIS (SEE 1030)
5268. PULMONARY EDEMA, NOS
5270. PULMONARY EMBOLI, ALL (SEE ALSO ACVD, 4580)
5272. PULMONARY FUNGAL DISEASE, NOS
PULMONARY HISTOPLASMOSIS (SEE 1090)
5276. PULMONARY HYPERTENSION, IDIOPATHIC OR NOS
PULMONARY SARCOIDOSIS (SEE 2585)

5280. PULMONARY SILICOSIS
PULMONARY TUBERCULOSIS, ACTIVE (SEE 1190)
PULMONARY TUBERCULOSIS, INACTIVE (SEE 1195)
TUBERCULOSIS, NOS (SEE 1185)
5284. S/P LUNG SURGERY, NOS
5288. PULMONARY DISEASE, NOS

V. PULMONARY SYMPTOMS, SIGNS, OR STUDIES

5304. ABNORMAL BRONCHOSCOPY, NOS
5308. ABNORMAL CHEST X-RAY, NOS
5312. ABNORMAL CHEST EXAM, NOS
5316. ABNORMAL LUNG SCAN, NOS
5320. ABNORMAL PULM ANGIOGRAM, NOS (SEE ALSO 4840)
5324. ABNORMAL PULMONARY FUNCTION TESTS, NOS
5328. ABNORMAL SPUTUM CULTURE, NOS
5332. ABNORMAL SPUTUM CYTOLOGY, NOS
5336. ALVEOLAR INFILTRATE ON CHEST X-RAY, NOS
5340. CHEST WALL PAIN, NOS
5344. COSTOCHONDRITIS
5348. COUGH, NOS
DYSPNEA OR SHORTNESS OF BREATH, NOS (SEE 4924)
5352. HEMOPTYSIS, NOS
5356. HILAR ADENOPATHY ON CHEST X-RAY, NOS
5360. HOARSENESS, NOS
HYPERVENTILATION, PSYCHOGENIC (SEE 3080)
5368. HYPERVENTILATION, 2NDARY TO ORGANIC DISEASE
5372. INTERSTITIAL LUNG DISEASE OR PULMONARY FIBROSIS ON CHEST X-RAY, NOS
ORTHOPNEA, NOS (SEE 4932)
5376. PAIN ON RESPIRATION, NOS
PAROXYSMAL NOCTURNAL DYSPNEA, NOS (SEE 4940)
5380. PLEURAL EFFUSION ON CHEST X-RAY, ASSOCIATED W/ LUNG PATHOLOGY, NOS
5384. PLEURAL EFFUSION ON CHEST X-RAY, UNASSOCIATED W/ LUNG PATHOLOGY, NOS
5388. PLEURITIC CHEST PAIN, NOS
5392. PULMONARY MASS ON CHEST X-RAY, NOS
5396. RALES, NOS
5400. RONCHI, NOS
5404. WHEEZING, NOS
5408. OTHER S/S OF PULMONARY DISEASE, NOS

METASTATIC TUMORS

5420. TUMORS METASTATIC TO RESPIRATORY SYSTEM, NOS

10. DISEASES OF THE GASTROINTESTINAL TRACT

ORAL CAVITY

5503. GINGIVITIS
5506. PYORRHEA
5509. DISEASE OF GUMS, NOS
5512. DENTAL CARIES
5515. DISEASE OF TEETH, NOS
PHARYNGITIS, BACTERIAL (SEE 5052)
PHARYNGITIS, VIRAL (SEE 5056)
PHARYNGITIS, NOS (SEE 5060)
5521. DISEASE OF PHARYNX, NOS
5524. DISEASE OF ORAL CAVITY, NOS

ESOPHAGUS

5530. ESOPHAGITIS, W/ BLEEDING
5533. ESOPHAGITIS, W/O BLEEDING
5536. ESOPHAGEAL STRICTURE, BENIGN
5539. ESOPHAGEAL VARICES, W/ BLEEDING
5542. ESOPHAGEAL VARICES, W/O BLEEDING
5545. OROPHARYNGEAL DYSPHAGIA
5548. DIFFUSE ESOPHAGEAL SPASM
5551. ACHALASIA
ESOPHAGEAL SCLERODERMA (SEE 2595)
5554. GASTRO-ESOPHAGEAL REFLUX, NOS
5557. S/P ESOPHAGEAL SURGERY
5559. HIATUS HERNIA, W/ REFLUX
5561. HIATUS HERNIA, W/O REFLUX
5562. HIATUS HERNIA, NOS
5563. ESOPHAGEAL DISEASE, NOS

STOMACH

5566. GASTRITIS, DRUG- OR ETOH-INDUCED, W/ BLEEDING
5569. GASTRITIS, DRUG- OR ETOH-INDUCED, W/O BLEEDING
5572. GASTRIC ULCER, BENIGN, W/ BLEEDING
5575. GASTRIC ULCER, BENIGN, W/O BLEEDING
5578. GASTRIC VARICES, W/ BLEEDING
5581. GASTRIC VARICES, W/O BLEEDING
5584. S/P STOMACH SURGERY
5587. MALDIGESTION, DUE TO GASTRIC CAUSE, NOS
5590. STOMACH DISEASE, NOS

10. DISEASES OF THE GASTROINTESTINAL TRACT (CONT.)

SMALL BOWEL

5593. DUODENITIS, W/ BLEEDING
5596. DUODENITIS, W/O BLEEDING
5599. DUODENAL ULCER, W/ BLEEDING
5602. DUODENAL ULCER, W/O BLEEDING
5605. CROHN'S DISEASE, W/ BLEEDING
5608. CROHN'S DISEASE, W/O BLEEDING
5611. CELIAC SPRUE
5614. TROPICAL SPRUE
SMALL BOWEL ISCHEMIC DISEASE (SEE 4600)
5617. S/P SMALL BOWEL SURGERY
5620. MALABSORPTION DUE TO SMALL BOWEL CAUSE, NOS
5623. SMALL BOWEL DISEASE, NOS
5624. SMALL BOWEL OBSTRUCTION, NOS

COLON

5626. IDIOPATHIC ULCERATIVE COLITIS, W/ BLEEDING
5629. IDIOPATHIC ULCERATIVE COLITIS, W/O BLEEDING
5632. CROHN'S DISEASE, W/ BLEEDING
5635. CROHN'S DISEASE, W/O BLEEDING
5638. APPENDICITIS
5641. IRRITABLE COLON SYNDROME OR SPASTIC COLON
COLONIC ISCHEMIC DISEASE (SEE 4600)
5644. DIVERTICULOSIS, W/ BLEEDING
5647. DIVERTICULOSIS, W/O BLEEDING
5650. DIVERTICULITIS
5653. S/P COLONIC SURGERY
5656. COLON DISEASE, NOS

LIVER

HEPATITIS, VIRAL (SEE 1100-1110)
5662. HEPATITIS, DRUG- OR ETOH-INDUCED
5665. CIRRHOSIS, DUE TO SPECIFIC CAUSE
5668. CIRRHOSIS, OF UNKNOWN CAUSE
5671. LIVER DISEASE, NOS

BILIARY TREE

5674. CHOLELITHIASIS
5677. CHOLEDOCHOLITHIASIS
5680. S/P BILIARY TRACT SURGERY
5683. BILIARY TRACT DISEASE, NOS

10. DISEASES OF THE GASTROINTESTINAL TRACT (CONT.)

PANCREATIC DISEASE

5686. ACUTE PANCREATITIS
5689. ACUTE RELAPSING PANCREATITIS
5692. CHRONIC PANCREATITIS
5695. CHRONIC RELAPSING PANCREATITIS
5698. PANCREATIC PSEUDOCYST
5701. PANCREATIC ABCESS
5704. S/P PANCREATIC SURGERY
5707. PANCREATIC DISEASE, NOS

DISEASE OF THE ANUS

5713. HEMORRHOIDS (INTERNAL AND/OR EXTERNAL) W/ BLEEDING
5716. HEMORRHOIDS (INTERNAL AND/OR EXTERNAL) W/O BLEEDING
5719. HEMORRHOIDS, SURGICALLY CORRECTED
5722. ANAL FISSURE
5725. ANAL FISTULA
5728. PERIANAL ABCESS

HERNIAS

5731. ABDOMINAL HERNIA, W/ INCARCERATION
5734. ABDOMINAL HERNIA, W/O INCARCERATION
HIATUS HERNIA (SEE 5559-5561)
5737. INGUINAL HERNIA, W/ INCARCERATION
5740. INGUINAL HERNIA, W/O INCARCERATION
5743. S/P ABDOMINAL HERNIA REPAIR
5746. S/P INGUINAL HERNIA REPAIR

10. DISEASES OF THE GASTROINTESTINAL TRACT (CONT.)

SIGNS AND SYMPTOMS OF GI SYSTEM

ABDOMINAL MASS

5752. ABDOMINAL MASS, RUQ
5755. ABDOMINAL MASS, LUQ
5758. ABDOMINAL MASS, RLQ
5761. ABDOMINAL MASS, LLQ
5767. ABDOMINAL MASS, NOS

ABDOMINAL PAIN

5770. ABDOMINAL PAIN, RUQ
5773. ABDOMINAL PAIN, LUQ
5776. ABDOMINAL PAIN, RLQ
5779. ABDOMINAL PAIN, LLQ
5782. EPIGASTRIC PAIN, NOS
5785. ABDOMINAL PAIN, NOS

