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AGGREGATED CLAIMS SERIES

Volume 4: CODEBOOKS FOR HEALTH MAINTENANCE ORGANIZATION AND SEATTLE FEE-FOR-SERVICE VISITS--OUTPATIENT AND INPATIENT

C. E. Peterson, M. Nelsen, D. L. Wesley,

December 1986

HEALTH INSURANCE EXPERIMENT

THE RAND CORPORATION

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PREFACE

The codebooks presented in this Note describe the contents of data files from the Health Insurance Experiment (HIE), a large social experiment conducted by The RAND Corporation from 1974 to 1982 under a grant from the U.S. Department of Health and Human Services, Washington, D.C. RAND is issuing a number of tape data files containing data collected from the experiment, grouped in series, with associated documentation.

This volume is the fourth of five volumes in the aggregated claims series, a series of derived-variable files that present aggregations of primary-variable data taken from the fee-for-service (FFS) and health maintenance organization (HMO) claims line-item files of the HIE. The HMO and Seattle FFS visits files documented herein contain data concerning the use of inpatient and outpatient health services by Seattle FFS participants and by participants enrolled in Group Health Cooperative (GHC) of Puget Sound, a large prepaid group practice in Seattle. These files are useful for obtaining an overview of the services rendered to comparable FFS and HMO populations during covered visits and hospitalizations, and the total imputed expenditures for those visits.

Data concerning health care services use have been aggregated by visit for each participant. A visit record indicates the type of visit or hospitalization, the services and diagnoses rendered, and the total imputed expenditures that were covered by the HIE; expenditures are not itemized by services, and services are not linked to diagnoses. The files contain no information regarding drug or supply charges, and no information regarding dental care.

The codes used in the present volume (and in all claims files) are listed and defined in *HIE References, Vol. 1: Codes Used in HIE Claims--Diagnoses, Symptoms, Procedures, Drugs, and Supplies*, The RAND Corporation, N-2349/1-HHS, May 1986.

ACKNOWLEDGMENTS

The authors would like to thank George Goldberg, M.D., for his expert and invaluable assistance in preparing this documentation. We also thank Willard Manning and Bernadette Benjamin, who guided us through the intricacies of the data. Grateful acknowledgment is given to Betty Amo and Joice Polin for their indispensable help in preparing the documents for publication. Suzanne Polich gave us helpful comments during the early stages of the document's development. Cathy Sherbourne provided a thoughtful and incisive review. Thanks are also extended to Christine d'Arc Taylor for writing the introduction to the Health Insurance Experiment that appears as the first section of this volume. Final production of the Note was supervised by Patricia Bedrosian. Finally, we want to thank Joseph Newhouse for his guidance and support.

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I. INTRODUCTION

This section presents an overview of the Health Insurance Experiment (HIE) and its data collection and file development efforts. It provides essential background for understanding the contents of this codebook. Section II describes the distinctive features of the HMO and Seattle FFS visits files; Secs. III-IV present the codebooks for the outpatient and inpatient visits files, respectively.

EXPERIMENTAL DESIGN

The RAND Corporation conducted the Health Insurance Experiment from 1974 to 1982 in six sites across the United States: Dayton, Ohio; Seattle, Washington; Franklin County and Fitchburg, Massachusetts; and Georgetown County and Charleston, South Carolina.[1] The main purpose of the experiment was to assess how varying patients' cost of health services affected their use of services, their satisfaction with health care, the quality of their care, and the state of their health. A related purpose was to study how those outcomes were affected by the mode of delivery--fee for service or health maintenance organization (HMO).[2]

Over the course of the experiment, information of some kind was obtained for 26,148 persons. A total of 24,340 persons were administered a baseline interview (*baseline participants*[3]), of which

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[1]The sites were chosen to represent the four census regions of the country and both urban and rural areas. They also differed in the amount of delay to obtain an appointment, reflecting different degrees of stress on the ambulatory medical care system. Site selection is described in Philip J. Held, *Site Selection Criteria for the Health Insurance Study,* The RAND Corporation, N-2266-HHS, May 1985.

[2]For a discussion of the purposes and design of the HIE, see Joseph P. Newhouse, "A Design for a Health Insurance Experiment," *Inquiry,* Vol. 11, 1974, pp. 5-27. HIE is also called HIS, Health Insurance Study. The terms are synonymous.

[3]This and other distinctive HIE terms are defined in the Glossary at the end of this document.

7,700 were ultimately enrolled.[4] An additional 554 persons were enrolled later, all but a few of them newborns or adopted children under one year of age. Those 8,254 *insured enrollees* were assigned to an *experimental insurance treatment*, and data on their use of health services were collected throughout their period of participation.[5] Another 2,483 *adjunct enrollees* were not assigned to an insurance treatment but resided with insured enrollees or were members of a short-lived control group in Dayton.

Selection of Enrollees

Persons offered enrollment in the experiment represent a random sample from each site, subject to certain eligibility restrictions.[6] They were chosen by a two-stage baseline selection process. In each site an areawide probability sample of dwelling units was drawn. Their occupants were interviewed for eligibility, and those found eligible were questioned in depth about their socioeconomic characteristics and experience with health care (baseline interview).

Eligibility criteria excluded those whose health care delivery systems differed from options available to the general population. The following groups were excluded:

- Those who were eligible for Medicare or would become so during the experiment, i.e., those 62 years of age and older, or younger than 62 but with a Medicare-eligible condition such as end-stage renal disease.
- Those with family incomes over $25,000 (1973 dollars).

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[4]Of the remaining 16,640 persons, the 15,411 who did not enroll are called *baseline-only participants*; the other 1,229 are part of the adjunct enrollee group defined below.

[5]Note that "insured" in HIE terminology only means "assigned to an experimental treatment." By the same token, "uninsured" applies only to a participant not so assigned, not necessarily someone lacking health insurance altogether.

[6]Subject also to slight oversampling of low-income families in Dayton, Massachusetts, and South Carolina.

- Those institutionalized (jail, long-term hospital).
- Veterans with service-connected disabilities.
- Those in the military and their dependents.[7]

Project staff verified the accuracy of the information given by baseline participants with employers and insurance companies.

In the second selection stage, HIE staff drew a representative sample of eligible persons to be offered enrollment and assigned each family to one of the insurance plans described below. A sophisticated technique assured that, across plans, families closely resembled each other in 24 health and socioeconomic characteristics.[8]

Experimental Treatments

Sixteen experimental treatments distinguished between coinsurance rates, delivery systems, and maximum out-of-pocket expenditures. All but one of the treatments were health insurance plans, listed below as A-O. Enrollees who had gone through the baseline selection process were assigned to one of the plans. The remaining treatment involved a control group in Seattle, chosen separately.

Insurance Plans. Plans A-N entailed different degrees of cost sharing under the fee-for-service system. Within each cost-sharing group, listed below, plans also differed by the ceiling placed on maximum expenditure. Plan O involved participation in a prepaid group practice, a traditional type of HMO:

A. Free care (0% coinsurance) (one plan).
B-D. Family pays 25% of its medical bills (25% coinsurance) (three plans).

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[7]Details of HIE eligibility requirements are in Lorraine Clasquin and Marie E. Brown, *Rules of Operation for the Rand Health Insurance Study*, The RAND Corporation, R-1602-HEW, May 1977, Sec. II.

[8]The logic and techniques used to determine optimal sample sizes and assign individual families to experimental plans are described in Carl N. Morris, "A Finite Selection Model for Experimental Design of the Health Insurance Study," *Journal of Econometrics*, Vol. 11, 1979, pp. 43-61.

E-G. 50% coinsurance (three plans).

H-J. 50% coinsurance for dental and outpatient mental health services and 25% coinsurance for all other services (three plans).

K-M. 95% coinsurance (three plans).

N. 95% coinsurance on outpatient services; 0% on hospital care (one plan).[9]

O. 0% coinsurance if care was received at a Seattle HMO, Group Health Cooperative of Puget Sound; 95% if care was received outside the HMO (one plan).

Plans requiring coinsurance (B-N) placed a ceiling on annual out-of-pocket expenditures, above which care was free.[10] In all but one plan (N), the ceiling was a specified percentage of the family's income or a dollar limit, whichever was less. The percentage varied with family income and the dollar limit varied with the plan, as indicated below:

Plan	*Percentage of Family Income*	*Dollar Limit*
B-D	5, 10, or 15	1000/750[11]
E-G	5, 10, or 15	1000
H-J	5, 10, or 15	1000/750
K-M	5, 10, or 15	1000
N	--	150 per individual; 450 per family

[9]During the experiment's first year in Dayton, the provisions of plans A-N differed in two ways: Only plan A covered dental services for adults; and the coinsurance rate on plans K-N was 100 percent instead of 95 percent.

[10]During the experiment's first year in Dayton, expenditures for outpatient mental health care did not apply toward the ceiling.

[11]In plans B-D and H-J the $1000 limit applied during the first two years of enrollment for Dayton families who enrolled from November 1974 to February 1975; and during the first year of enrollment for Seattle families who enrolled from January to September 1976. The $750 limit applied during subsequent enrollment years for the aforementioned families, and during the entire enrollment period for all other families.

HMO Control Group. A random sample of existing members of the Group Health Cooperative (subject to HIE eligibility requirements) was drawn as a control group for the HMO experimental group assigned to plan 0. The control group was formed to compare HMO use by those who had *chosen* that delivery mode (i.e., members of the control group) with use by those experimentally *transferred* to an HMO from the fee-for-service system (i.e., members of the experimental group). Enrollees in the HMO control group continued with the Group Health Cooperative under their prior arrangements but provided the same data as HMO experimental members. With respect to the insurance provider, enrollees assigned to plans A-0 (including the HMO experimental group) were said to be HIE-insured; the HMO control group was termed HMO-insured.

Services Provided

Plans A-0 provided the same comprehensive benefits, including hospital, physician, dental, mental health, visual, and auditory services, drugs (including over-the-counter drugs for certain chronic conditions), and supplies. Services of nonphysician providers, such as audiologists, chiropractors, clinical psychologists, optometrists, physical therapists, and speech therapists, were also covered. The only noteworthy exclusions were nonpreventive orthodontic services, cosmetic surgery for preexisting conditions, and outpatient mental health visits exceeding 52 per year.

Enrollees were able to choose the physicians and other persons who provided their health care. However, if those in the HMO experimental group sought care outside the HMO that was available within, they were responsible for 95 percent of the cost. (For covered services, such as dental or chiropractic, that were unavailable at the HMO, members of the experimental HMO group were fully reimbursed.)

Enrollees in the HMO control group retained whatever benefit package they or their employer had purchased from the HMO. Members of both control and experimental groups were reimbursed 5 percent of the cost of care obtained outside the HMO to encourage the reporting of non-HMO care.

Terms of Enrollment

Families who accepted the insurance plan offered from plans A-O were enrolled in the experiment for either three or five years, the term randomly assigned. All members of the HMO control group were enrolled for five years.

Enrollees assigned any benefits from their existing health insurance policies to the HIE during the time they participated. No family was financially penalized by HIE enrollment. Enrollees were reimbursed for the cost of maintaining their policies, and if their HIE plan could, under any conceivable set of circumstances, provide less coverage than their private policies, they were paid the maximum difference.[12]

Table 1 indicates the timing of enrollment in the experiment and number of enrollees insured immediately after the baseline selection process in each site.

DATA COLLECTION

Over the course of the experiment, extensive data were collected on participants' demographic and economic characteristics, health status, and use of health services. Background information was obtained on local health care costs, providers, and types of services rendered. The data collection instruments are described in Table 2.

Table 2 shows the amount and types of data gathered from the various participant groups. The most extensive data, especially longitudinal data on the use of health services, are available from the 8,254 insured enrollees, who participated in the experiment longest. The 15,411 baseline-only participants provided much demographic and socioeconomic data, as well as information on health status, experience with health care, and health-related attitudes. Limited data were obtained for the 2,483 adjunct enrollees.

Several subcontractors to RAND participated in the data collection effort. Until March 1975, Mathematica, Inc., supervised data collection, administered the insurance plans, and processed claim forms.

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[12]Calculation of the maximum difference is described in Appendix A.

Table 1

HIE ENROLLMENT PERIODS

Site	Number of Enrollees[1]	1974	1975	1976	1977	1978	1979	1980	1981	1982
Dayton	1137	Nov.						Feb.		
3-year	533					Feb.				
5-year	604									
Seattle	3112		Jan.					Sept.		
3-year	1500						Sept.			
5-year	1612									
Fitchburg	723		July					Oct.		
3-year	547						Oct.			
5-year	176									
Franklin Co.	889		July					Oct.		
3-year	649						Oct.			
5-year	240									
Charleston	779			Nov.						Feb.
3-year[2]	571					Nov.				
5-year	208									
Georgetown Co.	1060			Nov.						Feb.
3-year[3]	800					Nov.				
5-year	260									
Total	7700									

NOTE: Timelines mark the month and year in which the first person enrolled in the experiment and the month and year in which the last person left the experiment. Data on use of health services continued to be collected from several groups after the end dates shown here: one year afterward for the Dayton 5-year group and Seattle, Fitchburg, and Franklin County 3-year groups; six months afterward for the Dayton 3-year group.

[1]Numbers refer to enrollees insured immediately after the baseline selection process. An additional 554 persons were enrolled and insured later, nearly all of them newborns or adopted children under 1 year of age. Figures for Seattle include the HMO control group.

[2]Some of these enrollees were also members of a preenrollment group between November 1976 and February 1979. An additional 339 persons participated in the preenrollment phase but did not formally enroll in the experiment.

[3]Some of these enrollees were also members of a preenrollment group between November 1976 and February 1979. An additional 213 persons participated in the preenrollment phase but did not formally enroll in the experiment.

Table 2

PRINCIPAL HIE DATA COLLECTION INSTRUMENTS

Instrument	Topics Covered	Data Collected		
		How	When	From
1. Screening questionnaire [1]	Demographic information to establish basic eligibility	Interview	Beginning of HIE operation in site	Occupants of representative sample of dwelling units on geographic clusters in site
2. Baseline questionnaire, 2 parts	Income, employment Family composition	Interview	4-6 months before enrollment	Baseline participants
	Health status Health care experience and insurance coverage Satisfaction with medical care	Self-administered	4-6 months before enrollment	Baseline participants
3. Enrollment verification form	Changes in family composition, economics, or insurance coverage since baseline questionnaire	Interview	Between administration of baseline questionnaire and enrollment date	Baseline participants determined eligible
4. Medical history questionnaire (MHQ), 3 versions by age group: 0-4 years 5-13 years 14+ years	Form A: health status, attitudes, habits Form B: specific medical disorders	Administered by self or parent [2]	Just before enrollment and exit [3]	Insured enrollees
5. Medical screening examination, 3 versions by age group: 0-2 years 3-13 years 14+ years	Physiologic tests	Paramedical personnel	Just before enrollment and exit	Sample of insured enrollees at enrollment; all exiting enrollees
6. Health report	Use of medical or dental services and time spent obtaining them; any restricted activity or bed disability	Administered by self or parent	Biweekly during period of participation	Insured enrollees [4]

1. Administered as a separate questionnaire only in Dayton; part of baseline questionnaire in the other sites.
2. When "parent" appears in this column, a parent was asked to provide data for children 13 and younger.
3. "Exit" refers to normal departure from the experiment after completing the assigned enrollment period, three or five years. Those who "attrited," or voluntarily left the experiment early, received an "attrition" MHQ that was identical to the exit MHQ.
4. In the first year of the experiment in Dayton, the health report was administered weekly to a random half of Dayton enrollees. In the first year of the experiment in Massachusetts and South Carolina, 25 percent of enrollees were exempted to measure the reporting requirement's effect on the use of health services. Also at one point virtually all participants stopped filling out health reports, for budgetary reasons.

Table 2 (cont.)

Instrument	Topics Covered	Data Collected		
		How	When	From
7. Health care questionnaire, 3 versions by age group: 0-4 years 5-13 years 14+ years	Health status, attitudes, habits (subset of MHQ)	Administered by self or parent	Each anniversary of enrollment except at exit	Insured enrollees
8. Annual income report	Amount and sources of family income, taxes paid	Self-administered	Annually (April)	Head of insured family
9. Periodic employment report	Wages, hours worked, family payments for care of children or elderly, government program benefits received	Self-administered	Semiannually	Enrollees (head and family members 16 and older)
10. Assets and debts questionnaire	Family assets and liabilities	Self-administered	Exit	Head of insured family
11. Knowledge of coverage questionnaire	Details of HIE insurance plan	Self-administered	Specified intervals [5]	Insured enrollees
12. Insurance abstraction	Details of selected insurance policies	Abstraction	At time of knowledge of coverage questionnaire	Insurance company brochures
13. Chronic condition questionnaire	Status of condition, correctness of diagnosis, adequacy of treatment	Physician interview	At exit medical screening examination	Sample of insured enrollees found to have certain chronic conditions [6]
14. Evaluation questionnaire	Perceptions and attitudes about HIE and health care system	Self-administered	Exit	Head of insured family
15. Health notice	Use of medical or dental services	Administered by self or parent	Biweekly during preenrollment phase (South Carolina); 6 months-1 year after exit (other sites)	Preenrollees (South Carolina), insured enrollees who have exited (other sites)

5. Intended intervals were enrollment, 18 months, 3 years, and 5 years after enrollment (the last only for the 5-year participants). Actual mailings approximated those intervals in Massachusetts and South Carolina; the first mailing was 2-1/2 years and 1 year after enrollment in Dayton and Seattle, respectively.
6. Hypertension, diabetes, thyroid diseases, chronic heart diseases, chronic lung diseases, joint diseases, ulcers, cerebrovascular disease.

Table 2 (cont.)

Instrument	Topics Covered	Data Collected		
		How	When	From
16. Medical expense report (MER)--fee-for-service claim form, 4 types: Doctors' services and supplies Dental care Hospital and extended care Pharmacy	Each use of medical or dental service, drugs, and equipment; reason or diagnosis; treatment	Administered by self or parent	Time of occurrence	Insured enrollees and providers/suppliers
17. Services rendered report (SERR)--HMO equivalent of MER [7], 2 types: Doctors' services and supplies Hospital and extended care	Each use of medical service provided by HMO; reason or diagnosis; treatment	Abstraction	Annually to cover entire previous year	HMO records for insured enrollees in HMO experimental and control groups
18. Factor price survey	Wages and benefits of selected hospital personnel [8], average daily inpatient population	Phone and mail	Semiannually	Sample of local hospitals
19. Consumer price index	Prices of selected nonmedical products in the six HIE sites	Phone and inspection	Semiannually	Sample of local retailers
20. Physician capacity utilization survey (PCUTS)	Availability of services [9]	Phone	Annually	Sample of local physicians [10]
21. Dentist capacity utilization survey (DCUTS)	Similar to PCUTS	Phone	Annually	Sample of local dentists [11]
22. Insurance preference questionnaire	Willingness to pay higher premium to reduce out-of-pocket expense limit	Self-administered	Exit	Head of insured family

7. Pharmacy data were obtained directly from an HMO-supplied computer tape. Dental care was not available through the HMO; HMO participants reported claims for dental care and other non-HMO services on the MER.
8. Categories of personnel: registered nurses (general-duty), medical technicians, licensed professional nurses, nursing aides, kitchen helpers, general stenographers, and maids or porters.
9. Waiting time for appointments; appointments per hour; patients seen in office, home, and hospital; weekend office hours; office staffing; cost of office visit; whether new patients accepted.
10. Physicians (M.D. or D.O.) specializing in general practice, internal medicine, and pediatrics.
11. Except in Fitchburg, Franklin County, and Georgetown County, where all dentists were surveyed.

Thereafter, National Opinion Research Center managed data collection and Glen Slaughter and Associates handled insurance administration and claim processing. American Health Profiles, Inc., conducted the medical screening examinations at enrollment (October 1974 through January 1977); CompuHealth administered those examinations at exit (October 1977 through December 1981).

FILE DEVELOPMENT

Subcontractors sent the collected data to RAND, either in hardcopy form or as cleaned data tapes. At RAND the hardcopy data were encoded for machine readability and subjected to computerized checks for logical consistency and adherence to specified response ranges; outliers were checked only for fidelity to the original response and otherwise left unchanged. Limited cross-checking was done to assess logical consistency among a respondent's answers. All identifiers permitting information to be linked to a specific respondent were replaced twice to protect respondents' privacy.[13] The cleaned records were then arranged in the HIE version of standard computer file format, and the resulting files of *primary variables* made available for HIE analyses.

When an analyst needed information that required manipulation of primary data, *derived variables* were constructed. The analyst and a programmer determined a suitable way of obtaining the information by extracting, aggregating, or transforming primary data, and the programmer wrote the appropriate logic. With the analyst's approval, the new variable was entered on the master file.

Both primary and derived variable files are being issued to the public in a number of topical series. Appendix B provides a complete list of the files to be issued.

[13]The first conversion was known only to the subcontractor, the second only to RAND. Neither institution could make the full link from the respondent's name to his or her identifier on the analytic files.

The machine-readable tape for each file includes data in both SAS[14] (Statistical Analysis System) and character formats, and an index of character-format variables.[15]

A codebook is also provided for each file. This volume contains the codebooks for the HMO and Seattle FFS visits files, a set of derived-variable files in the aggregated claims series. Section II describes the common elements of the visits files; Secs. II-IV present the codebooks of the outpatient and inpatient visits files, respectively.

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[14]A registered trademark of the SAS Institute Inc.

[15]These are the components of all files issued by RAND. Other institutions (e.g., National Archives) will distribute these files and may alter their contents.

II. THE HMO AND SEATTLE FFS VISITS FILES

The HMO and Seattle FFS visits files present information concerning outpatient visits and inpatient visits (hospitalizations) of each Seattle HIE participant enrolled in one of the following: (1) an FFS health plan; (2) the HMO experimental group; or (3) the HMO control group. The participating HMO was Group Health Cooperative (GHC), a large prepaid group practice in Seattle. FFS participants used only FFS services; however, some GHC participants used FFS services by choice, in emergencies, or by referral. Thus, visits of GHC participants to GHC *and* FFS providers are found on these files. A record exists for each covered visit of a Seattle HIE participant to a health provider.[1] In these files, an inpatient visit is defined as the total covered services rendered to a participant during one hospitalization. An outpatient visit is defined as the total outpatient services rendered to a participant on *one day by one provider.* For the sake of brevity, we refer to the HMO and Seattle FFS visits files as the "Seattle visits" files in the following discussion.

In the FFS sector, claims regarding FFS services to FFS participants were filed on HIE insurance claim forms called MERs (medical expense reports).[2] Data concerning GHC services rendered to GHC participants were abstracted from GHC medical records and placed on data collection forms called SERRs (services rendered reports).[3] Each claimed or reported service was called a "line item." The Seattle visits files were created to facilitate analysis of the reported use of FFS and HMO health services by aggregating such use from the *line-item level* (i.e., services) to the *visit level.* By observing the types of visits of a given participant, as well as the total services rendered

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[1]"Providers" include hospitals, clinics, physicians, laboratories, and pharmacies--in short, any person, institution, or organization who provided medical services, drugs, or supplies to an HIE participant.

[2]See Table 2, Item 16.

[3]See Table 2, Item 17.

and relative costs incurred during these visits, analysts can quickly and economically identify participants of interest for comparison or further study. The HMO and FFS populations used in the experiment are comparable because both populations were selected from the same urban area using the same randomized selection process. The health care expenses incurred by participants in the two groups have been rendered comparable through the use of a charge imputation process explained below.

Each visit record indicates the type of visit or hospitalization, the total imputed expenditures that were covered by the HIE for the visit or hospitalization, and the services and diagnoses rendered during the visit or hospitalization. If a Seattle participant used no covered health services during the HIE, there will be no record for that person in these files. Although the services performed at each visit or hospitalization are listed separately in these files, the visit expenditure totals presented are not itemized by services, and services are not linked to diagnoses. Because standards for imputing the costs of drugs, supplies, and institutional (hospital) outpatient services were not available, the Seattle visits files contain no information regarding drug, supply, or hospital outpatient charges. These files also contain no information regarding dental care.[4]

The imputed expenditure totals for each visit presented here represent only those visit services that were covered by the HIE; thus, for FFS services, noncovered expenditures have been dropped. All services rendered or covered by GHC were considered covered by the HIE, and therefore GHC coverage is a *subset* of HIE coverage in these files.

The visits files are presented in codebooks that describe the file variables in detail. Section III presents the outpatient visits file and Sec. IV presents the inpatient visits file. Each codebook is preceded by an introduction that discusses the file's creation and the derivation of file variables. File dictionaries containing the hardcopy versions of the tape dictionaries supplied with each file are found in

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[4]Data regarding the dental care use of all participants are provided in the FFS claims line-item files: C. E. Peterson et al., *Claims Line-Item Series, Vol. 1: Codebooks for Fee-for-Service Claims,* The RAND Corporation, N-2347/1-HHS, June 1986.

Appendix C. The dictionaries provide (1) basic identifying data concerning the file, (2) a listing of the file variables in alphabetic order, and (3) a listing of the file variables by location. Below we discuss the data sources and common elements of the visits files, and explain the use of the codebooks.

SAMPLE POPULATION

The sample population in the Seattle visits files consists of all Seattle HIE participants who used covered FFS or HMO health services. It is important to remember that the visits files are based on aggregations of rendered health care *services*; thus, if a participant used no health services during the experiment, there will be no record for that person in these files.

A participant's insurance status (FFS or HMO) in these files is based on the plan in which the participant's *family* was enrolled at the beginning of the study. Seattle FFS participants and HMO experimental group participants who left the Seattle area remained in the experiment and continued their insurance plans in new locations; relocated HMO experimental group participants were generally switched to the "free" FFS plan. HMO control group members who moved were dropped from the experiment. All participants who moved were considered no longer eligible for HMO-FFS comparison purposes and have no records in this file after the date of the move. Below we discuss some specific characteristics of the Seattle FFS and HMO populations.

FFS Participants

At enrollment, the Seattle FFS group comprised 1,213 persons in 481 families. Seventy-five percent of this sample was enrolled for three years and the remainder for five years. Assignment to three- or five-year participation was made at random. Of these persons, 431 (162 families) were assigned to plans that provided virtually all health care free, including ancillary personnel such as speech therapists. The remainder, 782 persons (319 families), were enrolled in cost-sharing insurance plans. These numbers fluctuated throughout the experiment as a result of births, attrition, and deaths.

HMO Participants

The HMO experimental and control groups together constituted slightly more than 1,800 people, which was approximately 60 percent of the total Seattle sample of about 3,100 people, and slightly less than 24 percent of all HIE participants.[5] Half of the HMO experimental group remained in the HIE for three years, and the remainder for five years, whereas all the control group members were enrolled for five years.

The experimental group was provided a package of benefits within GHC that matched as closely as possible the benefits available to the FFS enrollees. However, some HIE-insured services were not available at GHC (for example, dental and chiropractic services), and were fully covered (reimbursed 100 percent) by the HIE for experimental group members who wished to obtain them in the FFS sector. In other words, the HMO experimental group had "free" care that was comparable to that offered to FFS participants, *subject to the restriction that care had to be obtained at GHC if GHC provided the service.* If an experimental group participant chose to go to the FFS system for services that were available at GHC, the HIE reimbursed only 5 percent of the charge for those services. This was done to encourage experimental group participants to file a claim so that such use could be measured.

Control group members were not provided a benefit package by the HIE; they retained whatever benefit package they had purchased from GHC by themselves or through an employer. As an incentive to report out-of-GHC use, control group members were also reimbursed 5 percent of all FFS health care expenses they reported.

Comparison Eligibility

Participants who moved from Seattle and HMO participants who changed to FFS plans were considered *no longer eligible* for comparison and have no records in this file after the date of the move or plan change. However, plan changes, moves, deaths, and attritions of Seattle participants are not noted in this file. To identify Seattle

[5]Numbers are stated approximately because of changes in group compositions resulting from births, attrition, and deaths.

participants who moved or changed plans, reference to the supplemental data file of the master sample series is necessary.[6] To identify participants who died or attrited from the experiment, reference to the eligibility-family changes file of the master sample series is necessary.[7] Moves and plan changes take precedence over deaths, attritions, and terminations in establishing noneligibility for comparison. For example, if a person moved and then attrited, the date of ineligibility is the date of the move. Such an individual would be listed as a mover in the supplemental data file and as an attriter in the eligibility-family changes file. Thus, users may wish to cross-check between these files to track selected individuals.

COVERED VISITS, EXPENDITURES, AND SERVICES

Only covered visits and hospitalizations are presented in these files, and only covered expenditures are totaled for each visit. A *covered visit or hospitalization* is defined as one in which any part of a participant's expenditure for services was covered by the HIE.[8] *Covered expenditures* are defined as all health expenditures except those specifically not covered by the participant's insurance plan.[9] A *covered service* is defined as a service in which any part of a participant's expenditure for the service was covered by the HIE. Only covered services were used to create the visits files; noncovered services are not included.[10] Noncovered visits, i.e., those in which *only* noncovered services were rendered, are also not found in these

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[6]Issued as part of HIE documentation. See Appendix B for order information.

[7]S. M. Polich and C. d'Arc Taylor, *Master Sample Series, Vol. 1: Codebook for Eligibility-Family Changes File*, The RAND Corporation, N-2264/1-HHS, May 1986.

[8]Again note that GHC services and coverage are a subset of HIE coverage.

[9]Appendix F lists the possible reasons for noncoverage of a service by the HIE. Appendix G lists the benefit coverage provided for FFS participants, the HMO experimental group, and the HMO control group.

[10]All GHC services were considered to be covered; the noncovered portions of FFS services were dropped.

files. Such noncovered visits and services may include those related to accident injuries that were paid for by other insurance companies.

For FFS participants, the covered expenditure totals presented in these files represent all imputed expenses of the visit or hospitalization that would have been reimbursed by the participant's HIE insurance plan, *including the portion of imputed costs that the participant would have paid toward his/her deductible or coinsurance rate*. Although such participant deductibles or coinsurance payments are treated as *noncovered* charges in the FFS claims line-item files for the purpose of reimbursements, they are included in the covered total charges presented in these files to enable the computation of *all* charges pertaining to HIE-covered health care services, rather than only the portion of such charges that the HIE reimbursed.

DATA SOURCES

Data used in the Seattle visits files are taken from the HMO claims line-item files[11] and Seattle FFS files for HMO comparison.[12] For brevity, we refer to the Seattle FFS comparison files as the FFSCOMP files. Both sets of files contain "line-item" data, i.e., data related to the claimed services rendered to HIE participants, as follows:

- The HMO claims line-item files contain data concerning GHC health care services rendered to GHC participants and data pertaining to GHC participants' uses of FFS health services *that were reimbursed 100 percent by GHC*. The charges presented in these files are imputed.[13] Appendix D lists the HMO claims line-item files, and includes a sample of the types of variables found in each file.

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[11]C. E. Peterson et al., *Claims Line-Item Series, Vol 2: Codebooks for Health Maintenance Organization Claims*, The RAND Corporation, N-2347/2-HHS, August 1986.

[12]C. E. Peterson et al., *Claims Line-Item Series, Vol. 3: Codebooks for Seattle Fee-for-Service Claims for Comparison with Health Maintenance Organization Claims*, The RAND Corporation, N-2347/3-HHS, October 1986.

[13]Imputed charges for inpatient hospital services were provided by GHC, and charges for inpatient and outpatient physician/health professional services were imputed by HIE analysts.

- The FFSCOMP files contain claims data concerning all Seattle participants who used FFS health care; these files include data pertaining to GHC participants who obtained FFS health services that were *not* covered by GHC.[14] The FFSCOMP files were created to facilitate comparison of FFS and HMO use at the services (line-item) level by imputing the charges for the services of Seattle FFS physicians and other health professionals using the same charge imputation process as was used in the HMO claims line-item files. Appendix E lists the FFSCOMP files and presents a sample of the types of variables found in each file.

Because both of the above files contain records of claimed line-items (services) rendered to HIE participants, they and the FFS claims line-item files (from which the FFSCOMP files are derived) are known collectively as the "claims files" or the "line-item files" in the following documentation.

In the creation of the Seattle visits files, any data inconsistencies found in the line-item files were resolved by HIE analysts according to their own analytic needs. These minor adjustments are not documented, and thus other analysts will not be able to exactly replicate all of the data found in the Seattle visits files.

Table 3 lists the specific files from the HMO and FFSCOMP line-item files that were used to create the Seattle visits files. Visit data were first gathered (aggregated) for each participant in the HMO line-item files and FFSCOMP files separately, using person and provider identifiers and date-of-service information (admission date for inpatient visits).[15] The visit records from the separate files were then pooled together into the outpatient and inpatient visit files presented here. An indicator variable, MER, was created to identify whether a given visit record was taken from the HMO claims line-item files (MER = 0) or the FFSCOMP files (MER = 1).

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[14]FFSCOMP data were derived from the FFS claims line-item files, which document the FFS health services rendered to FFS participants in all six sites of the experiment. See Appendix B for order information.

[15]The outpatient and inpatient visit aggregation processes varied slightly and are explained in their respective file introductions.

Table 3

FILE SOURCES OF HMO-SEATTLE FFS VISITS FILES

HMO-FFS Visits File	Line-Item Source Files	
Outpatient Visits:		
	HMO File 06	Services Rendered by Physicians
	HMO File 10	Injections Administered by Physicians
	FFSCOMP File 06	Services Rendered by Physicians
	FFSCOMP File 10	Injections Administered by Physicians
Inpatient Visits:		
	HMO File 01	Inpatient Services Billed by Institutions
	HMO File 03	Inpatient Physician Services Rendered by Physicians
	HMO File 06	Outpatient Services Rendered by Physicians
	HMO File 10	Injections Administered by Physicians
	FFSCOMP File 01	Inpatient Services Billed by Institutions
	FFSCOMP File 03	Inpatient Physician Procedures Billed by Institutions
	FFSCOMP File 06	Services Rendered by Physicians
	FFSCOMP File 10	Injections Administered by Physicians

If users wish to itemize charges for a given visit by services, or wish to link services with specific diagnoses, they must refer to the HMO claims line-item files or to the FFSCOMP files (depending upon the source of the visit record). Using person and provider identifiers, date of service (admission date for inpatient visits), and the indicator of the file source from the variable MER, researchers can find the services (line items) that were aggregated to create a given visit. Information on linking these data is given in the user's guide of the HIE reference series.[16]

[16]To be published as part of HIE documentation. See Appendix B for order information.