ABNORMAL TEST

5791. ABNORMAL ABDOMINAL ULTRASOUND STUDY, NOS
5794. ABNORMAL BARIUM ENEMA, NOS
5797. ABNORMAL CINE ESOPHAGRAM, NOS
5800. ABNORMAL COLONOSCOPY, NOS
5803. ABNORMAL DUODENAL ASPIRATE, NOS
5806. ABNORMAL ESOPHAGEAL MOTILITY STUDY, NOS
5809. ABNORMAL ESOPHAGRAM, NOS
5812. ABNORMAL GI CYTOLOGY, NOS
5815. ABNORMAL IV CHOLANGIOGRAM, NOS
5818. ABNORMAL LIVER BIOPSY, NOS
5821. ABNORMAL LIVER FUNCTION TEST(S), NOS
5824. ABNORMAL LIVER-SPLEEN SCAN, NOS
5827. ABNORMAL ORAL CHOLECYSTOGRAM, NOS
5830. ABNORMAL PERCUTANEOUS CHOLANGIOGRAM, NOS
5833. ABNORMAL PLAIN ABDOMINAL X-RAY, NOS
5836. ABNORMAL PNEUMOCOLON, NOS
5837. ABNORMAL RECTAL EXAM
5839. ABNORMAL RETROGRADE CHOLANGIOGRAM, NOS
5842. ABNORMAL SIGMOIDOSCOPY/ANOSCOPY, NOS
5845. ABNORMAL SMALL BOWEL BIOPSY, NOS
5848. ABNORMAL SMALL BOWEL SERIES, NOS
5851. ABNORMAL STOOL EXAMINATION, NOS
5854. ABNORMAL UGI SERIES, NOS
5857. ABNORMAL UPPER TRACT ENDOSCOPY, NOS
5860. ABNORMAL TEST OF GASTROINTESTINAL FUNCT, NOS

10. DISEASES OF THE GASTROINTESTINAL TRACT (CONT.)

OTHER SIGNS AND SYMPTOMS

5870. ASCITES (ALL CAUSES)
5872. CONSTIPATION AND/OR OBSTIPATION
5875. DIARRHEA, NOS
5878. DYSPHAGIA, NOS
5881. FECAL INCONTINENCE (ALL CAUSES)
5884. FLATULENCE, BLOATING, OR GAS, NOS
5887. HEARTBURN AND/OR DYSPEPSIA, NOS
5890. HEMATEMESIS, NOS
5893. HEMATOCHEZIA OR BLOOD PER RECTUM, NOS
5895. GUIAC POSITIVE STOOL; HEMOCCULT POS. STOOL
5896. JAUNDICE, NOS
5899. MALDIGESTION OR MALABSORPTION, NOS
5902. MELENA, NOS
5905. UPPER GI TRACT BLEEDING, NOS
5908. S/S OF GASTROINTESTINAL DISEASE, NOS

SURGERY

5980. S/P MULTIPLE ABDOMINAL SURGERY

METASTATIC TUMORS

5990. TUMORS METASTATIC TO GI SYSTEM, NOS
(MAY ALSO CODE PRIMARY)

11. DISEASES OF THE GENITOURINARY SYSTEM

URINARY SYSTEM

6005. ACUTE NEPHRITIS
6010. ACUTE URINARY TRACT INFECTION
6015. CALCULUS, BLADDER
6020. CALCULUS, RENAL AND URETERAL
6025. CHRONIC NEPHRITIS (ALL)
6030. CHRONIC URINARY TRACT INFECTION
6035. CONGENITAL RENAL AND URETERAL ABNORMALITY
6040. IMPAIRED RENAL FUNCTION, NOS
6045. OBSTRUCTIVE NEPHROPATHY (ALL)
6050. PROTEINURIA, BENIGN OR ORTHOSTATIC
6055. RECURRENT URINARY TRACT INFECTION
6060. RENAL FAILURE, ACUTE
6065. RENAL FAILURE, CHRONIC

SIGNS AND SYMPTOMS OF URINARY SYSTEM

6075. ABNORMAL CYTOSCOPY
6077. ABNORMAL PROSTATE EXAM, NOS
6080. ABNORMAL PYELOGRAM
6085. ABNORMAL RENAL FUNCTION TEST
6090. ABNORMAL SERUM CREATININE AND/OR BUN
6095. ABNORMAL URINALYSIS
6100. ABNORMAL UROLOGIC TEST AND/OR PROCEDURE (EXCEPT RENAL FUNCTION)
6105. ABNORMAL VOIDING CYSTOURETHROGRAM
6110. ACUTE URINARY RETENTION
6115. ANURIA, NOS
6120. DYSURIA, NOS
6125. FREQUENCY, NOS
6130. HEMATURIA, GROSS, NOS
6135. HEMATURIA, MICROSCOPIC, NOS
6140. INCONTINENCE OF URINE, NOS
6145. NOCTURIA, NOS
6150. OBSTRUCTIVE SYMPTOMS (DECREASED STREAM, HESITANCY, DRIBBLING)
6152. PROSTATIC NODULE, NOS
6155. PROTEINURIA, NOS
6160. PYURIA, NOS
6165. PYURIA, STERILE
6170. RENAL COLIC, NOS
6175. S/P BLADDER SURGERY
6180. S/P GU SURGERY, NOS
6185. S/P PROSTATE SURGERY
6190. S/P RENAL SURGERY
6195. OTHER S/S OF URINARY TRACT, NOS

MALE GENITAL SYSTEM

6205. ABNORMALITY OF MALE GENITAL SYSTEM, NOS
6210. BALANITIS
6215. BENIGN PROSTATIC HYPERTROPHY
6220. HYDROCOELE, VARICOCOELE, SPERMATOCOELE
6225. ORCHITIS AND EPIDIDYMITIS
6230. PHIMOSIS AND PARAPHIMOSIS
6233. PEYRONIE'S DISEASE
6235. PRIAPISM
6240. PROSTATITIS
6250. STERILITY OR REDUCED FERTILITY
6255. TESTICULAR ATROPHY (ALL)
TUBERCULOSIS (SEE 1200)
6260. UNDESCENDED TESTICLE
6265. URETHRAL STRICTURE (ALL)
URETHRITIS, GONOCOCCAL (SEE 1075)
6270. URETHRITIS, NON-GONOCOCCAL
6275. VENEREAL DISEASE (EXC GC & SYPH; SEE 1210)

FEMALE GENITAL SYSTEM

6285. ABNORMALITY OF FEMALE GENITAL SYSTEM, NOS
6290. CERVICITIS, CERVICAL EROSION
6295. ENDOMETRIOSIS
PELVIC INFLAMMATORY DISEASE (SEE 1060)
6300. S/P GYNECOLOGIC SURGERY
6305. UTEROVAGINAL PROLAPSE;
INC. CYSTOCOELE, RECTOCOELE
6310. VAGINITIS (ALL)

SIGNS OR SYMPTOMS OF FEMALE GENITAL SYSTEM

6320. ABNORMAL PAP SMEAR
6325. ABNORMAL UTERINE BLEEDING
6330. AMENORRHEA
6335. DYSMENORRHEA
6340. DYSPAREUNIA
6345. HYPERMENORRHEA
6350. HYPOMENORRHEA
6355. INTERMENSTRUAL PAIN (MITTELSCHMERZ)
6360. IRREGULAR MENSTRUATION, NOS
6365. MENOMETRORRHAGIA
6370. MENOPAUSAL SYMPTOMS

DISEASES OF THE BREAST

6380. ABNORMALITY OF BREAST, NOS
6385. BREAST INFECTION, NOS
6390. FIBROCYSTIC DISEASE
6395. GYNECOMASTIA

6400. MASTODYNIA
6405. NIPPLE DISCHARGE AND/OR DISEASE (EXCEPT TUMORS)
6410. S/P BREAST SURGERY, ALL

6420. TUMORS METASTATIC TO GENITOURINARY SYSTEM, NOS

12. DISEASES OF THE SKIN

6505. ABRASION
6510. ABCESS, NOS
6515. ACNE
6517. ACTINIC KERATOSIS, NOS
6520. BOIL OR CARBUNCLE
6525. CELLULITIS, NOS (EXCEPT 1035)
6530. CHEMICAL, HEAT, OR SUN BURN
6535. CHRONIC SKIN ULCER (ALL)
6540. CONTUSION
6545. CORNS AND CALLOSITIES
6550. DERMATITIS, ATOPIC
6555. DERMATITIS, BULLOUS, NOS
6560. DERMATITIS, CONTACT
6565. DERMATITIS, STASIS (MAY ALSO NEED 4796 CODED)
6567. DERMATITIS, NOS
6570. DERMATOPHYTOSIS (INCLUDING TINEA, RINGWORM)
6575. DISEASES OF HAIR, NAILS, SWEAT GLANDS, NOS
6580. DRUG ERRUPTION, NOS (CODE 2530 IF NOT SKIN)
6585. FOLLICULITIS
6590. HAND ECZEMA
6595. IMPETIGO
6600. LACERATION
6605. LYMPHADENITIS, NOS (SEE ALSO 4110)
6610. MONILIAL SKIN INFECTION
6615. OTHER ACNEIFORM DERMATITIS, NOS
6620. OTHER CYSTS, KERATOSIS, NOS
6625. OTHER ECZEMATOUS DERMATITIS, NOS
6630. OTHER INFC/INFEST. OF SKIN/SUBCUT. TISSUE, NOS
6635. OTHER PAPULOSQUAMOUS DERMATITIS, NOS
6640. PEDICULOSIS
6645. PITYRIASIS
6650. PSORIASIS
6655. SCABIES
6660. SEBORRHEA OR SEBORRHEIC DERMATITIS
6665. SKIN LESIONS, NOS
6670. UTICARIA, NOS
6675. WARTS
6690. TUMORS METASTATIC TO SKIN, NOS
6695. S/P SKIN SURGERY, ALL.