CHARGES

In the Seattle visits files, only the *total* imputed charges for each visit are shown; charges are not itemized by services. All charges in the Seattle visits files are listed in *dollars and cents* and are adjusted for inflation to reflect costs in 1967 dollars.[17] This adjustment was done in these files specifically to enable users to avoid biases resulting from inflation when comparing covered expenditures of five-year enrollees (who predominate among HMO participants) with the covered expenditures of three-year enrollees (who predominate among the FFS participants). Below we summarize the derivation of charges found in the visit files.

Hospital Charges

Hospital charges for both HMO and FFS services were not imputed by HIE analysts because such charges are directly comparable. GHC provided "mock bills" to the HIE for hospital inpatient services rendered to participants; these bills were the actual prices GHC would have charged the person had he or she not been covered for care. GHC occasionally has reason to charge non-GHC people whom it treats for emergencies, and periodically surveys the Seattle market to determine the charges for such services. Thus, the inpatient visits file presents *actual* FFS charges for FFS hospital services incurred by participants, and the "mock bill" charges assessed by GHC for its hospital services.

Imputing Physician/Health Professional Charges

The imputation of physician and other health professional charges was made necessary by the lack of charges in the HMO system. To impute such charges using consistent guidelines, a uniform standard for defining and valuing such services was applied: the *California Relative Value Studies* (CRVS) coding system.[18] The CRVS coding system defines

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[17]The consumer price index figures used in these adjustments are given in the user's guide. See Appendix B for order information.

[18]California Medical Association, *California Relative Value Studies*, San Francisco, 1975.

the procedures and services of physicians and other health professionals and assigns standard unit values to those services for use in computing medical charges.

In the HMO claims line-item files, which list only services that were covered by GHC, the calculation formula for the value of each covered physician/health professional service was based on the assigned CRVS units for that service and a dollar-amount-per-CRVS unit provided annually by GHC. Different dollars/unit values were used for different types of services.

The same imputation method was applied to the FFS physician/health professional charges found in the FFSCOMP files. This was made necessary by the fact that FFS physician/health professional charges for a given service varied throughout the FFS system. If individual FFS charges had been used to impute values for a given FFS service, the value of that service would vary according to the dollars-per-CRVS unit billed by the FFS physician in that particular instance, and thus the value would not be consistently weighted, as it was in the HMO system. Thus, HIE analysts imputed the charges of Seattle FFS physicians and other health professionals using the HMO method described above, thereby valuing such services consistently in both systems and allowing analysts to observe the *use* of health care services through a summary measure of expenditure. For this reason, imputed charges for physician/health professional services appear in both the HMO claims line-item and FFSCOMP files and were used to create the visit expenditure totals found in the Seattle visits files.

Because all GHC services were covered services, they could be compared only to covered services in the FFS sector. However, when the FFSCOMP files were created from the FFS claims line-item files, some of the claimed services listed in the FFS claims line-item files were either not covered or only partially covered by the HIE. The "values" of such services, expressed in CRVS units, had to be adjusted to reflect only the proportions of those services that had been covered by the HIE. Thus, in creating the FFSCOMP files, the CRVS units for each physician/health professional service listed in the FFS claims line-item files were first converted to *covered units* using the formula below.

$$\text{Covered CRVS units} = \frac{\text{Line-item charge - noncovered portion of charge}^{19}}{\text{Line-item charge}} * \text{CRVS units for the procedure}$$

In the FFSCOMP files, all covered CRVS units were then converted into imputed covered charges using the same dollars-per-CRVS units used to calculate HMO charges. If the CRVS units for an FFS procedure or service were missing and could not be determined, the imputed charge for that service was set equal to the actual covered FFS charge for the service. If no portion of a given FFS service in the FFSCOMP files was covered by the HIE, then the assigned covered CRVS units and imputed charge for the service were set to zero, and such services were dropped from the visit aggregation process. Thus, only the *covered* portions of FFS charges are included in the imputed charge totals presented in the HMO and Seattle FFS visits files.

CRVS modifier codes were used to indicate special circumstances involved in certain physician services or procedures. A CRVS modifier of 1 was created to denote an unknown auxiliary service that was part of a lump-sum fee, i.e., part of a package of services such as those provided in pre- and postsurgical procedures. The physician did not specify these procedures but listed them only as related to another major service (e.g., listing removal of stitches only as a "post-operative service"). These unspecified auxiliary services were assigned the CRVS code of the primary service to which they were related and given a modifier code of 1. However, it is the CRVS code of the service, not the modifier code, that is used in assigning CRVS units to a given procedure for the imputation of charges; therefore, each auxiliary service having a CRVS modifier code of 1 would be imputed as a primary service unless the charge was adjusted. For this reason, RAND analysts computed and applied deflation factors to compensate for over-assignments of CRVS units in cases involving CRVS modifier codes of 1.

[19]As noted, deductibles or coinsurance payments, which were originally treated as *noncovered* charges in the FFS claims line-item files for the purpose of reimbursements, are included in the *covered* total charges presented in these files. Thus, in this equation, the noncovered portion of the line-item charge was set to zero if it represented a deductible or coinsurance payment.

In-Plan and Out-of-Plan Charges

The covered charges shown in the Seattle visits files can be of two types:

In-plan charges are those that were covered by the participant's insurance plan.

- For FFS participants, *all* covered charges were in plan.
- For the HMO experimental group, in-plan charges include: (1) charges provided or covered by GHC including FFS use, e.g., emergencies and referrals, or (2) the supplementary HIE coverage for services that were not available at GHC.
- For the HMO control group, in-plan charges are those for services provided or covered by GHC according to the participant's own HMO insurance plan.

Out-of-plan charges apply only to GHC participants. Generally, "out of plan" refers to FFS services that GHC would not cover. In fact, such a definition is used in a RAND HIE analysis of these data[20] and in the HMO-Seattle FFS annual expenditures and visit counts file.[21] In those instances, "out-of-plan" services were defined as *all* FFS services not covered (reimbursed) *100 percent* by GHC. However, a more restrictive definition of "out of plan" is used in these files.

- For the GHC experimental group, "out-of-plan" refers to a participant's expenditures that were not covered by GHC *nor 100 percent by the HIE's supplemental coverage*.[22]

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[20]W. G. Manning et al., *A Controlled Trial of the Effect of a Prepaid Group Practice on the Utilization of Medical Services*, The RAND Corporation, R-3029-HHS, September 1985.

[21]C. E. Peterson et al., *Aggregated Claims Series, Vol. 5: Codebook for Health Maintenance Organization and Seattle Fee-for-Service Annual Expenditures,* The RAND Corporation, N-2360/5-HHS, November 1986.

[22]Such expenditures, however, were reimbursed 5 percent by the HIE as an incentive for the participant to report out-of-plan use.

RELATED FILES

Aggregated Claims Series

The Seattle visits files constitute the fourth volume of the aggregated claims series, a series of derived-variable files in which primary-variable data taken from the FFS and HMO claims line-item files have been aggregated in different ways. Table 4 lists the files found in the aggregated claims series, with a brief description of some of the important variables in each. Order information concerning these files can be found in Appendix B. Further information about these files can be found in the user's guide of the HIE reference series.

Master Sample Series

To select analytic subsamples using particular demographic and eligibility criteria, reference to the master sample series will be necessary. Volume 1, the eligibility-family changes file, provides data concerning eligibility and family changes among enrollees.[24] Volume 2, the full sample demographic file, presents demographic data for all enrollees and anyone considered for enrollment.[25] Volume 3, the supplemental data file, contains supplemental data including information about eligible people who refused to enroll and Seattle HMO participants who moved away from Seattle. It also contains the code identifiers that link newborns to their mothers.[26]

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[24]S. M. Polich and C. d'Arc Taylor, *Master Sample Series, Vol. 1: Codebook for Eligibility-Family Changes File*, The RAND Corporation, N-2264/1-HHS, May 1986.

[25]S. M. Polich et al., *Master Sample Series, Vol. 2: Codebook for Full Sample Demographic File*, The RAND Corporation, N-2264/2-HHS, May 1986.

[26]To be issued as part of HIE documentation. The contents of this volume have not been finalized. See Appendix B for order information.

- For the GHC control group, "out of plan" refers to all expenditures that were not covered by the participant's own GHC plan. For this group, *all* FFS expenditures are considered "out of plan."

For both groups, if GHC did not cover an FFS service because it could have been procured at GHC, then the HIE also did not *fully* (100 percent) cover the service. However, as an incentive to report such out-of-plan use, the HIE covered (reimbursed) 5 percent of the cost of the service.

As discussed at the beginning of this section, the HIE provided supplemental benefits to enable the GHC experimental group's benefits to match those available to FFS enrollees (e.g., chiropractic care, nursing home care, psychiatric services, podiatrist services, speech therapy). Thus, in these files, the more restrictive definition of out-of-plan expenditures for the GHC experimental group enables users to identify this group's use of services *beyond* the HIE-provided supplemental coverage, as well as its use of FFS services that were available at GHC.[23]

If analysts wish to use the *less* restrictive definition of out-of-plan expenditures, which may be more relevant to their own analyses of the Seattle visits data, they should be aware that such out-of-plan expenditures exist when the variable HMO = 1 or 2 (indicating that the participant was in the HMO experimental or control group) and the variable MER = 1 (indicating that the record comes from the FFSCOMP line-item files). To calculate out-of-plan expenditures using this less restrictive definition, users can redefine the variable XCAMT (Out-of-Plan Amount) in this file by setting a new XCAMT equal to the sum of CAMT (present in-plan amount) and XCAMT (present out-of-plan amount).

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[23]See Appendix H for a description of the services available to the experimental group within the HMO (GHC-covered services) and outside the HMO (HIE-covered FFS services).

Table 4

AGGREGATED CLAIMS SERIES

File	Sample	Variables
FFS annual expenditures and visit counts	All insured FFS participants; one record per person per year	Annual totals for inpatient, outpatient, mental health and dental expenditures; annual counts of hospitalizations, physician visits, nonphysician visits, mental health visits, and dental visits
HMO annual expenditures and visit counts (includes Seattle FFS)	All insured Seattle FFS and HMO participants and HMO control group in Seattle; one record per person per year	Annual totals for inpatient, outpatient, and mental health imputed expenditures; annual counts of hospitalizations, physician visits, nonphysician visits, and mental health visits
FFS visits -inpatient -outpatient -dental	Claims for health services for FFS-insured persons only; dental file includes claims for all insured persons; one record per person-provider-date of service	Covered expenses summed by visit; visit type, diagnosis, procedure codes
HMO and Seattle FFS visits -inpatient -outpatient	Claims for health services for insured Seattle FFS and HMO participants; one record per person-provider-date of service	Imputed expenses summed by visit; visit type, diagnosis, procedure codes
FFS treatment episodes and annual episode counts	Episode of treatment for insured FFS participants; one record per episode	Covered expenses summed by episode of treatment, diagnosis, episode type, amount of maximum dollar expenditure (MDE) remaining at beginning and end of episode
	Episode counts and expenditures for insured FFS participants; one record per person per year	Annual episode counts and expenditures summed by type: acute, chronic, well care, outpatient, dental, and hospital

USING THE CODEBOOKS

Header Variables

Five identifying variables are placed at the front of each file. They are FILENAME, PERSON, SITE, INSTAT, and CONTYR.

FILENAME denotes the particular file. PERSON identifies each participant by person number, permitting data to be gathered for a certain person across all files. SITE contains codes to identify each site.[27] INSTAT indicates the HIE insurance status of the participant. CONTYR indicates the contract year of coverage for which data were gathered.[28]

Variable Descriptions and Constructions

Variables on the visits files consist of derived variables and primary variables. Derived variables were created by HIE analysts, and their constructions are shown in the codebooks. All primary variables (such as diagnoses, services, and dates of service) were taken directly from the HMO claims line-item files and FFSCOMP files and need no constructions.

Note that some HMO and FFSCOMP line-item variables have been renamed on this file to better reflect their functions and to match the variable names used in the FFS visits files. For example, the HMO and FFSCOMP diagnosis variable DEI5522 (First Diagnosis) is presented on this file as DIAGA1 (First Diagnosis). In the constructions, primary variables taken from the line-item files begin with the prefix "DEI" (for Data Element Indicator) and are listed with that prefix in the constructions of the derived variables in these files.

The codebook documentation for each variable consists of two main parts: a description of the variable and a description of its construction, if applicable. The variable descriptions of both primary and derived variables are arranged in boxes. Additional background or information concerning a variable's use is noted directly beneath the

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[27] Site has only one value in these files because only Seattle participants were used.

[28] In most cases, each contract year spanned two calendar years.

box, if necessary. For derived variables, a subheading beneath the box, "SOURCE," shows the line-item source files and primary variables used in constructing the derived variable. For full descriptions of those variables, the user must consult the respective HMO or FFSCOMP line-item file.

In the interests of clarity and conciseness, derived-variable constructions are written in pseudo-code, a summarized and compacted version of the actual SAS programming code used to create each variable. All derived variables presented in pseudo-code in this file are assumed to be initialized to zero.[29] The subheading "VARIABLE VALUES" presents the variable values used in the construction of the SAS pseudo-code. An example of the derived variable VPHYSMED from the outpatient visits file is provided below. Explanations are offered in italics.

At the right of each box will be a table of statistics or frequencies (not shown in the example). Expenditure variables each have a table of statistics that indicates (1) the number of observations, (2) the number of observations with missing values, (3) the mean, (4) the median, (5) the minimum value, (6) the maximum value, (7) the standard deviation, (8) the coefficient of variation, (9) skewness, and (10) kurtosis. The remaining variables have tables of frequencies that indicate each response code and its (1) frequency, (2) cumulative frequency, (3) percentage of frequency, and (4) cumulative percentage of frequency. Tables of frequencies are not provided for variables having too many response codes for concise presentation (e.g., diagnosis variables).

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[29]This contrasts with some HIE data files, where the derived variables are initialized to "missing."

Example

VARIABLE VPHYSMED *(variable name)* HMO-FFS OUTPATIENT VISITS *(file label)*

Physical medicine visit *(variable label)*

CODES *(variable values and their definitions)*

0 = not defined as a physical medicine visit
1 = physical medicine visit

VPHYSMED indicates whether physical medicine services were provided during the visit. *(variable explanation)*

SOURCE

Files (HMO and FFSCOMP)		Variables	
FILE06	Services rendered by doctor	DEI5502	Provider number (PROVID)
FILE10	Injections given by doctor	DEI5555	Date of service (HDATE)
		DEI5606	Procedure code
		DEI5584	Place of service

Definition of construction below (done for HMO and FFSCOMP files separately): Examine all line items for a given outpatient visit to determine if any of them are related to physical medicine services. A visit is defined by a person (PERSON), date of service (DEI5555), and provider number (DEI5502). A visit is considered to be a physical medicine visit if the place of service is neither a hospital (DEI5584 NE 4) nor nursing home (DEI5584 NE 5), and at least one of the procedures rendered during the visits is classified as a physical medicine service (DEI5606 = 90100-90199, 97000-97261, OR 97500-97799).

CONSTRUCTION

Do for HMO and FFSCOMP line-item files separately:

```
DO OVER PERSON AND DEI5555 AND DEI5502;
  IF (DEI5584 < 4 OR DEI5584 > 5) THEN DO;
        IF (90100 <= DEI5606 <= 90199 OR 97000 <=DEI5606 <=97261 OR
            97500 <= DEI5606 <= 97799)
            THEN VPHYSMED=1;
  END;
END;
```

VARIABLE VALUES

DEI5584
- 4 = hospital
- 5 = nursing home

DEI5606
- 90100-90199 = home visits
- 97000-97261 = physical medicine visits
- 97500-97799 = miscellaneous physical medicine

Codes Used

Some data found in the claims files are expressed in codes taken from existing coding systems. In this file, such data include diagnosis codes and CRVS codes. HIE researchers also added categories to existing coding systems to describe services not adequately reflected by any existing code (e.g., CRVS codes). Codes and definitions for the codes used in all claims-related files are combined in one reference volume.[30]

[30]M. Nelsen and C. A. Edwards, *HIE References, Vol. 1: Codes Used in HIE Claims--Diagnoses, Symptoms, Procedures, Drugs, and Supplies*, The RAND Corporation, N-2349/1-HHS, May 1986. This volume is hereafter referred to as *Codes Used.*

III. THE HMO AND SEATTLE FFS OUTPATIENT VISITS FILE

INTRODUCTION

In this section, we discuss the sample population, data sources, and file creation of the HMO and Seattle FFS outpatient visits file. The type of information available in the file is also described, and considerations involved in comparing FFS and HMO outpatient visits are discussed. We present the types of outpatient visits and visit expenditures that the HIE summed and show the interrelationships of the frequencies of the outpatient visit counts variables. Finally, we discuss certain variables in this file to clarify their purposes and limitations.

This file presents the diagnoses rendered, professional services performed, and total imputed charges incurred at each covered outpatient visit of a Seattle HIE participant with an FFS or HMO provider on a given date.[1] The unit of observation in this file is a covered outpatient visit, i.e., the set of covered health services associated with a given participant, provider, and date of service. There is one record (set of variables) for each visit.

An outpatient visit is defined as the set of outpatient services rendered to a participant by *one provider on one date.* Because of the different ways in which outpatient services data were gathered from the two health care systems (i.e., from FFS claims or HMO hospital records) the scope of services observed in an outpatient visit to an FFS provider may differ from those observed in the records of an outpatient visit to an HMO provider. The records of GHC outpatient services were abstracted from centralized medical records; GHC was considered the provider, and multiple outpatient services occurring on one day for a given GHC participant could be placed on one visit record at the time of the abstraction (e.g., laboratory and radiology services were combined with physician services if they occurred on the same day).

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[1]Again note that the costs of drugs, supplies, and outpatient hospital/institutional services are not included because the values of such services could not be imputed.

However, FFS outpatient visit services associated with a single visit often came from different FFS providers (e.g., private laboratories, radiologists, and consulting specialists) and were usually billed on separate insurance claims. Therefore, such ancillary FFS visit services, because they were billed by different providers, *are listed as separate outpatient visits in this file.*

For cost-per-visit comparisons, users may want to link office visits and associated laboratory tests from different providers. Information on linking office visits and laboratory tests for FFS participants is available in the user's guide of the HIE reference series.[2] To count types of visits, no linking is necessary.

Only claimed services that were covered by the HIE are listed on this file. If an FFS outpatient service or visit was part of a lump-sum billing, such as in pre- or postoperative care, a charge of zero was recorded on the claim for that service or visit; services and visits with imputed charges of zero were dropped from the file. We discuss HMO services that were comparable to FFS lump-sum services in a separate subsection below.

SAMPLE POPULATION

This file contains only the records of HIE Seattle participants who *used* covered outpatient services during the HIE. The total number of such Seattle participants found in this file is 3,090. They are represented by group as follows:[3]

FFS	1162
HMO Experimental	1148
HMO Control	780
Total	3090

[2]See Appendix B for order information.

[3]Again note that a participant's FFS or HMO insurance status is based on the plan in which the participant's family was enrolled.

FILE CREATION

Outpatient visit data used in this file were taken from claims line-item files 06 and 10 of the HMO and FFSCOMP files. (See Table 3 for a description of these files.) Each outpatient visit was aggregated by collecting all data concerning covered outpatient services associated with a given participant, provider, and date of service. The total imputed expenditures for each outpatient visit were aggregated by summing all *covered* imputed outpatient charges associated with a given participant, provider, and date of service. The type of visit was determined by examining all diagnosis codes and procedure codes for the aggregated sets of line items described above.

The above aggregations were done separately for the HMO and FFSCOMP line-item files.[4] The variable MER identifies visits that came from the HMO claims line-item files (MER = 0) and those that came from the FFSCOMP files (MER = 1).

HMO and FFS participants who moved from Seattle were dropped from comparison after the date of the move; i.e., there are no visit records for such people in this file after the date they moved. Similarly, HMO participants who switched to FFS plans were dropped from comparison after the date they switched plans.

COMPARISON CONSIDERATIONS INVOLVING LUMP-SUM BILLING

Researchers should note that visits to HMO providers involving procedures that would have been billed as part of a lump-sum "package" of procedures in the FFS system (e.g., pre- and postsurgical services, and pre- and postnatal care) tend to show up much more frequently in the HMO files than in the FFS files. This is because such FFS lump-sum package visits were, as the name implies, billed as part of a single inpatient charge, and this single charge is found in the FFS inpatient

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[4]Ten HMO participants in the outpatient visits file have duplicate visit records (one from the HMO files and one from the FFSCOMP files) with the same provider and date of service. These appear to be instances where the HMO participant filed a claim for FFS services with both GHC and the HIE, and the double filings were overlooked by HIE adjustors. The treatment of these duplicate records is left to the user.

visits file attached to the major inpatient service of the package (e.g., a surgery). Thus, unbilled FFS outpatient lump-sum services and visits do not appear in the visits records.

However, because HMO visits were abstracted from HMO medical records, all outpatient visits related to pre- or postnatal maternity services and pre- or postoperative services were reported in the HMO claims line-item files. Thus, visits involving "lump-sum" types of outpatient services appear much more frequently among HMO outpatient visits than among FFS outpatient visits because such HMO services and visits were counted and included whereas such FFS visits were unbilled and therefore dropped.

During the charge imputation process in the HMO claims line-item files, the HIE attempted to compensate for the imbalance in "lump-sum" types of visits by using GHC codes (GHC's own notation system that identifies the purposes of office visits) to identify pre- and postoperative or pre- and postnatal office visits, and impute their charges as zero. This would cause them to be dropped from the outpatient visits file, thus making them "invisible," like the unbilled FFS lump-sum outpatient services.

However, the laboratory tests associated with such HMO visits had specific CRVS codes attached to them, and therefore the laboratory services had charges imputed for them. Thus, when HMO line-item services were aggregated to the outpatient visit level by person, provider, and date of service, these visits remained in the outpatient visits file because the imputed charges of the lab tests gave the visit an overall positive charge instead of the intended zero charge. Thus, the problem of comparing the number of FFS "lump-sum" pre- and postoperative or pre- and postnatal visits visits with such separately reported HMO visits still existed after aggregation of the above services. The problem was dealt with as follows:

- Pre- and postoperative outpatient visits are included in this file and have not been adjusted (i.e., charges have not been reset to zero or the records dropped from the file). The treatment of such cases is left to the user. In the FFS system, the number of pre- and postsurgical outpatient visits

that are included in the charge for a surgery can vary greatly depending upon the type of surgery and the discretion of the physician. Thus, it is difficult to isolate which pre- and postsurgical visits in the HMO data would be comparably lump-sum billed. Because such distinctions could not be made for the HMO data, no adjustments were made to them.

- Records of pre- and postnatal maternity services to *mothers*, because of the comparison problems cited above, were dropped after the aggregation process, and thus their pre- and postnatal visits are not found in the outpatient visits file.[5] A visit was defined as prenatal/postnatal if any of the diagnosis codes for the visit were among those listed in Table 5 or if any of the CRVS codes were among those in Table 6. However, postnatal outpatient services rendered to *infants*, and hence appearing on the infant's record, were kept and are found in this file; these visits are not flagged by a visit-type variable.

VISIT TYPES

Outpatient visits were divided into types for economic analysis. Each visit type was classified according to the type of provider and the types of outpatient physician procedures or services rendered during the visit. These visit classifications are presented in visit-type variables that indicate whether visits were physician visits, nonphysician visits, face-to-face visits, mental health visits, or radiology-anesthesiology-pathology-only visits. Certain visit types could overlap (e.g., a face-to-face physician visit for physical medicine). Other types, such as face-to-face visits and radiology-anesthesiology-pathology-only visits, could not overlap. Users who desire counts of covered outpatient visits *to a health professional* (excluding psychotherapy visits and visits that involved only radiology, pathology, or anesthesiology) will find such counts reflected in the frequency distribution of the variable FTF (Face-to-Face General

[5] If users wish to examine prenatal outpatient care for mothers, they must refer to the HMO and FFSCOMP line-item files.

Table 5

DIAGNOSIS CODES DEFINING MATERNITY-RELATED VISITS

Codes	Diagnoses
72.0 - 74.9	obstetrical procedures
650.0 - 664.9	delivery
Y06.0 - Y06.1	prenatal care
Y06.3	failed induction of labor
Y06.4	failed trial of labor for vaginal delivery
Y06.9	pregnancy associated with nonobstetric condition
Y07.0 - Y07.1	postpartum observation
Y20.0 - Y29.9	liveborn infant births
Y30.0 - Y32.9	fetal death

Table 6

CRVS CODES DEFINING MATERNITY-RELATED VISITS

CRVS Codes	Services
59400 - 59446	delivery care
59481	observation of labor without delivery
59500 - 59561	caesarean section
59889	unlisted maternity care and delivery procedure

Health Visit). Table 7 presents a listing of the visit-type variables found in the codebook, with a summary of the function of each. Below we discuss the visit-type variables in greater detail.

FTF and RAP

The variable RAP defines radiology-anesthesiology-pathology-only visits. These tend to be laboratory visits that were billed separately from the office visit that ordered them. The variable FTF indicates "general health face-to-face" visits, i.e., visits that did not involve psychotherapy and in which there was an element of direct evaluation or treatment. These visits tend to be primary office visits in which other

Table 7

VISIT-TYPE VARIABLES IN THE OUTPATIENT VISITS FILE

Variable Name & Label	Summary
FTF Face-to-face General Health Visits	Indicates a visit that had an element of direct evaluation or treatment; visits involving psychotherapy are excluded; visits for radiology-anesthesiology-pathology services only are excluded.
ER Emergency Room Visit	Indicates whether visit took place in a hospital emergency room (based only on physician charges).
VISTYPE M.D., Non-M.D. or Mental Health	Indicates whether a visit was to a physician, nonphysician, or mental health provider.
VPHYSMED Physical Medicine	Indicates whether physical medicine or home visit services were provided.
RAP Radiology-Anesthesiology-Pathology-Only	Indicates whether radiology, anesthesiology, or pathology were the only services provided during the visit.

tests (billed separately and therefore recorded as RAP visits) may have been ordered. A visit in this file could not be simultaneously both a RAP visit and an FTF visit. However, some visits could be neither a RAP nor an FTF visit (e.g., mental health visits).

Because RAP visits usually stem from face-to-face visits, users may want to link FTF and RAP visits to obtain the full cost associated with a given face-to-face visit. A user can link these two types of visits by devising his/her own rules of matching based on person identifier, date of service, provider, and "provider referred from" variables in the claims line-item files.[6] Note that possible errors in dates, such as a billing date written in for the date of service, should be taken into account in the matching process.

VPHYSMED

The variable VPHYSMED indicates visits in which physical medicine or home visit services were rendered. This variable is provided so that analysts who wish to separate physical medicine and home visits from other types of visits can easily do so.

ER

The variable ER indicates whether a visit took place in an emergency room. However, this variable is based only on outpatient physician service information taken from Files 6 and 10 in the HMO claims line-item files or FFSCOMP files. If the only record of an emergency room visit appeared in HMO or FFSCOMP File 11 (outpatient hospital services), that outpatient emergency room visit will *not* appear in the outpatient visits file. HMO and FFSCOMP File 11s were not used in creating the HMO-Seattle FFS outpatient visits file because there are no imputed charges available for such services. Thus, the variable ER in this file probably underrepresents the total number of outpatient emergency room visits.

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[6]For an example of one method used in linking RAP to FFS visits, see Lee A. Lillard et al., *Preventive Medical Care: Standards, Usage and Efficacy*, The RAND Corporation, R-3266-HCFA, August 1986.

SUMMARY OF VISIT-TYPE VARIABLE RELATIONSHIPS

Table 8 shows the possible combinations of values in this file for the variable VISTYPE and three visit-type variables, FTF, RAP, and VPHYSMED, as well as the frequency (number of visits) associated with each combination of values for visits to FFS providers. Table 9 shows a similar set of value combinations for visits to HMO providers The four labels for VISTYPE values are in the left hand column, followed by the VISTYPE value in the second column, the other possible combinations of variable values in the following columns, the frequency (number of visits) of that particular combination of variable values, and the percentage of total visits they represent.

To familiarize users with analyzing these tables, we will discuss Table 8. As shown in Table 8, 140 visits of FFS participants (0.7 percent of total FFS visits) have zero values for all the visit variables. Such visits tend to be for tests that are not radiology, pathology, or anesthesiology and are not face-to-face visits (i.e., do not have an element of direct evaluation or treatment). Examples are hearing tests and neuromuscular tests.

A little over 12 percent of total visits are for radiology-pathology-anesthesiology purposes only (RAP = 1) and about 14 percent are for mental health purposes. About 61 percent are visits to physicians (VISTYPE = 1), and 12.6 percent are to nonphysicians (VISTYPE = 2). Note that these are face-to-face visits only (FTF = 1), with nearly two-thirds of the latter for physical medicine (VPHYSMED = 1).

EXPLANATION OF VARIABLES

The variables in this file are defined within the codebook and their constructions given. Below we discuss some important facts about certain variables in this file to clarify their purposes and limitations.

Table 8

VISIT TOTALS FOR FOUR TYPES OF ENCOUNTERS
FOR FFS PARTICIPANTS

VISTYPE Value Label	VISTYPE Value	FTF Value	RAP Value	VPHYSMED Value	# of Visits	% of Visits
Mental Health Visit	3	0	0	0	2,972	13.8
Non-M.D.	2	1	0	0	899	4.2
Visit	2	1	0	1	1,820	8.4
M.D.	1	1	0	0	12,523	58.4
Visit	1	1	0	1	449	2.1
None of the	0	0	0	0	140	0.7
Above	0	0	1	0	2,657	12.4

Table 9

VISIT TOTALS FOR FOUR TYPES OF ENCOUNTERS
FOR HMO PARTICIPANTS

VISTYPE Value Label	VISTYPE Value	FTF Value	RAP Value	VPHYSMED Value	# of Visits	% of Visits
Mental Health Visit	3	0	0	0	2,345	6.0
Non-M.D.	2	1	0	0	8,444	21.6
Visit	2	1	0	1	4,134	10.6
M.D.	1	1	0	0	21,288	54.4
Visit	1	1	0	1	170	0.4
None of the	0	0	0	0	222	0.6
Above	0	0	1	0	2,545	6.5

DIAGNOSES

The diagnosis variables on this file present codes for up to four diagnoses rendered during the outpatient visit. HICDA codes are used to classify diagnoses.[7] Supplementary diagnosis codes were added under the direction of a RAND HIE physician to describe diagnoses not adequately reflected by any existing HICDA code. All HICDA and supplementary diagnosis codes used in the following files, with their definitions, are found in Sec. I of *Codes Used*. Because diagnosis codes are used throughout the claims files, there are too many possible values for presentation; thus, diagnosis frequencies are not presented in the codebook.

Each diagnosis is defined by three variables: (1) an actual diagnosis, (2) a diagnosis qualifier, and (3) an associated diagnosis. The possible qualifiers are "and, rule out, possible, probable or question of, with or due to, not, or."

An example of a diagnosis would be "cold with fever" where "cold" is the actual diagnosis, "with" is the qualifier, and "fever" is the associated diagnosis. Occasionally, a physician could not make a diagnosis with certainty and listed only an associated diagnosis. In such cases, coders left the diagnosis space blank and entered only the physician's qualifier and the associated diagnosis code, attempting to reproduce the physician's wording as closely as possible.

In medical terminology, "rule out" is an implied command to the physician which means *try to rule out* or *prove it's not*. For example, a diagnosis might be written as "influenza rule out pneumonia." This means the physician is considering the possibility that pneumonia may exist but cannot yet conclude if it is "ruled in" or "ruled out." Therefore, he must make further efforts to rule it out as a possibility. Although "rule out" is a variation of "possible, probable, or question of," it was used to reproduce the physician's wording as closely as possible.

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[7]Commission on Professional Hospital Activities, *Hospital Adaptation of the ICDA (International Classification of Diseases Adapted for Use in the United States)*, 2nd Edition, Ann Arbor, MI, August 1973.

CRVS1 - CRVS4

As explained in Sec. II, covered health procedures and services rendered by physicians and nonphysician health professionals were recorded using CRVS codes. Variables CRVS1, CRVS2, CRVS3, and CRVS4 list up to four health procedures or services rendered by a physician or other health professional during a given visit. In visits involving more than four covered services (approximately 3 percent of total visits), the four services presented were selected according to a ranking procedure for presentation. The ranking procedure is detailed in a note below the variable CRVS1 in the codebook.

The presence of more than four outpatient physician/health professional services at a given visit are not flagged in these data. Thus, visits in this file containing values in all four CRVS variables may have more CRVS codes that do not appear. To determine whether other services were performed in such visits, users must refer to the HMO line-item files (if the visit has the value of MER = 0) or the FFSCOMP files (if the visit has the value of MER = 1) and examine line items with the given person, provider, and date-of-service identifiers. A few cases may exist where a visit-type variable indicates that a certain type of procedure was performed; however, if *more* than four covered procedures were performed, the relevant CRVS code may not be listed among the four procedures on the visit record. In these cases, users must consult the claims line-item files for an indication of the missing service or procedure. Researchers should also note that in visits involving more than four covered health procedures, the covered imputed expenditures total shown for the visit includes *all* covered procedures and services rendered, not only the four that are shown.

CRVS MODIFIERS

Up to two CRVS modifier code variables exist for each of the four CRVS code variables. They indicate codes for special circumstances that may have been involved in a given CRVS procedure. These modifier codes are usually dependent upon the type of CRVS procedure involved; modifier code definitions can be found in the CRVS code manual.[8] The most

[8]California Medical Association, *California Relative Value Studies*, San Francisco, 1975.

frequently used modifiers were 80 (assistant surgeon for the procedure), 52 (incidental surgical procedure with reduced value), 58 (visit charge included with surgical procedure), 30-49 (related to anesthesia), and 26, 27 (related to pathology and radiology). As discussed in Sec. II, a code value of 1 was added by RAND researchers to denote an unknown service that was part of a lump-sum fee.

PROVTYPE

The variable PROVTYPE indicates a five-digit code that describes the type of provider who rendered services to the participant. Codes describing hospitals were taken from listings of the American Hospital Association (AHA). In the case of physicians, one medical specialty is listed for each physician; listings were taken from listings by the American Medical Association (AMA). Although some physicians have more than one specialty, only one specialty is listed here. The HIE had no way of knowing the physician's primary specialty and therefore used the first specialty listed with the AMA. Thus, the specialty shown in this file may not be the physician's primary specialty, and it may not necessarily be the specialty appropriate to the visit recorded on the file.

Descriptions of the codes designating provider types are listed in Appendix G. For complete information concerning the provider, the provider codes given here must be linked with information in the provider file of the HIE reference series.[9]

MER

The variable MER indicates whether the data for a given visit come from the FFSCOMP line-item files or the HMO line-items files. If MER = 1, then the visit data were taken from line items in the FFSCOMP files. FFS participants have visits only with values of MER = 1; for HMO participants, MER can equal 0 or 1. For an HMO participant, a value of MER = 1 indicates that the visit was to an FFS provider and was not fully reimbursed by GHC.