SIGNS AND SYMPTOMS

6705. ERRUPTION, NOS
6710. HYPERHIDROSIS
6715. PAINFUL SKIN, NOS
6720. PRURITUS
6725. RASH, NOS (EXCEPT 1305)
6730. SIGN OR SYMPTOM OF SKIN DISEASE, NOS

6735. XEROSIS

13. DISEASES OF THE NERVOUS SYSTEM

HEADACHE, VERTIGO AND DIZZINESS

7003. CRANIAL ARTERITIS
7006. DIZZINESS DUE TO SPECIFIED CAUSE
7009. DIZZINESS, NOS
7012. HEADACHE, NOS
7015. MENIERE'S DISEASE
7018. MIGRAINE SYNDROMES
7021. TENSION HEADACHES
7024. VASCULAR HEADACHE (EXCEPT MIGRAINE)
7027. VERTIGO, NOS

NEURITIS, NEURALGIA, AND NEUROPATHY

7033. CRANIAL NEUROPATHIES (ALL, EXCEPT 7650 AND 7665)
7036. NEURALGIA (ALL)
7039. NEURITIS (ALL, EXCEPT 7650 AND 7665)
7042. PERIPHERAL NEUROPATHIES (ALL)

SPINAL CORD DISEASE

7045. ARACHNOIDITIS OF CORD (ALL)
7048. GUILLAIN-BARRE SYNDROME
HERNIATED INTERVERTEBRAL DISC (SEE 8040-8055)
7051. INFECTIONS OF CORD (ALL)
7054. INFLAMMATION OF CORD (ALL)
POLIOMYELITIS (SEE 1155)
7057. SPINAL CORD DISEASE, NOS
7060. VASCULAR DISEASE OF CORD
7063. VERTEBRAL DISEASE W/ SPINAL CORD INVOLVEMENT (EXCEPT DISC; SEE ALSO 8060-8075)

MENINGEAL DISEASE

7072. MENINGEAL DISEASE, NOS
7075. MENINGEAL HEMORRHAGE
MENINGITIS, BACTERIAL (SEE 1125)
MENINGITIS, TUBERCULAR (SEE 1135)
MENINGITIS, VIRAL OR ASEPTIC (SEE 1130)
MENINGITIS, NOS (SEE 1140)

13. DISEASES OF THE NERVOUS SYSTEM (CONT.)

ENCEPHALITIS

7084. ENCEPHALITIS DUE TO TOXINS (SEE ALSO 7207)
7087. ENCEPHALITIS DUE TO VIRUS
7090. ENCEPHALITIS, NOS

SYPHILIS

7096. GENERAL PARESIS (SEE ALSO 1180)
7099. NEUROVASCULAR SYPHILIS (SEE ALSO 1180)

VASCULAR DISEASE OF BRAIN

7102. AMAUROSIS FUGAX
7105. CEREBRAL INFARCTION
7108. CEREBRAL ISCHEMIA
7111. EXTRACRANIAL VASCULAR DISEASE (SEE 4596)
7114. ORGANIC BRAIN SYNDROME
7117. TRANSIENT ISCHEMIC ATTACKS
7120. VASCULAR DISEASE OF BRAIN, NOS
7123. VERTEBRAL-BASILAR ISCHEMIA

BRAIN TUMORS

7129. TUMORS METASTATIC TO BRAIN
(MAY ALSO CODE PRIMARY)
PRIMARY TUMORS OF BRAIN (SEE 1855 OR 2355)

BRAIN ABSCESS

7138. BRAIN ABSCESS, ALL

NEUROLOGIC TRAUMA

7144. CRANIAL AND/OR BRAIN TRAUMA
7147. SPINAL CORD TRAUMA
7150. NEUROLOGIC TRAUMA, NOS

EPILEPSY AND CONVULSIVE STATES

7156. FOCAL SEIZURES
7159. GRAND MAL
7162. NARCOLEPSY
7165. PETIT MAL
7168. PSYCHOMOTOR SEIZURES
7171. SEIZURE DISORDER, NOS

13. DISEASES OF THE NERVOUS SYSTEM (CONT.)

EXTRAPYRAMIDAL DISEASES

7177. ATHETOSIS, NOS
7180. CHOREA, NOS (EXCEPT 1160)
7183. PARKINSON'S DISEASE
7186. WILSON'S DISEASE
7189. EXTRAPYRAMIDAL DISEASE, NOS

DEMYELINATING DISEASE

7195. MULTIPLE SCLEROSIS

INTOXICATION AND DEFICIENCY SYNDROMES

7201. ENCEPHALOPATHY, NOS
7204. HEPATIC ENCEPHALOPATHY
7207. TOXIC ENCEPHALOPATHY (SEE ALSO 7084)
7210. UREMIC ENCEPHALOPATHY

NUCLEAR AMYOTROPHIES AND MUSCLE DISORDERS

7216. MYASTHENIA GRAVIS
7219. MYOPATHIES
7222. MYOTONIAS
7225. NUCLEAR AMYOTROPHIES (INCLUDES ALS)

DEGENERATIVE DISEASES

7231. SPINOCEREBELLAR SYNDROMES
7234. ALL OTHER DEGENERATIVE DISEASES OF CNS, NOS

CONGENITAL AND DEVELOPMENTAL DISORDERS

7240. BRAIN DISORDERS (SEE ALPERS)
7243. SPINAL CORD DISORDERS (SEE ALPERS)
7246. SKULL, VERT, OR SKELETAL DISORDERS

ACQUIRED DISEASE OF SKULL AND VERTEBRAE

7252. ALL ACQUIRED DISEASE OF SKULL OR VERT, NOS (EXCEPT 7144 OR 8205)

13. DISEASES OF THE NERVOUS SYSTEM (CONT.)

METASTATIC TUMORS

7256. TUMORS METASTATIC TO NERVOUS SYSTEM, NOS
(EXC BRAIN: SEE 7129. MAY ALSO CODE PRIMARY)

SIGNS AND SYMPTOMS OF NEUROLOGIC DISEASE

7261. ABNORMAL BRAIN SCAN, NOS
7264. ABNORMAL CSF EXAM, NOS
7267. ABNORMAL EEG, NOS
7270. ABNORMAL EMG, NOS
7273. ABNORMAL GAIT, NOS
7275. ABNORMAL MYELOGRAM, NOS
7278. ABNORMAL NERVE CONDUCTION STUDY, NOS
7281. ABNORMAL NEUROLOGIC ARTERIOGRAPHY, NOS
7284. ABNORMAL PNEUMOENCEPHALOGRAM, NOS
7287. ABNORMAL SENSORY EXAM, NOS
7290. ABNORMAL SKULL X-RAYS, NOS
7293. ABNORMAL SPINE X-RAYS, NOS
7296. ABNORMAL TENDON REFLEXES, NOS
7299. ABNORMAL VIBRATION SENSE, NOS
7302. AGNOSIA, NOS
7305. ANOSMIA, NOS
7308. APHASIA, NOS
7311. APHONIA, NOS
7314. APRAXIA, NOS
7315. ATAXIA, NOS
7317. COMA, NOS
7320. CNS PAIN, NOS
7323. CRANIAL NERVE ABNORM,NOS(INC. BELL'S PALSY)
(EXCEPT 7650, 7665, 7800)
7326. DIPLOPIA, NOS
7329. DYSARTHRIA, NOS
7332. FOOT DROP, NOS
7335. HYPOSMIA, NOS
7338. MUSCLE ATROPHY, NOS
7341. MUSCLE FASCICULATIONS, NOS
7344. MUSCLE HYPERTROPHY, NOS
7347. MUSCLE TENDERNESS, NOS (SEE ALSO 8380)
7350. MUSCLE TONE, ABNORMAL, NOS
7353. MUSCLE WEAKNESS, NOS
7356. MYOCLONUS, NOS
7359. NYSTAGMUS, NOS
OPTIC ATROPHY, NOS (SEE 7645)
7365. PUPILLARY ABNORMALITY, NOS
7368. PAPILLEDEMA, NOS
7371. PARAPLEGIA, NOS
7372. PARESTHESIA, NOS
7374. PATHOLOGIC REFLEX, NOS

7377. POSITIVE ROMBERG'S SIGN, NOS
7380. QUADRIPLEGIA, NOS
7383. SCIATICA, NOS
7386. TIC, NOS
7389. TREMOR, NOS
7392. VISUAL FIELD DEFECT, NOS (SEE ALSO 7705)
7395. S/S OF NEUROLOGIC DISEASE, NOS

NEUROLOGICAL SURGERY

7405. S/P CRANIAL SURGERY, ALL
7410. S/P SPINAL CORD SURGERY, ALL
7415. S/P PERIPHERAL NERVE SURGERY, ALL

14. DISEASES OF THE EYES AND EARS

CGP CODE	NAME
	DISEASES OF THE EYES
7505.	ALLERGY OF LIDS (SEE ALSO SECTION 4)
7510.	BLEPHARITIS
7515.	BLINDNESS, NOS
7520.	CATARACT
7525.	CENTRAL RETINAL ARTERY OCCLUSION
7530.	CENTRAL RETINAL VEIN OCCLUSION
7535.	CHALAZION
7540.	CHEMICAL TRAUMA
7550.	CONJUNTIVITIS (ALL)
7555.	CORNEAL ABRASION
7560.	CORNEAL SCARRING
7565.	CORNEAL ULCER
7570.	DIABETIC RETINOPATHY
7575.	ENUCLEATION, NOS
7580.	EPISCLERITIS
7585.	EYE DISEASE, NOS
7590.	EYE SURGERY (ALL, EXCEPT ENUCLEATION)
7595.	EYE TRAUMA (NONCHEMICAL)
7600.	FOREIGN BODY IN EYE
7605.	GLAUCOMA, ACUTE
7610.	GLAUCOMA, CHRONIC
7615.	HORDEOLUM (STYE)
7620.	INTRAOCULAR HEMORRHAGE
7625.	IRITIS (IRIDOCYCLITIS)
7630.	KERATITIS (ALL)
7635.	LACRIMAL APPARATUS DISEASE (ALL)
7640.	MEIBOMIANITIS
7645.	OPTIC ATROPHY, NOS
7650.	OPTIC NEURITIS (SEE ALSO 7323)
7655.	REFRACTIVE ERRORS (ALL)
7660.	RETINAL DETACHMENT
7665.	RETROBULBAR NEURITIS (SEE ALSO 7033, 7039, AND 7323)
7670.	SENILE MACULAR DEGENERATION
7675.	STRABISMUS
7680.	SUBCONJUNCTIVAL HEMORRHAGE
	SIGNS AND SYMPTOMS OF EYE DISEASE
7705.	ABNORMAL EYE EXAM, NOS (EXC 7710 AND 7392)
7707.	ASYMMETRIC OPTICAL CUPPING
7710.	ABNORMAL TONOMETRY
7715.	ACUTE VISUAL LOSS, NOS