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[9]To be published as part of HIE documentation. See Appendix B for order information.

CAMT

The expenditure variable CAMT presents the total amount of imputed in-plan covered expenditures for the participant outpatient visit. Charges are not itemized by service. For FFS participants, CAMT includes the portion of imputed costs that would have applied toward the participant's deductible or coinsurance rate. CAMT sums only the *covered* portions of the in-plan services rendered at the visit.[10]

XCAMT

XCAMT presents the total amount of imputed *out-of-plan* expenditures for an outpatient visit of a GHC participant to an FFS provider, i.e., the charges that GHC did not cover and were not fully reimbursed by the HIE.[11]

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[10]In most cases, a service was either completely covered or noncovered. Partially covered services arose primarily when another insurance carrier paid for a portion of the charge.

[11]The out-of-plan expenditure totals for a given participant and year in this file will *not* equal the out-of-plan expenditures for that participant/year in the HMO-Seattle FFS annual expenditures and visit counts file. This is because the definitions of "out of plan" are different in the two files, as explained in Sec. II.

CODEBOOK FOR THE HMO AND SEATTLE FFS OUTPATIENT VISITS FILE

CODEBOOK FOR THE HMO AND SEATTLE FFS
OUTPATIENT VISITS FILE

VARIABLE FILENAME — HMO-FFS OUTPATIENT VISITS

Name of file

FILENAME is a 6-digit code that uniquely identifies the file. This file name is DEWO2A.

FILENAME

VALUE	FREQ	CUM FREQ	%	CUM %
DEWO2A	60608	60608	100.00	100.00

VARIABLE PERSON — HMO-FFS OUTPATIENT VISITS

Person identifier

PERSON is an 8-character alphanumeric code that uniquely identifies the HIE participant to whom the following data refer. The second character of PERSON designates the site where the participant resided when enrolled. A=Dayton; B=Seattle; E=Fitchburg; F=Franklin County; G=Charleston; H=Georgetown County.

VARIABLE SITE — HMO-FFS OUTPATIENT VISITS

Site

CODES

2 - Seattle, Washington

SITE identifies the participant's place of residence when the participant enrolled.

SITE

VALUE	FREQ	CUM FREQ	%	CUM %
2	60608	60608	100.00	100.00

VARIABLE INSTAT — HMO-FFS OUTPATIENT VISITS

Insurance status

CODES

1 - Ever insured (includes HMO experimental group)
2 - Ever assigned to HMO control group
3 - Never insured

INSTAT describes the participant's insurance status in the Health Insurance Experiment.

INSTAT

VALUE	FREQ	CUM FREQ	%	CUM %
1	44420	44420	73.29	73.29
2	16188	60608	26.71	100.00

VARIABLE CONTYR — HMO-FFS OUTPATIENT VISITS

Contract year

CODES

01 - First year
02 - Second year
03 - Third year
04 - Fourth year
05 - Fifth year

CONTYR identifies the participant's contract year of coverage for which the claim was filed under the HIE.

CONTYR

VALUE	FREQ	CUM FREQ	%	CUM %
01	17026	17026	28.09	28.09
02	15395	32421	25.40	53.49
03	14496	46917	23.92	77.41
04	7195	54112	11.87	89.28
05	6496	60608	10.72	100.00

VARIABLE HMO — HMO-FFS OUTPATIENT VISITS

HMO group

CODES

0 - FFS insurance group
1 - HMO experimental group
2 - HMO control group

HMO identifies whether the participant was enrolled in a fee-for-service insurance group, the HMO experimental group, or the HMO control group.

VARIABLE PROVID — HMO-FFS OUTPATIENT VISITS

Provider number

PROVID is an 8-character code that indicates the physician or other health provider who provided the visit services described on this record. For further information on the provider, this number can be linked to the provider series files. PROVID is equivalent to variable DE15502 on the claims line-item files.

NOTE: A provider number that begins with "C" indicates a GHC provider, and "E" indicates an FFS provider.

HMO

VALUE	FREQ	CUM FREQ	%	CUM %
0	21460	21460	35.41	35.41
1	22960	44420	37.88	73.29
2	16188	60608	26.71	100.00

VARIABLE HDATE — HMO-FFS OUTPATIENT VISITS

Date of service

CODES

19760105 to 19810831 - Range of dates on file (YYYYMMDD)

HDATE indicates the date on which the visit occurred. HDATE is equivalent to variable DEI5555 on the claims line-item files.

VARIABLE PROVTYPE — HMO-FFS OUTPATIENT VISITS

Provider type

PROVTYPE is a five-digit code that describes a provider's specialty and type of practice. The first three digits describe the provider's type (physician, dentist, hospital, etc.), and the fourth and fifth digits describe the provider's specialty. Descriptions of the codes designating provider type are listed in Appendix G.

NOTE: The specialty listed in PROVTYPE is the first specialty listed by the provider with the American Medical Association; thus, it may not represent the provider's primary specialty if the provider specialized in more than one field. The provider series files provide further information on the provider codes and provider specialties.

VARIABLE MER — HMO-FFS OUTPATIENT VISITS

Visit from FFSCOMP claims

CODES

0 - Visit record from HMO claims line-item files
1 - Visit record from FFSCOMP claims line-item files

MER identifies whether the visit came from the FFSCOMP claims line-item files (i.e., from a MER), or the HMO claims line-item files (i.e., from a SERR).*

*NOTE: MERs are Medical Expense Reports, the insurance claim forms used by FFS participants and providers. SERRs are Services Rendered Reports, which were claim-comparable forms used to record the services rendered or covered by GHC.

MER

VALUE	FREQ	CUM FREQ	%	CUM %
0	34721	34721	57.29	57.29
1	25887	60608	42.71	100.00

VARIABLE FTF — HMO-FFS OUTPATIENT VISITS

Face-to-face general health visit

CODES

0 - Not a face-to-face visit
1 - Face-to-face general health visit

FTF indicates whether the visit is an outpatient face-to-face visit for general health purposes. A visit is defined as face-to-face general health if there was an element of direct evaluation or treatment, and the visit had no psychotherapy services. Excluded are visits where only radiology, anesthesiology, or pathology services were provided (FTF=0).

(cont.)

FTF

VALUE	FREQ	CUM FREQ	%	CUM %
0	10881	10881	17.95	17.95
1	49727	60608	82.05	100.00

VARIABLE FTF (cont.)

SOURCE

Files (HMO and FFSCOMP)		Variables	
FILE06	Services rendered by doctor	DE15502	Provider number (PROVID)
FILE10	Injections given by doctor	DE15555	Date of service (HDATE)
		DE15584	Place of service
		DE15606	CRVS code
		DE15607	1st CRVS modifier
		DE15608	2nd CRVS modifier

CONSTRUCTION

For HMO and FFSCOMP files separately:

```
DO OVER PERSON AND DE15555 AND DE15502;

    IF (DE15584 < 4 OR DE15584 > 5)
       THEN DO;

          IF (DE15606 = any CRVS code in Table 10) AND
             (DE15607 < 30 OR DE15607 > 49) AND
             (DE15608 < 30 OR DE15608 > 49)
             THEN FTF=1;

          END;
END;
```

VARIABLE VALUES

DE15584	DE15607, DE15608
4 = hospital	30-49 = anesthesia
5 = nursing home	

TABLE 10

CRVS Codes for Face-to-Face Visits

CRVS Codes	Services
10000-62273	surgery
59000-59889	maternity care and delivery
62280-64099	surgery
64531-69999	surgery
79000-79499	therapeutic radiation
90000-90099	office visit
90100-90199	home visits
90200-90499	hospital and nursing home visits
90500-90599	emergency care services
90600-90645	consultations
90700-90749	immunizations, therapeutic injections
90750-90799	pediatric office visits
90962-90999	dialysis services
91000-91299	GI diagnostic services
92000-92499	eye services
92504-92549	selected ENT services
93015-93017	selected cardiovascular services
93019-93022	selected cardiovascular services
93046	selected cardiovascular services
93500-93599	cardiac catheterizations
95000-95199	allergy testing
96000-96300	specific therapeutic procedures
96450-96499	specific therapeutic procedures
96900-96920	specific therapeutic procedures
97000-97261	physical medicine visits
97500-97799	miscellaneous physical medicine
99032-99034	counseling, conference

VARIABLE VISTYPE — HMO-FFS OUTPATIENT VISITS

Type of visit: MD, nonMD, mental health

CODES

0 - None of the below
1 - MD or doctor of osteopathy (mental health visits excluded)
2 - Not MD nor doctor of osteopathy (mental health visits excluded)
3 - Mental health visit

VISTYPE describes the type of medical visit that occurred. A value of 1 indicates that the visit took place with physician providers, including doctors of osteopathy, and had no element of mental health services. A value of 2 indicates that the visit took place with nonphysician medical providers, such as speech and physical therapists, chiropractors, podiatrists, acupuncturists, Christian healers, etc. A value of 3 indicates that the visit was for outpatient psychotherapy, including initial visits to a psychiatrist, psychologist, or other mental health specialist. Nonspecialists can provide outpatient psychotherapy services; thus VISTYPE=3 is not limited solely to mental health specialists.

SOURCE

Files (HMO and FFSCOMP)

FILE06 Services rendered by doctor
FILE10 Injections given by doctor

Variables

DE15502 Provider number (PROVID)
DE15555 Date of service (HDATE)
DE15584 Place of service
PROVTYPE Provider type
DE15606 CRVS Code
FTF Face-to-face visit indicator (derived variable)

(cont.)

VISTYPE

VALUE	FREQ	CUM FREQ	%	CUM %
0	5564	5564	9.18	9.18
1	34430	39994	56.81	65.99
2	15297	55291	25.24	91.23
3	5317	60608	8.77	100.00

VARIABLE VISTYPE (cont.)

CONSTRUCTION

For HMO and FFSCOMP files separately:

```
DO OVER PERSON AND DE15555 AND DE15502;

  IF (DE15584 < 4 OR DE15584 > 5)
     THEN DO;

          IF (90800 <= DE15606 <= 90899) OR
             ((DE15606 = CRVS code in Table 11) AND
             (PROVTYPE = any code in Table 12))
             THEN VISTYPE = 3;

          IF VISTYPE \= 3 AND FTF = 1
             THEN DO;

                  IF ((90100 <= DE15606 <= 90199 OR
                     97000 <= DE15606 <= 97799) AND
                     (DE15502 = a hospital)) OR
                     (PROVTYPE = any code in Table 13)
                     THEN VISTYPE = 2;

                  IF VISTYPE \= 2 AND
                    (PROVTYPE = any code in Table 14)
                     THEN VISTYPE = 1;

                  END;

          END;

END;
```

VARIABLE VALUES

DE15584

4 = hospital
5 = nursing home

DE15606

90800-90813 = psychotherapy, adult and child
90814-90833 = group or family therapy
90834-90838 = shock therapy
90839-90899 = other therapy or testing
90100-90199 = home visits
97000-97799 = physical therapy

TABLE 11

CRVS Codes for Mental Health Visits

CRVS codes	Services
90010	limited office visit
90011	unspecified level office visit
90015	intermediate office visit
90020	comprehensive office visit
90026	unusually complex office visit
90510	limited visit: emergency care facility
90511	unspecified level visit: emergency care facility
90515	intermediate visit: emergency care facility
90600-90645	consultations
99032-99034	counseling

TABLE 12

Mental Health Specialists

PROVTYPE CODE	Provider Specialty
01123	Psychiatrist (M.D.)
01124	Child psychiatrist (M.D.)
01223	Psychiatrist (D.O.)
01224	Child psychiatrist (D.O.)
01323	Psychiatric medical clinic
01324	Child psychiatric medical clinic
01386	Mental health clinic
01388	Alcoholism and/or drug treatment clinic
01423	Psychiatric osteopathic clinic
01424	Child psychiatric osteopathic clinic
01486	Mental health osteopathic clinic
01488	Alcoholism and/or drug treatment osteopathic clinic
02023	Psychiatric hospital outpatient clinic
02024	Child psychiatric hospital outpatient clinic
02086	Mental health hospital outpatient clinic
02088	Alcoholism and/or drug treatment hospital outpatient clinic
04110	Psychologist
04112	Psychiatric nurse, MSW, counselor
04118	Alcohol-drug abuse counselor
04196	Psychologically-oriented providers

TABLE 13

Nonphysician Providers

PROVTYPE CODE	Provider Specialty
04101	Audiologists
04102	Chiropractors
04108	Optometrists
05200	Opticians
04113	Paramedics
04106	Private duty nurse
04195	Ambulance
04109	Podiatrists
04103	Christian Science practitioner
04105	Physician's assistant
04115	Midwife
04111	Therapists
04123	Nurse practitioner
04193	Screening/health association

TABLE 14

Physician Providers

PROVTYPE CODE	Provider Specialty
011xx	Physicians (M.D.)
012xx	Physicians (D.O.)
013xx	Medical (health care) clinics and group practices
014xx	Osteopathic clinics and group practices
020xx	Hospital medical outpatient clinics
029xx	Hospital emergency rooms/departments

VARIABLE VPHYSMED — HMO-FFS OUTPATIENT VISITS

Physical medicine visit

CODES

0 - Not defined as a physical medicine visit
1 - Physical medicine visit

VPHYSMED indicates visits in which physical medicine services or home visit services were provided.

SOURCE

Files (HMO and FFSCOMP)		Variables	
FILE06	Services rendered by doctor	DE15502	Provider number (PROVID)
FILE10	Injections given by doctor	DE15555	Date of service (HDATE)
		DE15606	CRVS Code
		DE15584	Place of service

CONSTRUCTION

For HMO and FFSCOMP files separately:

```
DO OVER PERSON AND DE15555 AND DE15502;

  IF (DE15584 < 4 OR DE15584 > 5)
     THEN DO;

          IF 90100 <= DE15606 <= 90199 OR
             97000 <= DE15606 <= 97261 OR
             97500 <= DE15606 <= 97799
             THEN VPHYSMED=1;

          END;

END;
```

VARIABLE VALUES

DE15584	DE15606
4 = hospital	90100-90199 = home visits
5 = nursing home	97000-97261 = physical medicine visits
	97500-97799 = miscellaneous physical medicine

VPHYSMED

VALUE	FREQ	CUM FREQ	%	CUM %
0	54035	54035	89.16	89.16
1	6573	60608	10.85	100.00

VARIABLE RAP — HMO-FFS OUTPATIENT VISITS

Radiology-anesthesiology-pathology visit only

CODES

0 - Not a RAP visit
1 - Radiology, anesthesiology or pathology-only visit

RAP indicates if radiology, anesthesiology or pathology services were the only services provided during the visit.

NOTE: For visits where RAP=1, then FTF=0; i.e., visits where only radiology, anesthesiology or pathology services are performed are not considered face-to-face visits.

SOURCE

Files (HMO and FFSCOMP)

FILE06	Services rendered by doctor
FILE10	Injections given by doctor

Variables

DE15502	Provider number (PROVID)
DE15555	Date of service (HDATE)
DE15606	CRVS Code
DE15607	First CRVS modifier
DE15608	Second CRVS modifier
DE15584	Place of service
FTF	Face-to-face visit indicator (derived variable)

(cont.)

RAP

VALUE	FREQ	CUM FREQ	%	CUM %
0	55406	55406	91.42	91.42
1	5202	60608	8.58	100.00

VARIABLE RAP (cont.)

CONSTRUCTION

For HMO and FFSCOMP files separately:

```
DO OVER PERSON AND DE15555 AND DE15502;

   IF (DE15584 < 4 OR DE15584 > 5)
      THEN DO;

           IF DE15606 > 0 THEN NCRVS + 1;

           IF (70000 <= DE15606 <= 78999 OR
               79500 <= DE15606 <= 89999 OR
               62274 <= DE15606 <= 62279 OR
               64100 <= DE15606 <= 64530) OR
              ((30 <= DE15607 <= 49 OR 30 <= DE15608 <= 49) AND
              (0 < DE15606 < 79000 OR DE15606 > 79499))
              THEN NRAP + 1;

           END;

   IF (last line item for given DE15555 and DE15502)
      THEN DO;

           IF NRAP = NCRVS THEN RAP = 1;
              ELSE RAP = 0;

           IF RAP = 1 THEN FTF = 0;

           END;

   END;
```

VARIABLE VALUES

DE15584	4	= hospital
	5	= nursing home
DE15606	70000-79999	= radiology, ultrasound, and nuclear medicine services
	80000-89999	= pathology services: chemistry, toxicology, hematology, immunology, microbiology
	62274-62279	= spine and spinal cord injections
	64100-64530	= extracranial nerves, peripheral nerves and autonomic nervous system injections
	79000-79499	= therapeutic radiology and nuclear medicine services

(cont.)

VARIABLE RAP (cont.)

VARIABLE VALUES (cont.)

DEI5607	30-49 =	normal and complicated anesthesia services
DEI5608	30-49 =	normal and complicated anesthesia services

VARIABLE ER — HMO-FFS OUTPATIENT VISITS

Emergency room visit

CODES

0 - Not an emergency room visit
1 - Emergency room visit

ER indicates whether the visit took place in an emergency room. Emergency room status is determined solely by the location of physician services. If an outpatient emergency room visit generated only services billed by the hospital or clinic, such a visit would not appear in this file.