7720. DECREASED VISUAL ACUITY, NOS
DIPLOPIA (SEE 7326)
7730. EYE PAIN, NOS
7735. PHOTOPHOBIA, NOS
7740. SIGN OR SYMPTOM OF EYE DISEASE, NOS

14. DISEASES OF THE EYES AND EARS (CONT.)

DISEASES OF EARS

7755.	ACUTE OTITIS MEDIA
7760.	CERUMEN IMPACTION
7765.	CHOLESTEATOMA
7770.	CHRONIC OTITIS MEDIA
7775.	DEAFNESS, NOS
7780.	DISEASE OF EAR, NOS
7785.	EXTERNAL OTITIS
7787.	LABYRINTHITIS
7790.	MASTOIDITIS
	MENIERE'S DISEASE (SEE 7015)
7800.	NEUROSENSORY HEARING LOSS (SEE ALSO 7323)
7805.	OTOSCLEROSIS
7810.	PERFORATED TYMPANIC MEMBRANE
7815.	PRESBYCUSIS
7820.	SEROUS OTITIS MEDIA
7825.	S/P EAR SURGERY, ALL

SIGNS AND SYMPTOMS OF EAR DISEASE

7835.	ABNORMAL EAR EXAM, NOS
7840.	SIGN OR SYMPTOM OF EAR DISEASE, NOS
7845.	EAR PAIN, NOS
7850.	HEARING LOSS, NOS
7855.	TINNITUS, NOS

METASTATIC TUMORS

7875.	TUMORS METASTATIC TO EYE OR EAR, NOS (MAY ALSO CODE PRIMARY)

15. DISEASES OF THE MUSCULOSKELETAL SYSTEM

CGP CODE	NAME
	NON-TRAUMATIC
8005.	ACQUIRED DEFORMITIES OF MUSCULOSKELETAL SYSTEM (ALL)
8010.	S/P AMPUTATION (ALL)
8012.	ANKYLASING SPONDYLITIS
8015.	ARTHRITIS, NOS
8020.	S/P BACK OR NECK SURGERY (ALL)
8025.	BURSITIS, NOS
8027.	CHONDROMALACIA
8030.	CONGENITAL DEFORMITIES AND FINDINGS OF MUSCULOSKELETAL SYSTEM (ALL)
8035.	CONNECTIVE TISSUE DISORDERS, NOS
8040.	DEGENERATIVE DISC DISEASE, CERVICAL SPINE
8045.	DEGENERATIVE DISC DISEASE, THORACIC SPINE
8050.	DEGENERATIVE DISC DISEASE, LUMBOSACRAL SPINE
8055.	DEGENERATIVE DISC DISEASE, NOS
8060.	DEGENERATIVE JOINT DISEASE, CERVICAL SPINE
8065.	DEGENERATIVE JOINT DISEASE, THORACIC SPINE
8070.	DEGENERATIVE JOINT DISEASE, LUMBOSACRAL SPINE
8075.	DEGENERATIVE JOINT DISEASE, NOS GOUT (SEE 3675)
8080.	S/P MUSCULOSKELETAL SURG (EXCEPT AMPUTATION, BACK OR NECK SURGERY, OR JOINT REPLACEMENT)
8085.	OSTEOARTHRITIS (EXCEPT DJD OF BACK)
8090.	OSTEOMALACIA
8092.	OSTEOMYELITIS
8095.	OSTEOPOROSIS
8100.	PAGET'S DISEASE OF BONE
8105.	S/P PROSTHETIC JOINT REPLACEMENT
8110.	PSORIATIC ARTHRITIS
8115.	RHEUMATOID ARTHRITIS
8120.	SEPTIC ARTHRITIS
8125.	SPONDYLOLISTHESIS
8127.	TENDONITIS, ALL
8130.	THE SHOULDER SYNDROMES, NOS
8135.	TRAUMATIC ARTHRITIS
	METASTATIC TUMORS
8145.	TUMORS METASTATIC TO MUSCULOSKELETAL SYST, NOS (MAY ALSO CODE PRIMARY)

15. DISEASES OF THE MUSCULOSKELETAL SYSTEM (CONT.)

TRAUMATIC

FRACTURES, DISLOCATION FRACTURES

8155. FX. OF CARPALS, METACARP, TARSALS, METATARS
8160. FX. OF CLAVICLE
8165. FX. OF FACIAL BONES AND JAW
8170. FX. OF FEMUR
8175. FX. OF HUMERUS
8180. FX. OF PHALANGES
8185. FX. OF RADIUS AND ULNA
8190. FX. OF RIBS
FX. OF SKULL (SEE 7144.)
8200. FX. OF TIBIA AND FIBULA
8205. FX. OF VERTEBRAL COLUMN (EXCEPT 7252.)
8210. ALL OTHER FRACTURES
8215. MULTIPLE FX. AND MASSIVE TRAUMA

DISLOCATIONS, SUBLUXATIONS

8225. D/S OF KNEE, INCLUDING MENISCUS DAMAGE
8230. DISLOCATIONS/SUBLUXATIONS, NOS

SPRAINS AND STRAINS

8245. S/S OF ANKLE
8250. S/S OF FOOT
8255. S/S OF NECK
8260. S/S OF BACK EXCEPT NECK
8265. S/S OF SHOULDER, ELBOW, AND ARM
8270. S/S OF THIGH, KNEE, LEG
8275. S/S OF WRIST AND HANDS
8280. ALL OTHER SPRAINS AND STRAINS

ABRASION (SEE 6505.)
8290. ANIMAL BITE
BURNS AND SCALDS (SEE 6530.)
CONTUSION (SEE 6540.)
FOREIGN BODY IN EYE (SEE 7600.)
8300. FOREIGN BODY IN TISSUES
HEAD INJURY (SEE 7144.)
LACERATION (SEE 6600.)
8310. LATE EFFECTS OF TRAUMA,
E.G., SCARRING, DEFORMITY, DISABILITY
8315. OTHER INJURIES AND TRAUMAS, NOS

15. DISEASES OF THE MUSCULOSKELETAL SYSTEM (CONT.)

SIGNS AND SYMPTOMS

8330.	ABNORMAL JOINT X-RAY, NOS
	ABNORMAL SPINE X-RAY (SEE 7293)
8335.	ARTHRALGIA, NOS
8340.	FOOT PAIN, NOS
8345.	JOINT EFFUSION, NOS
8350.	JOINT ERYTHEMA, NOS
8355.	JOINT INSTABILITY, NOS
8360.	JOINT STIFFNESS, NOS
8365.	LOW BACK PAIN, NOS
	MUSCLE ATROPHY (SEE 7338.)
8375.	MUSCLE CRAMPS
8380.	MUSCLE PAIN (SEE ALSO 7347.)
	MUSCLE WEAKNESS (SEE 7353.)
8390.	NECK PAIN, NOS
	SCIATICA, NOS (SEE 7383.)
8395.	S/S OF MUSCULOSKELETAL SYSTEM, NOS

16. SIGNS, SYMPTOMS, AND ILL-DEFINED CONDITIONS, NOS

CGP CODE	NAME
8502.	ABNORMAL MULTISYSTEM BLOOD TEST, NOS
8503.	ABNORMAL PHYSICAL EXAM, NOS
8505.	ANOREXIA, NOS
8507.	ANTI-COAGULANT THERAPY
8510.	DIZZINESS OR GIDDINESS, NOS
8515.	EXCESSIVE SWEATING, HYPERHIDROSIS, NOS
8520.	HEALTH HAZARD, FAMILIAL DISEASE
8525.	HEALTH HAZARD, MEDICATION ABUSE
8530.	HEALTH HAZARD, OCCUPATION
8535.	HEALTH HAZARD, POOR COMPLIANCE
8540.	HEALTH HAZARD, SMOKING (SEE ALSO 4912.)
8543.	HEALTH HAZARD, NOS
8545.	HEALTH MAINTENANCE
8550.	INCOMPLETE DATA BASE
8555.	MALAISE, FATIGUE, TIREDNESS, NOS
8560.	MOTION SICKNESS
8565.	NAUSEA, AND/OR VOMITING, NOS
8570.	RESTLESS LEG SYNDROME
8572.	RADIATION EFFECTS (ALL)
8575.	WEIGHT LOSS, NOS
9000.	TEMPORARY PROBLEM; SELF-RESOLVING

APPENDIX II

DATA ENTRY FORMS

GP I ENCOUNTER FORM (FRONT)

CGP ENCOUNTER FORM

GPPI# _____ Date:_____ ( ) No-Show

Type of Visit: _____ ( ) Cancelled

Care givers seen: ☐ 02 ☐ 04 ☐ 08 ☐ 12 ☐ 15 ☐ 17 ☐ 19
☐ 03 ☐ 07 ☐ 11 ☐ 14 ☐ 16 ☐ 18 ☐ 20

Reason for Visit:

(01) ___ chronic disease management
(02) ___ collect defined data base
(03) ___ acute illness or complaint
(04) ___ follow-up on acute condition
(05) ___ periodic specific check
(06) ___ RX refill
(07) ___ administrative visit
(08) ___ psychological visit
(09) ___ Data Base Update

Disposition:

(01) Change Problem List: ___ Yes
(02) Change Medication List: ___ Yes
(03) Return appointment: _____
(04) Appointment length:_____
(05) RX: ___ Yes
(06) Lab: ___ Yes (see reverse)
(07) X-ray: ___ Yes Type:_____
(08) EKG: ___ Yes
(12) EEG: ___ Yes
(10) Admit to hospital: ___ Yes
(11) Other items: _____

A. Within CGP: (Check where appropriate) (00) ___ None

(01) ___ counselling (ongoing) _____
(02) ___ consultation _____
(03) ___ NP chronic follow-up _____
(05) ___ HT protocol follow-up _____
(06) ___ Other _____