SOURCE

Files (HMO and FFSCOMP)

FILE06 Services rendered by doctor
FILE10 Injections given by doctor

Variables

DEI5502 Provider number (PROVID)
DEI5555 Date of service (HDATE)
PROVTYPE Provider type
DEI5606 CRVS Code
DEI5584 Place of service

(cont.)

ER

VALUE	FREQ	CUM FREQ	%	CUM %
0	58082	58082	95.83	95.83
1	2526	60608	4.17	100.00

VARIABLE ER (cont.)

CONSTRUCTION

For HMO and FFSCOMP files separately:

```
DO OVER PERSON AND DE15555 AND DE15502;

   IF (DE15584 < 4 OR DE15584 > 5)
      THEN DO;

           IF (90500 <= DE15606 <= 90599) OR
              (PROVTYPE = '02900') THEN ER = 1;

           END;

END;
```

VARIABLE VALUES

DE15584	DE15606	90500-90599	= emergency care services
4 = hospital	PROVTYPE	02900	= hospital emergency rooms/emergency departments
5 = nursing home			

VARIABLE DIAGA1 — HMO-FFS OUTPATIENT VISITS

1st diagnosis

CODES

Blank - Not applicable, missing

DIAGA1 indicates the code of the first condition listed by the health professional. Supplementary codes were added under the direction of a Rand HIE physician to describe diagnoses not adequately reflected by any existing H-ICDA code. The diagnosis codes used in this file are listed in Section I of "Codes Used." DIAGA1 is equivalent to variable DE15522 on the claims line-item files.

VARIABLE RULOUTA — HMO-FFS OUTPATIENT VISITS

1st diagnosis qualifier

CODES

. - Not applicable, missing
1 - No qualifier given
2 - Rule out
3 - Probable/possible/?/question of
4 - With, associated with, complicated by, secondary to, due to
5 - Not, turned out not to be, was not
6 - Or, versus
9 - Well-care code assigned*

RULOUTA indicates a diagnosis qualifier for the first diagnosis. In some instances (i.e., codes 2, 3, 5), it is possible a diagnosis qualifier was used in the absence of a primary diagnosis. RULOUTA is equivalent to variable DE15523 on the claims line-item files.

*NOTE: Value #9 is not a true diagnosis qualifier. Occasionally, health maintenance procedures were performed by the provider which did not pertain to any of the diagnoses on the MER. In such cases, coders assigned a well-care code from the HICDA, and it was notated in this variable.

RULOUTA

VALUE	FREQ	CUM FREQ	%	CUM %
.	3023	.	.	.
1	46653	46653	81.02	81.02
2	1156	47809	2.01	83.02
3	2734	50543	4.75	87.77
4	6490	57033	11.27	99.04
5	177	57210	0.31	99.35
6	306	57516	0.53	99.88
9	69	57585	0.12	100.00

VARIABLE DIAGA2 — HMO-FFS OUTPATIENT VISITS

1st associated diagnosis

CODES

Blank - Not applicable, missing

DIAGA2 indicates the first associated diagnosis code when required by the diagnosis qualifier. DIAGA2 is equivalent to variable DEI5524 on the claims line-item files.

VARIABLE DIAGB1 — HMO-FFS OUTPATIENT VISITS

2nd diagnosis

CODES

Blank - Not applicable, missing

DIAGB1 indicates the code of the second condition listed by the health professional. Diagnosis codes were assigned in the order in which the diagnoses appeared on the claim. All diagnosis codes appearing in this file are listed in Section I of "Codes Used." DIAGB1 is equivalent to variable DEI5525 on the claims line-item files.

VARIABLE RULOUTB — HMO-FFS OUTPATIENT VISITS

2nd diagnosis qualifier

CODES

. Not applicable, missing
1 - No qualifier given
2 - Rule out
3 - Probable/possible/?/question of
4 - With, associated with, complicated by, secondary to, due to
5 - Not, turned out not to be, was not
6 - Or, versus
9 - Well-care code assigned*

RULOUTB indicates a diagnosis qualifier for the second diagnosis. In some instances (i.e., codes 2, 3, 5), it is possible a diagnosis qualifier was used in the absence of a primary diagnosis. RULOUTB is equivalent to variable DE15526 on the claims line-item files.

*See note for RULOUTA.

VARIABLE DIAGB2 — HMO-FFS OUTPATIENT VISITS

2nd associated diagnosis

CODES

Blank - Not applicable, missing

DIAGB2 indicates the second associated diagnosis code when required by the qualifier. DIAGB2 is equivalent to variable DE15527 on the claims line-item files.

RULOUTB

VALUE	FREQ	CUM FREQ	%	CUM %
.	44018	.	.	.
1	12674	12674	76.40	76.40
2	724	13398	4.36	80.76
3	1065	14463	6.42	87.18
4	1880	16343	11.33	98.51
5	30	16373	0.18	98.69
6	63	16436	0.38	99.07
9	154	16590	0.93	100.00

VARIABLE DIAGC1 — HMO-FFS OUTPATIENT VISITS

3rd diagnosis

CODES

Blank - Not applicable, missing

DIAGC1 indicates the code of the third condition listed by the health professional. Diagnosis codes were assigned in the order in which the diagnoses appeared on the claim. All diagnosis codes appearing in this file are listed in Section I of "Codes Used." DIAGC1 is equivalent to variable DE15528 on the claims line-item files.

VARIABLE RULOUTC — HMO-FFS OUTPATIENT VISITS

3rd diagnosis qualifier

CODES

. - Not applicable, missing
1 - No qualifier
2 - Rule out
3 - Probable/possible/?/question of
4 - With, associated with, complicated by, secondary to, due to
5 - Not, turned out not to be, was not
6 - Or, versus
9 - Well-care code assigned*

RULOUTC indicates a diagnosis qualifier for the third diagnosis. In some instances (i.e., codes 2, 3, 5), it is possible a diagnosis qualifier was used in the absence of a primary diagnosis. RULOUTC is equivalent to variable DE15529 on the claims line-item files.

*See note for RULOUTA.

RULOUTC

VALUE	FREQ	CUM FREQ	%	CUM %
.	55697	.	.	.
1	3552	3552	72.33	72.33
2	203	3755	4.13	76.46
3	292	4047	5.95	82.41
4	777	4824	15.82	98.23
5	10	4834	0.20	98.43
6	18	4852	0.37	98.80
9	59	4911	1.20	100.00

VARIABLE DIAGC2 — HMO-FFS OUTPATIENT VISITS

3rd associated diagnosis

CODES

Blank - Not applicable, missing

DIAGC2 indicates the third associated diagnosis code when required by the qualifier. DIAGC2 is equivalent to variable DEI5530 on the claims line-item files.

VARIABLE DIAGD1 — HMO-FFS OUTPATIENT VISITS

4th diagnosis

CODES

Blank - Not applicable, missing

DIAGD1 indicates the code of the fourth condition listed by the health professional. Diagnosis codes were assigned in the order in which the diagnoses appeared on the claim. All diagnosis codes appearing in this file are listed in Section I of "Codes Used." DIAGD1 is equivalent to variable DEI5531 on the claims line-item files.

VARIABLE RULOUTD — HMO-FFS OUTPATIENT VISITS

4th diagnosis qualifier

CODES

. - Not applicable, missing
1 - No qualifier given
2 - Rule out
3 - Probable/possible/?/question of
4 - With, associated with, complicated by, secondary to, due to
5 - Not, turned out not to be, was not
6 - Or, versus
9 - Well-care code assigned*

RULOUTD indicates a diagnosis qualifier for the fourth diagnosis. In some instances (i.e., codes 2, 3, 5), it is possible for a diagnosis qualifier to be used in the absence of a primary diagnosis. RULOUTD is equivalent to variable DE15532 on the claims line-item files.

*See note for RULOUTA.

VARIABLE DIAGD2 — HMO-FFS OUTPATIENT VISITS

4th associated diagnosis

CODES

Blank - Not applicable, missing

DIAGD2 indicates the fourth associated diagnosis code when required by the qualifier. DIAGD2 is equivalent to variable DE15533 on the claims line-items file.

RULOUTD

VALUE	FREQ	CUM FREQ	%	CUM %
.	58892	.	.	.
1	1166	1166	67.95	67.95
2	89	1255	5.19	73.14
3	66	1321	3.85	76.98
4	357	1678	20.80	97.79
5	2	1680	0.12	97.90
6	1	1681	0.06	97.96
9	35	1716	2.04	100.00

VARIABLE CRVS1 — HMO-FFS OUTPATIENT VISITS

First CRVS code

CODES

. - Not applicable, missing

CRVS1 indicates a five-digit California Relative Value Studies (CRVS) code identifying a service provided by a health professional. A small number of codes were added under the direction of a Rand HIE physician to describe services not adequately reflected by an existing CRVS code. The CRVS codes used in this file are listed and defined in Section II of "Codes Used." The service listed was taken from the claims line-item files as described below. CRVS1 is equivalent to the variable DE15606 in the claims line-item files.

NOTE: A maximum of four CRVS codes were kept for each visit record. If four or less CRVS codes existed for a visit, all the codes were kept. If more than four CRVS codes existed for a visit, the codes were given an order ranking of 1-5. Four CRVS codes were then selected and kept in the following order:

(1) Face-to-face services, excluding those CRVS codes listed in (2), (3), and (5) (see Table 10 for face-to-face CRVS codes),
(2) Surgery services (CRVS=10000-69999),
(3) Mental health services (CRVS=90800-90899),
(4) Non-face-to-face services except radiology, anesthesiology, and pathology (see definition for RAP)
(5) Radiology, anesthesiology, and pathology services (see definition for RAP).

For example, if a visit had six CRVS codes, two in group (1) of the above, one in group (2) and three in group (5), the four CRVS codes selected for the visit record would be the two from group (1), the one from group (2), and the first CRVS code in group (5). The remaining two CRVS codes in group (5) would not be included on the visit record.

VARIABLE MOD11 — HMO-FFS OUTPATIENT VISITS

First CRVS1 modifier

CODES

. - Not applicable, missing

MOD11 indicates a special circumstance involved in the procedure listed in CRVS1. MOD11 is equivalent to the variable DEI5607 on the claims line-item files.

MOD11

VALUE	FREQ	CUM FREQ	%	CUM %
.	59360	.	.	.
1	55	55	4.41	4.41
22	8	63	0.64	5.05
26	259	322	20.75	25.80
27	77	399	6.17	31.97
28	1	400	0.08	32.05
29	10	410	0.80	32.85
30	29	439	2.32	35.18
48	1	440	0.08	35.26
50	1	441	0.08	35.34
52	4	445	0.32	35.66
54	1	446	0.08	35.74
55	6	452	0.48	36.22
58	787	1239	63.06	99.28
80	5	1244	0.40	99.68
90	4	1248	0.32	100.00

VARIABLE MOD12 — HMO-FFS OUTPATIENT VISITS

Second CRVS1 modifier

CODES

. - Not applicable, missing

MOD12 indicates a special circumstance involved in the procedure listed in CRVS1. MOD12 is equivalent to the variable DEI5608 on the claims line-item files.

MOD12

VALUE	FREQ	CUM FREQ	%	CUM %
.	60605	.	.	.
58	3	3	100.00	100.00

VARIABLE CRVS2 — HMO-FFS OUTPATIENT VISITS

Second CRVS code

CODES

. - Not applicable, missing

CRVS2 indicates the code of another service provided by the health professional. CRVS codes appearing in this file are listed in Section II of "Codes Used." The service listed was taken from the claims line-item files as described in CRVS1. CRVS2 is equivalent to the variable DEI5606 in the claims line-item files.

VARIABLE MOD21 — HMO-FFS OUTPATIENT VISITS

First CRVS2 modifier

CODES

. - Not applicable, missing

MOD21 indicates a special circumstance involved in the procedure listed in CRVS2. MOD21 is equivalent to the variable DEI5607 on the claims line-item files.

MOD21

VALUE	FREQ	CUM FREQ	%	CUM %
.	60292	.	.	.
1	19	19	6.01	6.01
22	1	20	0.32	6.33
24	1	21	0.32	6.65
26	47	68	14.87	21.52
27	19	87	6.01	27.53
28	1	88	0.32	27.85
29	1	89	0.32	28.17
50	3	92	0.95	29.11
51	4	96	1.27	30.38
52	1	97	0.32	30.70
54	1	98	0.32	31.01
55	3	101	0.95	31.96
58	186	287	58.86	90.82
90	29	316	9.18	100.00

VARIABLE MOD22 — HMO-FFS OUTPATIENT VISITS

Second CRVS2 modifier

CODES

. - Not applicable, missing

MOD22 indicates a second special circumstance involved in the procedure listed in CRVS2. MOD22 is equivalent to the variable DEI5608 on the claims line-item files.

MOD22

VALUE	FREQ	CUM FREQ	%	CUM %
.	60606	.	.	.
50	1	1	50.00	50.00
90	1	2	50.00	100.00

VARIABLE CRVS3 — HMO-FFS OUTPATIENT VISITS

Third CRVS code

CODES

. - Not applicable, missing

CRVS3 indicates the code of another service provided by the health professional. CRVS codes appearing in this file are listed in Section II of "Codes Used." The service listed was taken from the claims line-item files as described in CRVS1. CRVS3 is equivalent to the variable DEI5606 in the claims line-item files.

VARIABLE MOD31 — HMO-FFS OUTPATIENT VISITS

First CRVS3 modifier

CODES

. - Not applicable, missing

MOD31 indicates a special circumstance involved in the procedure listed in CRVS3. MOD31 is equivalent to variable DEI5607 on the claims line-item files.

MOD31

VALUE	FREQ	CUM FREQ	%	CUM %
.	60527	.	.	.
1	2	2	2.47	2.47
26	12	14	14.82	17.28
27	9	23	11.11	28.40
28	1	24	1.24	29.63
29	1	25	1.24	30.86
52	2	27	2.47	33.33
54	1	28	1.24	34.57
58	24	52	29.63	64.20
90	29	81	35.80	100.00

VARIABLE MOD32 — HMO-FFS OUTPATIENT VISITS

Second CRVS3 modifier

CODES

. - Not applicable, missing

MOD32 indicates a second special circumstance involved in the procedure listed in CRVS3. MOD32 is equivalent to variable DEI5608 on the claims line-item files.

MOD32

VALUE	FREQ	CUM FREQ	%	CUM %
.	60607	.	.	.
90	1	1	100.00	100.00

VARIABLE CRVS4 — HMO-FFS OUTPATIENT VISITS

Fourth CRVS code

CODES

. - Not applicable, missing

CRVS4 indicates the code of another service provided by the health professional. CRVS codes appearing in this file are listed in Section II of "Codes Used." The service listed was taken from the claims line-item files as described in CRVS1. CRVS4 is equivalent to the variable DEI5606 in the claims line-item files.

VARIABLE MOD41 — HMO-FFS OUTPATIENT VISITS

First CRVS4 modifier

CODES

. - Not applicable, missing

MOD41 indicates a special circumstance involved in the procedure listed in CRVS4. MOD41 is equivalent to variable DEI5607 on the claims line-item files.

MOD41

VALUE	FREQ	CUM FREQ	%	CUM %
.	60573	.	.	.
26	2	2	5.71	5.71
27	6	8	17.14	22.86
90	27	35	77.14	100.00

VARIABLE MOD42 — HMO-FFS OUTPATIENT VISITS

Second CRVS4 modifier

CODES

. - Not applicable, missing

MOD42 indicates a second special circumstance involved in the procedure listed in CRVS4. MOD42 is equivalent to variable DE15608 on the claims line-item files.

MOD42

VALUE	FREQ	CUM FREQ	%	CUM %
.	60607	.	.	.
90	1	1	100.00	100.00

VARIABLE REFERBY — HMO-FFS OUTPATIENT VISITS

Provider referred from

CODES

Blank - Not applicable, missing

REFERBY indicates the provider number of the provider (if any) who referred the participant to the provider listed in PROVID. REFERBY is equivalent to DE15568 on the claims line-item files.

VARIABLE PREFTO1 — HMO-FFS OUTPATIENT VISITS

First provider referral

CODES

Blank - Not applicable, missing

PREFTO1 indicates the provider number of the first provider (if any) to whom the participant was referred. PREFTO1 is equivalent to variable DE15570 on the HMO claims line-item files and DE15569 on the FFSCOMP claims line-item files.

VARIABLE PREFTO2 — HMO-FFS OUTPATIENT VISITS

Second provider referral

CODES

Blank - Not applicable, missing

PREFTO2 indicates the provider number of the second provider (if any) to whom the participant was referred. PREFTO2 is equivalent to variable DE15571 on the HMO claims line-item files and DE15570 on the FFSCOMP claims line-item files.

VARIABLE CAMT — HMO-FFS OUTPATIENT VISITS

In-plan amount

CAMT indicates the imputed in-plan charges for the outpatient services of one provider on one date of service that were covered by the participant's HMO or FFS health plan. All charges are expressed in 1967 dollars.

SOURCE

Files (HMO and FFSCOMP)		Variables	
FILE06	Services rendered by doctor	DE15502	Provider number (PROVID)
FILE10	Injections given by doctor	DE15555	Date of service (HDATE)
		DE15584	Location of service
		DE15560	Reason not covered (FFSCOMP only)
		IMPCHRG	Imputed charge

CONSTRUCTION

(HMO construction)

```
DO OVER PERSON AND DE15555 AND DE15502;

   IF (DE15584 < 4 OR DE15584 > 5)
      THEN DO;

           IMPCHRG = IMPCHRG * (inflation adjustment);
           CAMT = CAMT + IMPCHRG;

           END;

END;
```

(cont.)