B. Outside CGP: (00) ___ None

1. Clinics

(01) ___ Anticoagulant (02) ___ Arth./Rheum. (03) ___ Cardiology
(04) ___ Cardiothor. Surg. (39) ___ Cast (05) ___ Chest
(07) ___ Dental (08) ___ Dermatology (09) ___ Derm. Surg.
(34) ___ E & A (10) ___ ENT (11) ___ Eye (12) ___ G.I.
(13) ___ GMC (14) ___ Gen. Surg. (36) ___ GYN (15) ___ Hand
(16) ___ Hematology/Oncology (17) ___ Hypertension (18) ___ Mental Health
(19) ___ Metab./Endocrn. (22) ___ Neurology (24) ___ Neurosurgery
(25) ___ Orthopedics (35) ___ Pacemaker (27) ___ Pain
(28) ___ Plastic Surg. (29) ___ Podiatry (38) ___ Procto
(30) ___ Psychology (31) ___ Renal (37) ___ Sexual Assessment
(32) ___ Urology (33) ___ Vascular Surg. (49) ___ Other

2. Other Services

(50) ___ Audiology/Spch. Path. (51) ___ Benefits Counsellor
(52) ___ Dietetics (61) ___ Exercise EKG (53) ___ Home Care/HBHC
(59) ___ Nuclear Medicine: Test _____
(60) ___ PERC (54) ___ Physical Therapy (55) ___ Prosthetics
(56) ___ Pub. Health Nurse (58) ___ Pulmon Function
(57) ___ Social Service (99) ___ Other

REMARKS:

GP I ENCOUNTER FORM (BACK)

VA Form 10-140 (662)
Revised August 1978

Chemistry I

(X)	Requested
	Glucose
	Urea N.
	Creatinine
	Uric Acid
	Sodium
	Potassium
	Chloride
	CO_2
	Phosphate
	Calcium
	Total Protein
	Albumin
	Globulin
	Phosphatase Alkaline
	Phosphatase Acid
	SGOT
	LDH
	CPK
	Bilirubin (total)
	Bilirubin (direct)
	BSP
	Cholesterol
	Triglycerides
	Amylase
	Lipase

Remarks:

Profile (specify)

Serology

(X)	Requested
	Inf. Mono. Qual.
	Inf. Mono. Quant.
	RPR
	VDRL Qual.
	VDRL Quant.
	FTA-ABS
	TA
	RA
	Anti-Nuclear Factor (ANF)
	Cold Agg.
	ASO
	CRP
	Serum Complement
	Febrile Agg.
	Comp. Fix.
	HAI
	Serum Protein Electrophoresis
	HAA (HBA)

Remarks:

Chemistry III (Urine)

(X)	Requested
	Creatinine
	Phosphate
	Calcium
	Sodium
	Potassium
	Chloride
	17 OH Steroids
	17 Keto Steroids
	VMA
	Catechol-amines
	5 HIAA
	Phenylal-amine
	Protein (Quant.)
	Amylase
	Porpho-Bilinogen
	Uropor-phyrins
	Copropor-phyrins
	Glucose (24 hrs.)
	Stone Analysis
	Pregnancy Test

Remarks:

Hematology

(X)	Requested
	CBC
	CBC w/diff.
	RBC Count
	HGB
	HCT
	WBC Count
	Platelet, Est.
	RBC
	Sed. Rate
	Platelet Count
	Reticulo-cyte Count
	Clotting Time
	Bleeding Time
	P.T.T.
	Pro time
	Sickling Test
	LE Prep
	MCV
	MCH
	MCHC
	Digoxin level
	Quinidine level
	Aminophyllin level

Remarks:

Chemistry II

(X)	Requested
	Art. Bld. Gases
	T index
	T3
	T4
	Iron
	Iron Binding Capacity

Remarks:

Urinalysis

(X)	Requested
	Routine
	Micro-scopic
	Bile
	Uro-Bilinogen
	Bence-Jones Protein
	Hemo-siderin

Remarks:

Microbiology

(X)	Requested
	Smear
	Sensitivity
	Culture
	Colony Count
	AFB
	Antibiotic Rx
	Specimen Source
	Clinical Diagnosis:

OTHER:

- ☐ SMA 6
- ☐ SMA 12
- ☐ Electrolytes
- ☐ Liver Function Test
- ☐ Pap Smear
- ☐ O & P
- ☐ Other cytology
- ☐ Other

PATIENT MINI-DATA BASE

ENTRY FORM 1

GPPI # ___ ___ ___ ___

PT. INITIALS ___ ___ ___

ADDRESS CODE ___ ___

BIRTH DATE ___ ___ / ___ ___ / ___ ___

SEX (0=F; 1=M) ___

RACE ___ ___

SERVICE CONNECTION ___ ___

PATIENT MINI-DATA BASE ENTRY FORM II

GPPI # ___ ___ ___ ___ PT. INITIALS ___ ___ ___

ENROLLMENT STATUS:		Captured	Entered
(1) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(2) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(3) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(4) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(5) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
PRIMARY RESPONSIBILITY CARE GIVER CODE:			
(1) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(2) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(3) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(4) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(5) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(6) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(7) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(8) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(9) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(10) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
PRIMARY RESPONSIBILITY PHYSICIAN CODE:			
(1) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(2) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(3) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(4) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(5) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(6) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(7) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /
(8) ___ ___	Date ___ ___ / ___ ___ / ___ ___	/ /	/ /

PATIENT PROBLEM-LIST CODE FORM

GPPI# _ _ _ _

INITIALS _ _ _

PROBLEM #	PROBLEM NAME(S)	NOMENCLATURE CODE
_ _ . _	________	
	________	_ _ _ _ . _ _ _
_ _ . _	________	
	________	_ _ _ _ . _ _ _
_ _ . _	________	
	________	_ _ _ _ . _ _ _
_ _ . _	________	
	________	_ _ _ _ . _ _ _
_ _ . _	________	
	________	_ _ _ _ . _ _ _
_ _ . _	________	
	________	_ _ _ _ . _ _ _
_ _ . _	________	
	________	_ _ _ _ . _ _ _
_ _ . _	________	
	________	_ _ _ _ . _ _ _
_ _ . _	________	
	________	_ _ _ _ . _ _ _
_ _ . _	________	
	________	_ _ _ _ . _ _ _
_ _ . _	________	
	________	_ _ _ _ . _ _ _

GPPI# _ _ _ _ _

PATIENT MEDICATION-LIST CODE FORM INITIALS _ _ _

	MEDICATION NAME	PROBLEM #	FORMULARY CODE
1.	_____	_ _ . _	_ _ _ _ . _ _ _
2.	_____	_ _ . _	_ _ _ _ . _ _ _
3.	_____	_ _ . _	_ _ _ _ . _ _ _
4.	_____	_ _ . _	_ _ _ _ . _ _ _
5.	_____	_ _ . _	_ _ _ _ . _ _ _
6.	_____	_ _ . _	_ _ _ _ . _ _ _
7.	_____	_ _ . _	_ _ _ _ . _ _ _
8.	_____	_ _ . _	_ _ _ _ . _ _ _
9.	_____	_ _ . _	_ _ _ _ . _ _ _
10.	_____	_ _ . _	_ _ _ _ . _ _ _
11.	_____	_ _ . _	_ _ _ _ . _ _ _
12.	_____	_ _ . _	_ _ _ _ . _ _ _
13.	_____	_ _ . _	_ _ _ _ . _ _ _
14.	_____	_ _ . _	_ _ _ _ . _ _ _
15.	_____	_ _ . _	_ _ _ _ . _ _ _

CGPIS DATA CAPTURE FORM

GPPI # ___ ___ ___ ___   INITIALS ___ ___ ___   DATE ___ ___ / ___ ___ / ___ ___

NO-SHOW? ___   RETURN? ___

VISIT TYPE ___   SEEN BY: a) ___ ___ b) ___ ___ c) ___ ___ d) ___ ___

REASON FOR VISIT   PROBLEM #

REASON FOR VISIT		PROBLEM #	
___ ___	___ ___	___ ___ . ___	___ ___ . ___
___ ___	___ ___	___ ___ . ___	___ ___ . ___
___ ___	___ ___	___ ___ . ___	___ ___ . ___
___ ___	___ ___	___ ___ . ___	___ ___ . ___
___ ___	___ ___	___ ___ . ___	___ ___ . ___

DISPOSITION

CATEGORY	CODE 1	CODE 2	PROBLEM #
___ ___	___ ___ ___ ___	___ ___ ___ ___ . ___ ___ ___	___ ___ . ___
___ ___	___ ___ ___ ___	___ ___ ___ ___ . ___ ___ ___	___ ___ . ___
___ ___	___ ___ ___ ___	___ ___ ___ ___ . ___ ___ ___	___ ___ . ___
___ ___	___ ___ ___ ___	___ ___ ___ ___ . ___ ___ ___	___ ___ . ___
___ ___	___ ___ ___ ___	___ ___ ___ ___ . ___ ___ ___	___ ___ . ___
___ ___	___ ___ ___ ___	___ ___ ___ ___ . ___ ___ ___	___ ___ . ___
___ ___	___ ___ ___ ___	___ ___ ___ ___ . ___ ___ ___	___ ___ . ___
___ ___	___ ___ ___ ___	___ ___ ___ ___ . ___ ___ ___	___ ___ . ___
___ ___	___ ___ ___ ___	___ ___ ___ ___ . ___ ___ ___	___ ___ . ___
___ ___	___ ___ ___ ___	___ ___ ___ ___ . ___ ___ ___	___ ___ . ___

REFERRALS

WITHIN CGP	___ ___	PROBLEM #	___ ___ . ___
	___ ___		___ ___ . ___
OUTSIDE CGP	___ ___	PROBLEM #	___ ___ . ___
	___ ___		___ ___ . ___
	___ ___		___ ___ . ___

APPENDIX III

CHARGES FOR P1 PATIENTS

MEAN CHARGES/PTYR, BY PROBLEM, FOR PATIENT CLASS P1

			PTYRS	MEAN	CV
1.	1020	PLEURODYNIA, VIRAL	1	$ 102.80	--
2.	1100	INFECTIOUS HEPATITIS A	2	$ 170.60	74.8
3.	1110	INFECTIOUS HEPATITIS, NOS	3	$ 576.00	83.0
4.	1150	PARASITIC DISEASE, NOS	1	$ 131.21	--
5.	1170	SYPHILIS, PRIMARY	1	$ 60.19	--
6.	1175	SYPHILIS, SECONDARY	2	$ 265.46	65.5
7.	1190	TUBERC, PULMONARY, ACTIVE	2	$ 471.04	93.8
8.	1200	TUBERC, EXTRAPULM, ACTIVE	2	$ 757.67	36.9
9.	1215	VIRAL DISEASE, NOS	1	$ 277.97	--
10.	1320	POS TUBERCULIN (PPD) TEST	1	$ 466.56	--
11.	2070	MALIG NEOPLASM OF RECTUM	1	$ 344.34	--
12.	2275	MALIG NEOPLASM OF PROSTATE	1	$1119.13	--
13.	2355	MALIG NEOP OF BRAIN & CNS	2	$ 523.73	35.7
14.	2375	MALIG NEOPLASM OF THYROID	2	$ 758.81	47.7
15.	2510	ALLERGY, NOS	1	$ 71.62	--
16.	2585	SARCOIDOSIS, PULMONARY	4	$ 497.42	69.0
17.	3005	ABUSE OF ALCOHOL	9	$ 298.98	13.0
18.	3010	ABUSE OF DRUGS	1	$ 626.81	--
19.	3015	ADULT SITUATIONAL REACT NOS	2	$ 374.35	99.1
20.	3020	ANXIETY STATE, CHRONIC	6	$ 163.21	21.0
21.	3025	ANXIETY STATE, SITUATIONAL	5	$ 417.43	73.6
22.	3027	ANXIETY STATE, NOS	3	$ 623.90	80.4
23.	3035	DEPRESSION, CHRONIC	3	$ 357.83	57.9
24.	3040	DEPRESSION, SITUATIONAL	1	$ 482.31	--
25.	3105	MULTIPLE LIFE STRESSES	2	$ 624.12	16.2
26.	3140	SEXUAL DISSATISFACTION	1	$ 202.35	--
27.	3585	HYPOTHYROIDISM	4	$ 164.49	50.9
28.	3620	ENDOCRINE DISEASE, NOS	1	$ 223.73	--
29.	3630	S/P ENDOCRINE SURGERY, ALL	1	$ 126.94	--
30.	3660	CARBOHYDRATE INTOLERANCE	3	$ 163.86	74.2
31.	3665	DIABETES MELLITUS	51	$ 462.53	52.5
32.	3675	GOUT	11	$ 136.63	73.5
33.	3680	HYPERLIPOPROTEINEMIA	6	$ 480.43	49.4
34.	3695	OBESITY, EXOGENOUS	8	$ 315.56	80.7
35.	3757	ABN. GLUCOSE TOL TEST	1	$ 997.67	--
36.	3765	ABN. THYROID FUNCT TEST(S)	1	$ 411.17	--
37.	3810	THYROID NODULES, MULT	2	$ 113.93	10.0
38.	4020	ANEMIA, DUE TO B12 DEFIC	5	$ 700.69	33.4

39.	4045	ANEMIA, DUE TO IRON DEFIC	4	$ 658.83	58.5
40.	4070	EOSINOPHILIA, NOS	2	$ 459.97	13.5
41.	4215	ABN. RED BLOOD CELL TEST	1	$ 371.01	--
42.	4335	LYMPHADENOPATHY, NOS	4	$ 303.62	47.7
43.	4350	SPLENOMEGALY, NOS	1	$ 178.17	--
44.	4504	ANGINA PECTORIS	19	$ 411.29	56.7
45.	4528	ARRYTHMIAS, NOS	5	$ 531.45	54.6
46.	4532	ATRIAL ARRYTHMIA	7	$ 286.45	21.8
47.	4536	VENTRICULAR ARRYTHMIA	3	$ 354.75	62.0
48.	4540	SUPRAVENTRIC ARRYTHMIA	4	$ 342.73	42.1
49.	4580	ARTSCLRTC CARDIOVASC DIS	6	$ 679.51	95.0
50.	4592	OCCLUS DIS (EMBOLI, THROMBI)	1	$ 563.32	--
51.	4596	OCCLUS DIS OF HEAD, NECK	1	$ 157.69	--
52.	4600	OCCLUS DIS OF VISCERA	1	$ 526.02	--
53.	4640	MYOCARD INF, SUBENDOCARD	1	$1545.71	--
54.	4644	MYOCARDIAL INF, NOS	1	$ 122.10	--
55.	4656	ARTERIOSCLER HEART DIS	25	$ 417.44	10.6
56.	4664	CARDIAC DISEASE, NOS	1	$ 178.13	--
57.	4668	CARDIOMYOP, NON-OBSTRUCT	3	$ 549.28	36.3
58.	4680	CONGESTIVE HEART FAILURE	12	$ 558.59	14.7
59.	4696	HYPERTENSION, ESSENTIAL	223	$ 453.12	66.4
60.	4704	HYPERTENSION, SECONDARY	3	$ 956.72	30.4
61.	4708	HYPERTENSION, SYSTOLIC	6	$ 401.37	47.3
62.	4752	MITRAL INSUFFICIENCY	2	$ 343.05	26.0
63.	4772	VALVULAR HEART DIS, NOS	2	$ 592.53	04.2
64.	4792	THROMBOPHLEBITIS, CHRONIC	1	$1071.55	--
65.	4804	VENOUS DISEASE, NOS	2	$ 533.24	43.5
66.	4816	CLAUDICATION	1	$ 141.95	--
67.	4844	ABN. BLOOD PRESSURE, NOS	3	$ 279.87	33.2
68.	4916	CHEST PAIN, NOS	4	$ 353.76	31.4
69.	5028	NASAL POLYPS	1	$ 41.12	--
70.	5156	CHRONIC BRONCHITIS	2	$ 107.15	87.0
71.	5160	BRONCHITIS, NOS	1	$ 413.34	--
72.	5164	ASTHMA	14	$ 431.13	61.6
73.	5228	CHRONIC OBSTRUCT PULM DIS	27	$ 493.17	74.4
74.	5308	ABN. CHEST X-RAY, NOS	3	$ 519.93	86.9
75.	5332	ABN. SPUTUM CYTOLOGY, NOS	1	$ 448.19	--
76.	5548	DIFFUSE ESOPHAGEAL SPASM	2	$ 438.38	11.3
77.	5554	GASTRO-ESOPHAGEAL REFLUX	1	$ 358.80	--
78.	5559	HIATUS HERNIA, W/ REFLUX	1	$ 353.33	--
79.	5562	HIATUS HERNIA, NOS	1	$ 754.36	--
80.	5572	GASTRIC ULC, BEN, W/ BLDG	2	$ 331.96	61.4
81.	5575	GASTRIC ULC, BEN, W/O BLDG	1	$ 405.90	--
82.	5584	S/P STOMACH SURGERY	1	$ 650.60	--
83.	5599	DUODENAL ULCER, W/ BLDG	8	$ 370.24	87.6
84.	5602	DUODENAL ULCER, W/O BLDG	20	$ 237.96	69.6
85.	5608	CROHN'S DISEASE, W/O BLDG	4	$1111.23	21.2
86.	5620	MALABSORPT DUE TO SM BOWEL	2	$ 143.88	34.4
87.	5629	IDIOP ULCRTV COLITIS WOB	1	$ 864.21	--
88.	5662	HEPATITIS, DRUG OR ETOH	1	$ 229.69	--
89.	5668	CIRRHOSIS, OF UNKNOWN CAUSE	2	$1063.08	04.7

90.	5671	LIVER DISEASE, NOS	1	$ 362.27	--
91.	5674	CHOLELITHIASIS	1	$1037.06	--
92.	5695	CHRNIC RELAPSNG PANCREATITIS	1	$ 247.08	--
93.	5713	HEMORRH, W/ BLDG (INT,EXT)	1	$ 132.44	--
94.	5734	ABD HERNIA, W/O INCARC	1	$ 408.80	--
95.	5746	S/P INGUINAL HERNIA REPAIR	1	$ 463.49	--
96.	5770	ABDOMINAL PAIN, RUQ	1	$1454.77	--
97.	5773	ABDOMINAL PAIN, LUQ	1	$ 396.24	--
98.	5776	ABDOMINAL PAIN, RLQ	2	$ 643.93	03.3
99.	5782	EPIGASTRIC PAIN, NOS	6	$ 220.04	66.8
100.	5785	ABDOMINAL PAIN, NOS	7	$ 620.70	58.0
101.	5821	ABN. LIVER FUNC TEST(S)	2	$ 846.67	90.3
102.	5872	CONSTIPATION, OBSTIPATION	2	$ 340.74	22.1
103.	5875	DIARRHEA, NOS	2	$ 659.44	70.5
104.	5878	DYSPHAGIA, NOS	2	$ 396.77	89.8
105.	5884	FLATULENCE, BLOATING, GAS	1	$ 141.00	--
106.	5887	HEARTBURN AND/OR DYSPEPSIA	5	$ 421.68	97.6
107.	5895	GUIAC POS. STOOL	1	$ 999.85	--
108.	6010	ACUTE URINARY TRACT INF	1	$ 531.01	--
109.	6020	CALCULUS, RENAL, URETERAL	2	$ 715.52	53.9
110.	6055	RECURRENT URINARY TRACT INF	6	$ 752.19	76.7
111.	6065	RENAL FAILURE, CHRONIC	1	$ 509.95	--
112.	6095	ABN. URINALYSIS	1	$ 562.63	--
113.	6100	ABN. UROLOGIC TEST, PROC.	1	$ 291.70	--
114.	6130	HEMATURIA, GROSS, NOS	1	$ 295.60	--
115.	6135	HEMATURIA, MICR	2	$ 583.42	65.7
116.	6140	INCONTINENCE OF URINE, NOS	2	$ 211.66	04.0
117.	6160	PYURIA, NOS	1	$ 202.10	--
118.	6190	S/P RENAL SURGERY	2	$ 44.42	49.6
119.	6195	OTHER S/S OF URINARY TRACT	1	$ 572.18	--
120.	6215	BENIGN PROST HYPERTROPHY	3	$ 529.79	56.0
121.	6240	PROSTATITIS	3	$ 425.40	94.3
122.	6270	URETHRITIS, NON-GONOCOCCAL	1	$ 268.60	--
123.	6360	IRREGULAR MENST, NOS	1	$ 14.00	--
124.	6515	ACNE	1	$ 10.95	--
125.	6517	ACTINIC KERATOSIS, NOS	1	$ 201.02	--
126.	6567	DERMATITIS, NOS	1	$ 93.95	--
127.	6570	DERMATOPHYTOSIS	2	$ 104.46	78.9
128.	6585	FOLLICULITIS	3	$ 162.63	90.1
129.	6620	OTHER CYSTS, KERATOSIS	1	$ 564.60	--
130.	6625	OTHER ECZEMATOUS DERM	2	$ 125.60	49.7
131.	6650	PSORIASIS	2	$ 121.36	01.4
132.	6720	PRURITUS	1	$ 96.27	--
133.	7009	DIZZINESS, NOS	1	$ 449.01	--
134.	7012	HEADACHE, NOS	2	$ 124.93	98.8
135.	7015	MENIERE'S DISEASE	1	$ 549.10	--
136.	7018	MIGRAINE SYNDROMES	4	$ 76.36	67.1
137.	7021	TENSION HEADACHES	3	$ 219.76	17.2
138.	7042	PERIPHERAL NEUROPATHIES	3	$ 386.63	52.2
139.	7105	CEREBRAL INFARCTION	1	$ 555.00	--
140.	7117	TRANSIENT ISCHEMIC ATTACKS	1	$ 91.51	--