CAMT

NUMBER OF OBSERVATIONS	60608
NUMBER OF MISSING	0
MEAN	17.10
MEDIAN	11.29
MINIMUM VALUE	0.00
MAXIMUM VALUE	726.88
STANDARD DEVIATION	17.38
COEFFICIENT OF VARIATION	101.68
SKEWNESS	6.48
KURTOSIS	119.16

VARIABLE CAMT (cont.)

CONSTRUCTION (cont.)

(FFSCOMP construction)

```
     DO OVER PERSON AND DE15555 AND DE15502;

        IF (DE15584 < 4 OR DE15584 > 5) AND
           (DE15560 < 44 OR DE15560 > 45)
           THEN DO;

                IMPCHRG = IMPCHRG * (inflation adjustment);
                CAMT = CAMT + IMPCHRG;

                END;
     END;
```

NOTE: Inflation adjustment is based on the month and year in which visit occurred.

VARIABLE VALUES

DE15584	4	- hospital
	5	- nursing home
DE15560	44	- GHC-available services not obtained from GHC (GHC experimental group)
	45	- HIE reimbursed 5% of covered charges not covered by GHC (GHC control group)

VARIABLE XCAMT — HMO-FFS OUTPATIENT VISITS

Out-of-plan amount

XCAMT indicates the imputed out-of-plan charges for the outpatient services rendered by one FFS provider on one date of service for an HMO participant; i.e., the charges that were not covered by the HMO, and only partially reimbursed by the HIE. All charges are expressed in 1967 dollars.

SOURCE

Files (FFSCOMP)		Variables	
FILE06	Services rendered by doctor	DE15502	Provider number (PROVID)
FILE10	Injections given by doctor	DE15555	Date of service (HDATE)
		DE15584	Location of service
		DE15560	Reason not covered
		IMPCHRG	Imputed charge

CONSTRUCTION

```
DO OVER PERSON AND DE15555 AND DE15502;

   IF (DE15584 < 4 OR DE15584 > 5) AND
      (44 <=DE15560 <= 45)
      THEN DO;

           IMPCHRG = IMPCHRG * (inflation adjustment);
           XCAMT = XCAMT + IMPCHRG;

           END;

END;
```

NOTE: Inflation adjustment is based on the month and year in which visit occurred.

VARIABLE VALUES

DE15584
- 4 - hospital
- 5 - nursing home

DE15560
- 44 - GHC-available services not obtained from GHC (GHC experimental group)
- 45 - HIE reimbursed 5% of covered charges not covered by GHC (GHC control group)

XCAMT

NUMBER OF OBSERVATIONS	60608
NUMBER OF MISSING	0
MEAN	0.34
MEDIAN	0.00
MINIMUM VALUE	0.00
MAXIMUM VALUE	302.15
STANDARD DEVIATION	3.37
COEFFICIENT OF VARIATION	1006.06
SKEWNESS	26.20
KURTOSIS	1430.61

IV. THE HMO AND SEATTLE FFS INPATIENT VISITS FILE

INTRODUCTION

This file presents the diagnoses rendered, services performed, and total covered expenditures for each hospitalization or nursing home stay of a Seattle HIE participant at an FFS or HMO facility.[1] There is one record (set of variables) for each hospitalization recorded on this file. The unit of observation in this file is a covered hospitalization, i.e., a hospitalization for which some portion of the services were covered by the HIE.

SAMPLE POPULATION

This file contains records for insured Seattle HIE participants who used covered inpatient expenditures during the HIE.[2] Seattle participants with no use of covered inpatient services have no records in this file. The total number of participants found in this file is 644. They are represented by group as follows:

FFS	267
HMO experimental	218
HMO control	159
Total	644

In maternity cases, only the mother's hospitalization appears on the file. The newborn will appear in the file only if he or she was hospitalized after birth.[3]

---

[1]The vast majority of such stays were in hospitals. Thus, all inpatient stays will be described here as "hospitalizations."

[2]Participants who switched from HMO to FFS insurance plans during the study have records available in this file only up to the time they switched plans; thus, they are treated here only as HMO participants.

[3]To link mothers and newborns, users must refer to the supplemental data file in the master sample series. See Appendix B for order information.

FILE CREATION

Data concerning inpatient visits (hospitalizations) were taken from files 01, 03, 06, and 10 of the HMO and FFSCOMP claims line-item files. (See Table 3 for a description of these files.) Information regarding hospital inpatient charges and diagnoses was drawn from hospital line-item records (file 01) in each set of files; information concerning inpatient physician procedures and services was taken from physician line-item records (files 03, 06, and 10). The HMO and Seattle FFS line-item files were processed separately and then pooled. The variable MER indicates whether the hospitalization came from the HMO line-item records (MER = 0) or from the FFSCOMP records (MER = 1).

There are nine instances where two records--one HMO record and one FFS record--exist for a single hospitalization. Eight of these cases are mental health hospitalizations.[4] The user may collapse such records together because they represent only one hospital stay. The ninth case is one in which the two hospitalizations appear to be the result of duplicate bills; i.e., a GHC participant apparently filed two claims for the same hospitalization, and GHC paid one claim and the HIE paid the other. If users wish to drop one of the claimed hospitalizations in this case, the hospitalizations can be identified by:

PERSON = MB266248
PROVID = CB215008
ADMIT = 19790426

Linking Physician and Hospital Records

The linking of inpatient records for physician/health professional services and hospital services was performed separately for the HMO and FFSCOMP line-item files. In both sets of files, File 01 records (hospital services) and File 03 records (inpatient physician/health

[4]GHC covered only the first $1,000 of an FFS mental health hospitalization, and the HIE covered the rest. Thus, the first $1,000 of services in such cases appear in the HMO line-item files, and any amount over $1,000 appears in the FFSCOMP line-item files.

professional services) were linked by admission and discharge dates. If a File 03 record could not be matched to a File 01 record, the File 03 record was treated as a separate hospitalization.

In the FFS files, the hospital was considered to be the major provider. However, in HMO File 03, the provider identifier (DEI5502) represents the physician/health professional rather than the hospital. To make the HMO files consistent with the FFS files, HMO File 01 and 03 records were linked and then the provider number for the hospital listed in HMO File 01 was assigned to DEI5502 on HMO File 03 records as well.

In both HMO and FFSCOMP files, the line-item records of inpatient physician services from Files 06 and 10 were linked with hospital line-item records in File 01 or, if no match was found, with inpatient physician line-item records in File 03 that had no matches in File 01. Records were linked according to the following rules:

- If DEI5555 (date of service) from a File 06 or 10 inpatient service fell within the range of seven days before the hospital admission date to seven days after the discharge date on the File 01 or 03 record for a given participant, then the File 06 or 10 record was given the admission date, discharge date, and provider number of the File 01 or 03 record.
- All matches that occurred in the seven days before the admission date or seven days after the discharge date were checked by hand to be certain the File 06 or 10 inpatient record was matched to the correct File 01 or 03 record. If an individual had two hospitalizations close together, an improper match could have occurred; if so, it was corrected.

If File 06 or 10 inpatient records could not be matched to a File 01 or 03 record, they were grouped together by consecutive dates to form new hospitalization records. The earliest date of service (DEI5555) from the File 06 or 10 inpatient record was used for the admission date and the last date of service was used for the discharge date. In such cases, the hospital identifier variable and physician variables will be blank.

After physician and hospitalization records were linked in the foregoing manner, covered services and charges were aggregated by person, hospital, contract year, and dates of admission and discharge in the HMO claims line-item files and FFSCOMP files separately.

Back-to-Back Hospitalizations

Back-to-back hospitalizations were merged into a single hospitalization.[5] Back-to-back hospitalizations are defined as those in which the second admission (1) was within one day of discharge from the first admission, and (2) was for the same condition (i.e., diagnosis codes were the same for the two hospitalizations). This definition differs slightly from that used in the FFS inpatient visits file. In the FFS file, a third requirement was that the two hospitalizations must have been at the same hospital. That requirement is dropped here because in the HMO system it is not unusual for patients to transfer to an FFS hospital for specific medical care (e.g., a necessary surgery). This less restrictive HMO definition of back-to-back hospitalizations was applied to the FFS hospitalizations found in this file to render them comparable to hospitalizations in the HMO system.

Continued Hospitalizations

Hospitalizations that spanned two contract years are counted in both applicable contract years. In comparing hospitalizations across contract years, six hospitalizations were found to have duplicate dates of admission and discharge, indicating that the records were for portions of the same hospitalization. These second-year records of a single hospitalization are called "continued hospitalizations." To distinguish continued hospitalizations, the variable CONTHOSP was created. CONTHOSP = 1 identifies second-year records. *When counting the number of hospitalizations, users must drop these cases to avoid double-counting.*

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[5] An exception was made for maternity hospitalizations. If a patient was admitted for false labor, considered a pregnancy-related hospitalization, and was subsequently admitted for delivery of the infant, the admissions were not merged.

All hospital charges were placed into the first-year records of each of these six cases. Thus, the first-year records of such cases contain the hospital's charges for the *entire* stay, and the physician charges for the *first-year portion* of the stay only. The second-year record contains no hospital charges but contains the physician charges accrued in the second year.

EXPLANATION OF VARIABLES

The variables in this file are defined within the codebook and their constructions given. Below we discuss some important facts about certain variables in this file to clarify their purposes and limitations.

Diagnoses

The diagnosis variables on this file present codes for the possible four diagnoses that were rendered during a participant's inpatient stay, with the first diagnosis listed representing the discharge diagnosis. HICDA codes are used to classify diagnoses.[6] Supplementary diagnosis codes were added under the direction of a RAND HIE physician to describe diagnoses not adequately reflected by any existing HICDA code. All HICDA and supplementary diagnosis codes used in the following files, with their definitions, are found in Sec. I of *Codes Used*. Because diagnosis codes are used throughout the claims files, there are too many possible values for presentation; thus, diagnosis frequencies are not presented.

Each diagnosis is defined by three variables: (1) an actual diagnosis, (2) a diagnosis qualifier, and (3) an associated diagnosis. The possible qualifiers are "and, rule out, possible, probable, or question of, with or due to, not, or."

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[6]Commission on Professional Hospital Activities, *Hospital Adaptation of the ICDA (International Classification of Diseases Adapted for Use in the United States)*, 2nd Edition, Ann Arbor, MI, September 1973.

An example of a diagnosis would be "cold with fever" where "cold" is the actual diagnosis, "with" is the qualifier, and "fever" is the associated diagnosis. Occasionally, a physician could not make a diagnosis with certainty and listed only an associated diagnosis. In such cases, coders left the diagnosis space blank and entered only the physician's qualifier and the associated diagnosis code, attempting to reproduce the physician's wording as closely as possible.

In medical terminology, "rule out" is an implied command to the physician which means *try to rule out* or *prove it's not*. For example, a diagnosis might be written as "influenza rule out pneumonia." This means the physician is considering the possibility that pneumonia may exist, but cannot yet conclude if it is "ruled in" or "ruled out." Therefore, he must make further efforts to rule it out as a possibility. Although "rule out" is a variation of "possible, probable, or question of," it was used to reproduce the physician's wording as closely as possible.

CRVS1 - CRVS8

Covered health procedures and services rendered by physicians and nonphysician health professionals were recorded using CRVS codes. A maximum of eight health procedures or services rendered by a physician or other health professional during a given inpatient stay are found in this file in variables CRVS1 through CRVS8. If more than eight CRVS codes existed for a given inpatient stay, eight codes were selected based on a ranking order, which is presented in the variable description for CRVS1 in the codebook. Only 3.5 percent of the FFS hospitalizations had more than eight CRVS codes, and only three of the HMO hospitalizations had nine or more CRVS codes.

The presence of more than eight physician/health professional services at a given visit are not flagged in these data. Thus, visits in this file containing values in all eight CRVS variables may have more CRVS codes that do not appear. To determine whether other services were performed in such visits, users must refer to the HMO line-item files (if the visit has the value of MER = 0) or the FFSCOMP files (if the visit has the value of MER = 1) and examine line items with the given

person, provider, and date-of-service identifiers. A few cases may exist where a visit-type variable indicates that a certain type of procedure was performed; however, if *more* than eight covered procedures were performed, the relevant CRVS code may not be listed among the eight procedures on the visit record. In these cases, users must consult the claims line-item files for an indication of the missing service or procedure. Researchers should also note that in visits involving more than eight covered health procedures, the covered imputed expenditures total shown for the visit includes *all* covered procedures and services rendered, not only the eight that are shown.

CRVS Modifiers

Up to two CRVS modifier code variables exist for each of the eight CRVS code variables.[7] They indicate codes for any special circumstances that may have been involved in a given CRVS procedure. These modifier codes are usually dependent upon the type of CRVS procedure involved; modifier code definitions can be found in the CRVS code manual cited above. The most frequently used modifiers were 80 (assistant surgeon for the procedure), 52 (incidental surgical procedure with reduced value), 58 (visit charge included with surgical procedure), 30-49 (related to anesthesia), and 26, 27 (related to pathology and radiology). As discussed in Sec. II, a code value of 1 was added by RAND researchers to denote an unknown service that was part of a lump-sum fee.

MER

The variable MER indicates whether the visit came from the FFSCOMP line-item files or the HMO line-items files. If MER = 1, then the visit was generated from line items in the Seattle FFS comparison series. FFS participants only have visits with MER =1; MER can equal 0 or 1 for HMO participants. For an HMO participant, a value of 1 indicates that the visit was to an FFS provider and was not fully reimbursed by GHC. Very few such hospitalizations occur in this file.

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[7]If the second modifier for a given CRVS had no positive values on any of the inpatient visit records, the modifier variable was dropped from the file. Thus, in this file, there are no second modifiers for CRVS2 - CRVS8.

Expense Variables

There are six different categories of expenditures in the inpatient visits file for each covered inpatient visit (hospitalization) of an HIE participant.

- HSPDOL presents the total of in-plan *hospital charges* for a covered hospitalization of an HMO or FFS participant, *including any physician charges not separately billed by the physician* (e.g., staff physician charges). For FFS hospitals, the charges shown are actual charges; for HMO hospitals, the charges were imputed by GHC based on Seattle market values.
- XHSPDOL presents the total out-of-plan hospital charges for an HMO participant's covered hospitalization in an FFS hospital; these charges were not covered by GHC and were reimbursed only 5 percent by the HIE.
- MDSDOL presents the total of imputed in-plan *physician charges only* for a given hospitalization of an FFS or HMO participant. Physician charges were imputed by the HIE.
- XMDSDOL presents the total of imputed out-of-plan physician charges for an HMO participant's covered hospitalization in an FFS hospital; these charges were not covered by GHC and were reimbursed only 5 percent by the HIE.
- The variable TOTDOL presents the total in-plan covered charges for a participant's hospital stay, i.e., the total of hospital and physician charges that were covered by the participant's HMO or FFS plan (HSPDOL + MDSDOL).
- The variable TOTDOLX presents the total out-of-plan covered charges for a GHC participant's hospital stay at an FFS hospital (XHSPDOL + XMDSDOL).

Thus, HSPDOL and MDSDOL allow in-plan hospital and inpatient physician charges for a given hospitalization to be examined separately

or as a total (TOTDOL). A similar breakdown is available for out-of-plan charges of GHC participants using XHSPDOL, XMDSDOL, and TOTDOLX.[8]

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[8]The inpatient out-of-plan expenditure totals for a given participant and year in this file will *not* equal the out-of-plan expenditures for that participant/year in the HMO-Seattle FFS annual expenditures and visit counts file. This is because the definitions of "out of plan" are different in the two files, as explained in Sec. II.

CODEBOOK FOR THE HMO AND SEATTLE FFS INPATIENT VISITS FILE

CODEBOOK FOR THE HMO AND SEATTLE
FFS INPATIENT VISITS FILE

VARIABLE FILENAME — HMO-FFS INPATIENT VISITS

Name of file

FILENAME is a 6-digit code that uniquely identifies the file. This file name is DEWI2A.

FILENAME

VALUE	FREQ	CUM FREQ	%	CUM %
DEWI2A	989	989	100.00	100.00

VARIABLE PERSON — HMO-FFS INPATIENT VISITS

Person identifier

PERSON is an 8-character alphanumeric code that uniquely identifies the HIE participant to whom the following data refer. The second character of PERSON designates the site where the participant resided when enrolled. A=Dayton; B=Seattle; E=Fitchburg; F=Franklin County; G=Charleston; H=Georgetown County.

VARIABLE SITE — HMO-FFS INPATIENT VISITS

Site

CODES

2 - Seattle, Washington

SITE identifies the participant's place of residence when the participant enrolled.

SITE

VALUE	FREQ	CUM FREQ	%	CUM %
2	989	989	100.00	100.00

VARIABLE INSTAT HMO-FFS INPATIENT VISITS

Insurance status

CODES

1 - Ever insured (includes HMO experimental group)
2 - Ever assigned to HMO control group
3 - Never insured

INSTAT describes the participant's insurance status in the Health Insurance Experiment.

INSTAT

VALUE	FREQ	CUM FREQ	%	CUM %
1	754	754	76.24	76.24
2	235	989	23.76	100.00

VARIABLE CONTYR HMO-FFS INPATIENT VISITS

Contract year

CODES

01 - First year
02 - Second year
03 - Third year
04 - Fourth year
05 - Fifth year

CONTYR identifies the participant's contract year of coverage for which the claim was filed under the HIE.