141.	7144	CRANIAL, BRAIN TRAUMA	1	$ 139.75	--
142.	7168	PSYCHOMOTOR SEIZURES	1	$ 184.63	--
143.	7171	SEIZURE DISORDER, NOS	3	$ 140.53	79.3
144.	7183	PARKINSON'S DISEASE	6	$ 455.10	25.2
145.	7246	SKULL, VERT, SKELETAL DIS	2	$ 437.62	34.4
146.	7273	ABN. GAIT, NOS	1	$ 374.14	--
147.	7293	ABN. SPINE X-RAYS, NOS	2	$ 262.05	71.7
148.	7371	PARAPLEGIA, NOS	3	$ 873.38	86.2
149.	7389	TREMOR, NOS	2	$ 221.53	02.3
150.	7787	LABYRINTHITIS	1	$ 460.02	--
151.	8005	ACQRD DEFORM MUSC/SKEL SYST	1	$ 234.76	--
152.	8015	ARTHRITIS, NOS	1	$ 717.46	--
153.	8035	CONNECTIVE TISS DISORDERS	1	$ 369.29	--
154.	8050	DEGEN DISC DIS, LUMBSAC SP	5	$ 406.51	63.7
155.	8060	DEGEN JOINT DIS, CERV SP	2	$ 543.41	07.1
156.	8065	DEGEN JOINT DIS, THORAC SP	4	$ 370.08	56.3
157.	8070	DEGEN JOINT DIS, LUMBSAC SP	4	$ 376.47	08.2
158.	8075	DEGEN JOINT DIS, NOS	5	$ 481.23	62.3
159.	8085	OSTEOARTHR (EXC DJD BACK)	9	$ 346.11	70.3
160.	8095	OSTEOPOROSIS	2	$ 182.49	01.7
161.	8110	PSORIATIC ARTHRITIS	1	$1163.89	--
162.	8115	RHEUMATOID ARTHRITIS	2	$ 421.12	34.9
163.	8127	TENDONITIS, ALL	3	$ 505.46	86.9
164.	8130	THE SHOULDER SYNDROMES, NOS	2	$ 308.59	05.8
165.	8135	TRAUMATIC ARTHRITIS	4	$ 40.19	39.0
166.	8170	FX. OF FEMUR	1	$ 110.44	--
167.	8205	FX. OF VERTEBRAL COLUMN	71	$ 231.94	--
168.	8250	S/S OF FOOT	1	$ 39.50	--
169.	8310	LATE EFFECTS OF TRAUMA	2	$ 152.83	15.5
170.	8335	ARTHRALGIA, NOS	3	$ 631.03	20.7
171.	8340	FOOT PAIN, NOS	2	$ 458.73	11.1
172.	8365	LOW BACK PAIN, NOS	9	$ 244.91	53.6
173.	8375	MUSCLE CRAMPS	1	$ 425.27	--
174.	8380	MUSCLE PAIN (SEE 7347.)	5	$ 230.84	40.4
175.	8395	S/S OF MUSC/SKEL SYST	1	$ 113.04	--
176.	8510	DIZZINESS OR GIDDINESS	1	$ 652.05	--
177.	8540	HEALTH HAZARD, SMOKING	5	$ 120.61	29.7
178.	8543	HEALTH HAZARD, NOS	1	$ 84.00	--
179.	8545	HEALTH MAINTENANCE	166	$ 244.38	65.6
180.	8555	MALAISE, FATIGUE, NOS	2	$ 225.14	06.2
181.	8572	RADIATION EFFECTS, ALL	1	$ 955.50	--
182.	8575	WEIGHT LOSS, NOS	3	$ 507.34	78.9
183.	9000	TEMP PROB SELF-RESOLVING	297	$ 342.14	93.9

APPENDIX IV

CHARGES FOR P2 PATIENTS

CHARGES, BY PROBLEM, FOR PATIENT CLASS P2

			PTYRS	MEAN	CV
1.	1030	COCCIDIOMYCOSIS	1	$1163.93	--
2.	1110	INFECTIOUS HEPATITIS, NOS	2	$1242.68	29.5
3.	1190	TUBERC, PULM, ACTIVE	1	$ 429.99	--
4.	1200	TUBERC, EXTRAPULM, ACTIV	1	$1454.30	--
5.	1565	BENIGN NEOP COLON	1	$ 542.03	--
6.	1570	BENIGN NEOP OF RECTUM	1	$ 840.26	--
7.	1810	BENIGN NEOP OF KIDNEY	1	$ 397.90	--
8.	2070	MALIG NEOP OF RECTUM	3	$ 326.55	35.4
9.	2075	MALIG NEOP OF LIVER (PRIM)	1	$1135.61	--
10.	2275	MALIG NEOP OF PROSTATE	3	$ 392.87	71.8
11.	2355	MALIG NEOP OF BRAIN, CNS	1	$ 453.71	--
12.	2505	ALLERGIC RHINITIS	1	$ 493.02	--
13.	2585	SARCOIDOSIS, PULMONARY	2	$ 37.22	35.0
14.	3005	ABUSE OF ALCOHOL	6	$ 587.64	112.4
15.	3020	ANXIETY STATE, CHRONIC	15	$ 260.80	61.9
16.	3027	ANXIETY STATE, NOS	6	$ 687.04	43.2
17.	3035	DEPRESSION, CHRONIC	4	$ 443.11	46.9
18.	3040	DEPRESSION, SITUATIONAL	4	$ 582.70	101.4
19.	3045	ECONOMIC PROBLEMS	1	$ 28.00	--
20.	3055	EMPLOYMENT PROBLEMS	1	$ 14.00	--
21.	3105	MULTIPLE LIFE STRESSES	3	$ 512.99	41.9
22.	3135	SCHIZOPHRENIA, ALL TYPES	1	$ 28.00	--
23.	3140	SEXUAL DISSATISFACTION	4	$ 532.68	46.2
24.	3550	HYPERPARATHYROIDISM	3	$ 554.86	54.7
25.	3560	HYPERTHYROIDISM	2	$1125.35	133.0
26.	3585	HYPOTHYROIDISM	2	$ 703.15	69.3
27.	3620	ENDOCRINE DISEASE, NOS	1	$ 381.03	--
28.	3665	DIABETES MELLITUS	25	$ 721.82	63.5
29.	3675	GOUT	17	$ 655.87	68.4
30.	3680	HYPERLIPOPROTEINEMIA	11	$ 410.09	70.2
31.	3682	HYPERURECEMIA (W/OUT GOUT)	3	$ 592.81	41.2
32.	3695	OBESITY, EXOGENOUS	2	$ 159.75	116.6
33.	3757	ABN. GLUCOSE TOL TEST	1	$ 584.98	--
34.	3785	EXOPHTHALMOS	1	$ 397.59	--
35.	3805	THYROID NODULE, SINGLE	1	$ 825.49	--
36.	3810	THYROID NODULES, MULTIPLE	1	$ 601.28	--
37.	4045	ANEMIA, DUE TO IRON DEFIC	4	$ 364.80	47.6
38.	4060	ANEMIA, NOS	6	$ 464.94	59.1
39.	4504	ANGINA PECTORIS	16	$ 628.21	58.8

40.	4512	AORT ANEUR, ABD W/O DISS	3	$ 401.13	75.3
41.	4528	ARRYTHMIAS, NOS	2	$ 221.22	12.1
42.	4532	ATRIAL ARRYTHMIA	8	$ 615.99	62.1
43.	4536	VENTRICULAR ARRYTHMIA	2	$1055.41	00.8
44.	4540	SUPRAVENTRICULAR ARRYTHMIA	3	$ 550.44	17.5
45.	4580	ARTERIOSCLER CARDIOVASC DIS	7	$ 488.70	25.3
46.	4592	OCCL DIS (EMBOLI, THROMB)	3	$ 554.07	100.9
47.	4596	OCCL DIS OF HEAD AND NECK	1	$ 28.00	--
48.	4600	OCCL DIS OF VISCERA	1	$ 557.28	--
49.	4656	ARTERIOSCLEROTIC HEART DIS	23	$ 499.56	62.9
50.	4664	CARDIAC DISEASE, NOS	2	$ 775.29	42.0
51.	4680	CONGESTIVE HEART FAILURE	12	$ 747.17	69.8
52.	4688	ENDOCARDITIS, INFECTIVE	3	$1598.11	14.7
53.	4696	HYPERTENSION, ESSENTIAL	168	$ 574.13	55.4
54.	4704	HYPERTENSION, SECONDARY	1	$ 775.61	--
55.	4708	HYPERTENSION, SYSTOLIC	4	$ 477.02	76.8
56.	4740	AORTIC STENOSIS	2	$ 599.09	55.2
57.	4752	MITRAL INSUFFICIENCY	1	$ 424.83	--
58.	4796	CHRONIC VENOUS INSUFF	2	$ 229.56	11.9
59.	4844	ABN. BLOOD PRESSURE, NOS	8	$ 390.67	50.7
60.	4860	ABN. ELECTROCARDIOGRAM	1	$ 515.61	--
61.	4916	CHEST PAIN, NOS	1	$1048.99	--
62.	4948	SYNCOPE, NOS	1	$ 530.12	--
63.	5012	CORYZA OR NASAL DISCHARGE	3	$ 323.55	45.1
64.	5028	NASAL POLYPS	1	$ 350.93	--
65.	5088	CHRONIC SINUSITIS	1	$ 470.08	--
66.	5156	CHRONIC BRONCHITIS	2	$ 713.27	113.9
67.	5164	ASTHMA	10	$ 414.33	49.0
68.	5228	COPD	27	$ 683.10	57.9
69.	5264	PNEUMOTHORAX (ALL TYPES)	1	$ 327.20	--
70.	5270	PULMONARY EMBOLI, ALL	1	$ 63.71	--
71.	5308	ABN. CHEST X-RAY, NOS	2	$ 428.02	44.9
72.	5548	DIFFUSE ESOPHAGEAL SPASM	1	$ 756.66	--
73.	5554	GASTRO-ESOPH REFLUX, NOS	2	$ 635.04	119.2
74.	5559	HIATUS HERNIA, W/ REFLUX	5	$ 443.53	37.1
75.	5562	HIATUS HERNIA, NOS	2	$ 610.47	16.6
76.	5563	ESOPHAGEAL DISEASE, NOS	1	$ 416.12	--
77.	5584	S/P STOMACH SURGERY	2	$ 325.96	26.1
78.	5596	DUODENITIS, W/O BLDG	1	$ 485.47	--
79.	5599	DUODENAL ULCER, W/ BLDG	3	$ 878.90	42.4
80.	5602	DUODENAL ULCER, W/O BLDG	14	$ 465.50	73.5
81.	5608	CROHN'S DIS, W/O BLDG	1	$ 660.32	--
82.	5611	CELIAC SPRUE	1	$ 305.11	--
83.	5620	MALABSORP, SM BOWEL CAUSE	1	$ 192.93	--
84.	5626	IDIOP ULC COLITIS, W/ BLDG	1	$ 886.52	--
85.	5629	IDIOP ULC COLITIS, W/O BLDG	2	$1036.39	65.7
86.	5632	CROHN'S DIS, W/ BLDG	1	$ 198.08	--
87.	5635	CROHN'S DIS, W/O BLDG	2	$1393.30	11.0
88.	5641	IRRIT COLON SYND	3	$ 667.64	74.8
89.	5653	S/P COLONIC SURGERY	2	$ 219.61	75.0
90.	5662	HEPATITIS, DRUG OR ETOH	1	$ 788.97	--

91.	5668	CIRRHOSIS, OF UNKNOWN CAUSE	3	$1325.54	41.8
92.	5674	CHOLELITHIASIS	1	$ 674.99	--
93.	5686	ACUTE PANCREATITIS	1	$1651.67	--
94.	5689	ACUTE RELAPS PANCREATITIS	4	$ 760.91	26.1
95.	5692	CHRONIC PANCREATITIS	1	$ 28.00	--
96.	5695	CHRON RELAPS PANCREATITIS	2	$ 461.80	12.3
97.	5713	HEMORRHOIDS, W/ BLDG	1	$ 286.92	--
98.	5779	ABDOMINAL PAIN, LLQ	1	$ 363.65	--
99.	5782	EPIGASTRIC PAIN, NOS	3	$ 419.07	38.6
100.	5785	ABDOMINAL PAIN, NOS	3	$1175.21	61.8
101.	5872	CONSTIPATION, OBSTIPATION	2	$ 534.78	85.2
102.	5875	DIARRHEA, NOS	4	$ 447.96	36.0
103.	5878	DYSPHAGIA, NOS	3	$ 661.43	84.9
104.	5884	FLATULENCE, BLOATING	1	$ 141.00	--
105.	5887	HEARTBURN, DYSPEPSIA	4	$ 444.83	94.6
106.	5895	GUIAC POS. STOOL	1	$ 855.59	--
107.	5905	UPPER GI TRACT BLDG	1	$1204.10	--
108.	6010	ACUTE URINARY TRACT INF	3	$1120.37	44.6
109.	6020	CALC, RENAL AND URETERAL	3	$ 421.81	33.3
110.	6040	IMPAIRED RENAL FUNC, NOS	1	$ 823.36	--
111.	6055	RECURRENT URINARY TRACT INF	2	$ 598.87	64.9
112.	6065	RENAL FAILURE, CHRONIC	2	$ 750.00	108.8
113.	6077	ABN. PROSTATE EXAM, NOS	1	$ 406.60	--
114.	6090	ABN. SERUM CREATININE, BUN	2	$ 929.57	20.0
115.	6095	ABN. URINALYSIS	2	$ 732.81	91.5
116.	6100	ABN. UROL TEST, PROC	2	$ 408.64	84.1
117.	6130	HEMATURIA, GROSS, NOS	1	$ 409.28	--
118.	6135	HEMATURIA, MICROSCOPIC, NOS	4	$ 645.42	52.8
119.	6140	INCONTINENCE OF URINE, NOS	1	$ 566.38	--
120.	6150	OBSTRUCTIVE SYMPTOMS	2	$ 363.20	42.1
121.	6195	OTHER S/S OF URINARY TRAC	1	$ 512.84	--
122.	6215	BENIGN PROST HYPERTROPHY	8	$ 466.25	57.6
123.	6240	PROSTATITIS	3	$ 348.29	64.8
124.	6265	URETHRAL STRICTURE (ALL)	2	$ 935.74	63.6
125.	6515	ACNE	1	$ 59.08	--
126.	6517	ACTINIC KERATOSIS, NOS	1	$ 114.85	--
127.	6535	CHRONIC SKIN ULCER (ALL)	3	$ 426.20	26.1
128.	6567	DERMATITIS, NOS	3	$ 392.45	101.9
129.	6585	FOLLICULITIS	2	$ 302.96	02.1
130.	6625	OTHER ECZEMATOUS DERM	2	$ 548.76	04.6
131.	6650	PSORIASIS	2	$ 363.34	36.4
132.	6715	PAINFUL SKIN, NOS	1	$ 554.54	--
133.	6720	PRURITUS	1	$ 810.93	--
134.	6735	XEROSIS	1	$ 536.56	--
135.	7012	HEADACHE, NOS	1	$ 251.40	--
136.	7015	MENIERE'S DISEASE	1	$ 244.81	--
137.	7018	MIGRAINE SYNDROMES	3	$ 596.27	154.4
138.	7021	TENSION HEADACHES	1	$ 264.38	--
139.	7027	VERTIGO, NOS	1	$ 275.34	--
140.	7042	PERIPHERAL NEUROPATHIES	3	$ 464.28	91.8
141.	7114	ORGANIC BRAIN SYNDROME	2	$ 250.38	104.4

142.	7144	CRANIAL AND/OR BRAIN TRAUMA	1	$ 177.72	--
143.	7168	PSYCHOMOTOR SEIZURES	1	$ 166.01	--
144.	7183	PARKINSON'S DISEASE	1	$ 60.49	--
145.	7195	MULTIPLE SCLEROSIS	1	$ 186.33	--
146.	7372	PARESTHESIA, NOS	2	$ 578.21	05.8
147.	7383	SCIATICA, NOS	1	$ 339.03	--
148.	7850	HEARING LOSS, NOS	1	$ 118.49	--
149.	8005	ACQ DEFORM MUSC/SKEL SYS	3	$ 584.02	65.8
150.	8010	S/P AMPUTATION (ALL)	1	$ 922.77	--
151.	8027	CHONDROMALACIA	1	$ 27.99	--
152.	8040	DEGEN DISC DIS, CERV SPINE	2	$ 741.76	00.2
153.	8050	DEGEN DISC DIS, LUMBSAC SPI	8	$ 458.79	39.6
154.	8055	DEGEN DISC DIS, NOS	3	$ 796.14	11.8
155.	8060	DEGEN JOINT DIS, CERV SPINE	3	$ 549.65	12.3
156.	8065	DEGEN JOINT DIS, THOR SPINE	2	$ 631.06	38.2
157.	8070	DEGEN JOINT DIS, LUMBSAC SP	2	$ 706.21	20.3
158.	8075	DEGEN JOINT DIS, NOS	6	$ 441.40	53.3
159.	8085	OSTEOARTH (EXC DJD OF BACK)	4	$ 620.52	24.1
160.	8100	PAGET'S DIS OF BONE	1	$ 201.89	--
161.	8110	PSORIATIC ARTHRITIS	1	$ 862.34	--
162.	8115	RHEUMATOID ARTHRITIS	3	$ 447.19	93.3
163.	8125	SPONDYLOLISTHESIS	1	$ 475.69	--
164.	8130	THE SHOULDER SYNDROMES, NOS	4	$ 545.54	67.9
165.	8135	TRAUMATIC ARTHRITIS	1	$ 750.14	--
166.	8175	FX. OF HUMERUS	1	$ 95.56	--
167.	8335	ARTHRALGIA, NOS	3	$ 639.61	27.9
168.	8365	LOW BACK PAIN, NOS	8	$ 527.28	86.0
169.	8375	MUSCLE CRAMPS	1	$ 515.07	--
170.	8390	NECK PAIN, NOS	2	$ 469.37	11.7
171.	8395	S/S OF MUSC/SKEL SYST	1	$ 928.55	--
172.	8515	HYPERHIDROSIS	1	$ 251.61	--
173.	8540	HEALTH HAZARD, SMOKING	3	$ 111.26	61.2
174.	8543	HEALTH HAZARD, NOS	1	$ 864.58	--
175.	8545	HEALTH MAINTENANCE	148	$ 359.49	62.1
176.	8575	WEIGHT LOSS, NOS	1	$ 612.35	--
177.	9000	TEMP PROB SELF-RESOLV	202	$ 506.05	63.5

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