CONTYR

VALUE	FREQ	CUM FREQ	%	CUM %
01	286	286	28.92	28.92
02	247	533	24.98	53.89
03	228	761	23.05	76.95
04	131	892	13.25	90.19
05	97	989	9.81	100.00

VARIABLE HMO — HMO-FFS INPATIENT VISITS

HMO group

CODES

0 - FFS insurance group
1 - HMO experimental group
2 - HMO control group

HMO identifies whether the participant was enrolled in a fee-for-service insurance group, the HMO experimental group, or the HMO control group.

HMO

VALUE	FREQ	CUM FREQ	%	CUM %
0	415	415	41.96	41.96
1	339	754	34.28	76.24
2	235	989	23.76	100.00

VARIABLE PROVID — HMO-FFS INPATIENT VISITS

Provider number

CODES

Blank - Missing

PROVID is an 8-character code that indicates the hospital or nursing home facility where the participant was an inpatient. For further information concerning the hospital, this number can be linked to the provider file of the reference series. PROVID is equivalent to variable DE15502 on the claims line-item files.

NOTE: PROVID is missing when the only record for the hospitalization is found in claims line-item File 06 or File 10 (independent physician services). A provider number that begins with "C" indicates a GHC provider, and "E" indicates an FFS provider.

VARIABLE PROVTYPE HMO-FFS INPATIENT VISITS

Provider type

CODES

Blank - Missing

PROVTYPE is a five-digit code which describes the provider listed in PROVID. Provider code definitions are listed in Appendix G.

NOTE: PROVTYPE is missing when the only record for the hospitalization is found in claims line-item File 06 or File 10 (independent physician services).

VARIABLE MER HMO-FFS INPATIENT VISITS

Visit from FFSCOMP claims

CODES

0 - Visit record from HMO claims line-item files
1 - Visit record from FFSCOMP claims line-item files

MER identifies whether the visit record came from the Seattle FFS comparison claims line-item files (i.e., from a MER) or the HMO claims line-item files (i.e., from a SERR).

MER

VALUE	FREQ	CUM FREQ	%	CUM %
0	534	534	53.99	53.99
1	455	989	46.01	100.00

VARIABLE ADMIT — HMO-FFS INPATIENT VISITS

Date of admission

CODES

19760106 to 19810728 - Range of dates on file (YYYYMMDD)

ADMIT indicates the participant's hospital admission date. ADMIT is equivalent to variable DEI5513 on the claims line-item files.

VARIABLE DISCH — HMO-FFS INPATIENT VISITS

Discharge date

CODES

19760106 to 19810729 - Range of dates on file (YYYYMMDD)

DISCH indicates the participant's hospital discharge date. DISCH is equivalent to variable DEI5514 on the claims line-item files.

NOTE: In the case of back-to-back hospitalizations which were pooled into one hospitalization, DISCH is the discharge date from the second hospitalization.

VARIABLE CONTHOSP — HMO-FFS INPATIENT VISITS

Continued hospitalizations

CODES

0 - Not a continued hospitalization record
1 - Continued hospitalization record

CONTHOSP identifies records for the second year of hospitalizations that spanned two contract years. Records for the admission year contain inpatient physician charges only for that portion of the hospitalization, but contain all hospital charges for the entire hospitalization. Records for the second year of the hospitalization (CONTHOSP=1) contain only inpatient physician charges for that year.

NOTE: To avoid double-counting, users must drop CONTHOSP=1 records when counting the number of hospitalizations across contract years.

CONTHOSP

VALUE	FREQ	CUM FREQ	%	CUM %
0	983	983	99.39	99.39
1	6	989	0.61	100.00

VARIABLE ADMPHY — HMO-FFS INPATIENT VISITS

Admitting physician

CODES

Blank - Missing

ADMPHY indicates the admitting physician's identifier number. For more information on the physician, this number can be linked to information in the provider file of the reference series. ADMPHY is equivalent to DE15515 in the claims line-item files.

NOTE: If the only record for the hospitalization was found in claims line-item Files 06 or 10 (services of physicians), then ADMPHY was set to missing.

VARIABLE ATTDPHY1 HMO-FFS INPATIENT VISITS

1st attending physician

CODES

Blank - Missing

ATTDPHY1 indicates the attending physician's identifier number. It was used when the admitting physician (see ADMPHY) did not continue as the primary physician. For more information on the physician, this number can be linked to information in the provider file of the reference series. ATTDPHY1 is equivalent to DEI5508 in the FFSCOMP claims line-item files and in HMO line-item File 01; ATTDPHY1 is equivalent to DEI5502 in HMO line-item File 03.

NOTE: If the only record for the hospitalization was found in claims line-item Files 06 or 10 (services of physicians), then ATTDPHY1 was set to missing.

VARIABLE ATTDPHY2 HMO-FFS INPATIENT VISITS

2nd attending physician

CODES

Blank - Missing

ATTDPHY2 indicates the second attending physician's identifier. It was used when the admitting physician (see ADMPHY) and the first attending physician (see ATTDPHY1) did not continue as the primary physician. For more information on the physician, this number can be linked to information in the provider file of the reference series. ATTDPHY2 is equivalent to DEI5509 in the claims line-item files.

NOTE: If the only record for the hospitalization was found in claims line-item File 06 or File 10 (services of physicians), then ATTDPHY2 was set to missing.

VARIABLE PREG_MAT HMO-FFS INPATIENT VISITS

Pregnancy or maternity hospitalizations

CODES

0 - Other hospitalization
1 - Pregnancy hospitalization
2 - Maternity hospitalization

PREG_MAT distinguishes pregnancy and maternity hospitalizations from other types of hospitalizations. PREG_MAT refers only to hospitalizations of mothers; it does not refer to newborns. Maternity hospitalizations (PREG_MAT=2) are those that involved delivery-related care; pregnancy hospitalizations (PREG_MAT=1) are those that did not involve delivery-related care.

NOTE: Pregnancy hospitalizations were assigned to cases that had an inpatient physician claim for pregnancy services but no hospital bill. Maternity hospitalizations were assigned to (1) women with births but no hospital claims and/or inpatient physician (or midwife) claims and (2) cases with an inpatient physician (or midwife) claim for maternity services, but no hospital bill.

SOURCE

Files (HMO and FFSCOMP)		Variables	
FILE01	Hospital inpatient services	DE15502	Provider number
FILE03	Hospital inpatient physician services	DE15513	Admission date
		DE15522	1st diagnosis code
FILE06	Services rendered by physician*	DE15524	1st associated diagnosis code
FILE10	Injections administered by physician*	DE15525	2nd diagnosis code
		DE15527	2nd associated diagnosis code (cont.)

PREG_MAT

VALUE	FREQ	CUM FREQ	%	CUM %
0	797	797	80.59	80.59
1	29	826	2.93	83.52
2	163	989	16.48	100.00

VARIABLE PREG_MAT (cont.)

SOURCE (cont.)

DE15528	3rd diagnosis code
DE15530	3rd associated diagnosis code
DE15531	4th diagnosis code
DE15533	4th associated diagnosis code
DE15606	CRVS Code

*Inpatient records only: DE15584 = 4 or 5

CONSTRUCTION

File 06 and File 10 inpatient physician records were linked to File 03 records by the procedure described in the introduction. Thus the admission date DE15513, and a provider number, DE15502, were assigned in accordance with the hospitalization to which they were linked. Because the provider number on HMO File 03 is the physician and not the hospital, the value of DE15502 was replaced with the hospital identifier from the HMO File 01 records with the same admit and discharge dates as the HMO File 03 records.

For HMO and FFSCOMP files separately:

```
DO OVER PERSON AND CONTYR AND DE15502 AND DE15513;

   IF (any diagnosis code = code in Table 15) OR
      (59000 <= DE15606 <= 59399) THEN PREG_MAT = 1;

   IF (any diagnosis code = code in Table 16) OR
      (DE15606 = code in Table 17) THEN PREG_MAT = 2;

END;
```

NOTE: The associated diagnosis was not used in the construction if the diagnosis qualifier indicated that the condition was definitely ruled out by the physician.

VARIABLE VALUES

DE15606, CRVS Code: 59000 - 59399 = Fetal examination and excisions

TABLE 15

Diagnosis Codes Defining Pregnancy-Related Hospitalizations

75.0-75.9	obstetrical procedures, nondelivery related
631.0-639.9	complications of pregnancy
640.0-646.9	abortion
670.0-678.9	complications of the puerperium
Y06.2	failed attempted abortion
Y40.0-Y48.9	causes of perinatal morbidity and mortality

TABLE 16

Diagnosis Codes Defining Maternity-Related Hospitalizations

72.0-74.9	obstetrical procedures
650.0-664.9	delivery
Y06.0-Y06.1	prenatal care
Y06.3	failed induction of labor
Y06.4	failed trial of labor for vaginal delivery
Y06.9	pregnancy associated with non-obstetric condition
Y07.0-Y07.1	postpartum observation
Y20.0-Y29.9	liveborn infant births
Y30.0-Y32.9	fetal death

TABLE 17

CRVS Codes Defining Maternity-Related Hospitalizations

59400-59446	delivery care
59481	observation of labor without delivery
59500-59561	caesarean section
59889	unlisted maternity care and delivery procedure

VARIABLE MISHOSP HMO-FFS INPATIENT VISITS

Type of missing inpatient records

CODES

0 - No missing record(s)
1 - Missing hospital record
2 - Missing physician record(s)
3 - Missing both hospital and physician records
4 - Valid missing physician records (no physician record required)

MISHOSP indicates hospitalizations that had missing inpatient records, and distinguishes the types of records that were missing.

SOURCE

Files (HMO and FFSCOMP)

FILE01 Hospital inpatient services
FILE03 Hospital inpatient physician services

Variables

DE15513 Date of admission (File 01 and 03 only)
DE15514 Date of discharge (File 01 and 03 only)
(cont.)

MISHOSP

VALUE	FREQ	CUM FREQ	%	CUM %
0	952	952	96.26	96.26
1	6	958	0.61	96.87
2	4	962	0.40	97.27
3	3	965	0.30	97.57
4	24	989	2.43	100.00

VARIABLE MISHOSP (cont.)

SOURCE (cont.)

FILE06	Services rendered by physician*	DE15584	Place of service (File 06 and File 10 only)
FILE10	Injections administered by physician*	DE15555	Date of service (File 06 and File 10 only)

*Inpatient records only: DE15584 = 4 or 5

CONSTRUCTION

The following was performed separately for HMO and FFSCOMP line items.

File 06 and File 10 inpatient physician records (DE15584 = 4 or 5) were linked to File 01 and File 03 records by the procedure described in the introduction. MISHOSP was created by comparing records in File 01 (hospital bills) with those in File 03, File 06 and File 10 (inpatient physician bills). For a given person and admit date, if both hospital and inpatient physician bills were present, MISHOSP was set to zero. If only physician bills existed for that person and admit date, MISHOSP was set to 1; if only hospital bills were found, then MISHOSP was set to 2. In cases where a physician bill would not be expected to exist (e.g., care could be handled by an intern or resident), then MISHOSP was set to 4. MISHOSP was set to 3 in cases where the mother did not have an inpatient maternity bill but the infant had one, or if the mother had prenatal care visits in the outpatient files and did not have a maternity hospitalization. Only the mother's maternity hospitalization is recorded; birth hospitalizations of newborns were dropped to avoid double counting.

VARIABLE CRVS1 HMO-FFS INPATIENT VISITS

First CRVS code

CODES

. - Not applicable, missing

CRVS1 indicates a five-digit California Relative Value Studies (CRVS) code identifying a service provided by a health professional. A small number of codes were added under the direction of a Rand HIE physician to describe services not adequately reflected by an existing CRVS code. The CRVS codes used in this file are listed and defined in Section II of "Codes Used." The service listed was taken from the claims line-item files as described below. CRVS1 is equivalent to variable DEI5606 on the claims line-item files.

NOTE: A maximum of eight CRVS unique codes were kept for each visit record. If eight or less CRVS codes existed for a visit, all the codes were kept. If more than eight CRVS codes existed for a visit, the codes were given an order ranking of 1-4. Eight CRVS codes were then selected and kept in the following order:

(1) Surgery services (CRVS=10000-69999)
(2) Face-to-face services, including mental health (See Table 18 for CRVS codes)
(3) Radiology, anesthesiology, and pathology services (CRVS 7000-89999 or CRVS modifier 30-49)
(4) All other CRVS codes

For example, if a visit had ten CRVS codes, four in group (1) of the above, two in group (2) and four in group (3), the eight CRVS codes selected for the visit record would be the four from group (1), the two from group (2), and the first two CRVS in group (3). The remaining two CRVS in group (3) would not be included on the visit record.

Ninety-six percent of FFS inpatient visits had less than nine CRVS codes. Of the remainder, all of the omitted CRVS codes fell in group (2), (3) and (4) above, with the majority falling in group (3).

TABLE 18

Face-to-Face CRVS codes

CRVS Codes	Services
10000-62273	surgery
59000-59889	maternity care and delivery
62280-64099	surgery
64531-69999	surgery
79000-79499	therapeutic radiation
90000-90099	office visit
90100-90199	home visits
90200-90499	hospital and nursing home visits
90500-90599	emergency care services
90600-90645	consultations
90700-90749	immunizations, therapeutic injections
90750-90799	pediatric office visits
90962-90999	dialysis services
91000-91299	GI diagnostic services
92000-92499	eye services
92504-92549	selected ENT services
93015-93017	selected cardiovascular services
93019-93022	selected cardiovascular services
93046	selected cardiovascular services
93500-93599	cardiac catheterizations
95000-95199	allergy testing
96000-96300	specific therapeutic procedures
96450-96499	specific therapeutic procedures
96900-96920	specific therapeutic procedures
97000-97261	physical medicine visits
97500-97799	miscellaneous physical medicine
90800-90899	psychotherapy services
99032-99034	counseling, conference

VARIABLE MOD11 HMO-FFS INPATIENT VISITS

First CRVS1 modifier

CODES

. - Not applicable, missing

MOD11 indicates a special circumstance involved in the procedure listed in CRVS1. MOD11 is equivalent to the variable DEI5607 on the claims line-item files.

MOD11

VALUE	FREQ	CUM FREQ	%	CUM %
.	616	.	.	.
1	3	3	0.80	0.80
22	1	4	0.27	1.07
26	2	6	0.54	1.61
30	263	269	70.51	72.12
50	2	271	0.54	72.65
51	2	273	0.54	73.19
52	7	280	1.88	75.07
58	5	285	1.34	76.41
80	87	372	23.32	99.73
81	1	373	0.27	100.00

VARIABLE MOD12 HMO-FFS INPATIENT VISITS

Second CRVS1 modifier

CODES

. - Not applicable, missing

MOD12 indicates a special circumstance involved in the procedure listed in CRVS1. MOD12 is equivalent to the variable DEI5608 on the claims line-item files.

MOD12

VALUE	FREQ	CUM FREQ	%	CUM %
.	988	.	.	.
80	1	1	100.00	100.00

VARIABLE CRVS2 HMO-FFS INPATIENT VISITS

Second CRVS code

CODES

. - Not applicable, missing

CRVS2 indicates the code of the second service provided by the health professional. CRVS codes appearing in this file are listed in Section II of "Codes Used." The service listed was taken from the claims line-item files as described in CRVS1. CRVS2 is equivalent to the variable DEI5606 on the claims line-item files.

VARIABLE MOD21 HMO-FFS INPATIENT VISITS

First CRVS2 modifier

CODES

. - Not applicable, missing

MOD21 indicates a special circumstance involved in the procedure listed in CRVS2. MOD21 is equivalent to the variable DEI5607 on the claims line-item files.

MOD21

VALUE	FREQ	CUM FREQ	%	CUM %
.	875	.	.	.
26	23	23	20.18	20.18
28	1	24	0.88	21.05
30	57	81	50.00	71.05
50	2	83	1.75	72.81
51	5	88	4.39	77.19
52	3	91	2.63	79.83
58	2	93	1.75	81.58
80	21	114	18.42	100.00

VARIABLE CRVS3 HMO-FFS INPATIENT VISITS

Third CRVS code

CODES

. - Not applicable, missing

CRVS3 indicates the code of the third service provided by the health professional. CRVS codes appearing in this file are listed in Section II of "Codes Used." The service listed was taken from the claims line-item files as described in CRVS1. CRVS3 is equivalent to the variable DEI5606 on the claims line-item files.

VARIABLE MOD31 HMO-FFS INPATIENT VISITS

First CRVS3 modifier

CODES

. - Not applicable, missing

MOD31 indicates a special circumstance involved in the procedure listed in CRVS3. MOD31 is equivalent to variable DEI5607 on the claims line-item files.

MOD31

VALUE	FREQ	CUM FREQ	%	CUM %
.	945	.	.	.
26	27	27	61.36	61.36
30	9	36	20.46	81.82
50	1	37	2.27	84.09
51	1	38	2.27	86.36
58	4	42	9.09	95.46
80	2	44	4.55	100.00

VARIABLE CRVS4 HMO-FFS INPATIENT VISITS

Fourth CRVS code

CODES

. - Not applicable, missing

CRVS4 indicates the code of the fourth service provided by the health professional. CRVS codes appearing in this file are listed in Section II of "Codes Used." The service listed was taken from the claims line-item files as described in CRVS1. CRVS4 is equivalent to the variable DEI5606 on the claims line-item files.

VARIABLE MOD41 HMO-FFS INPATIENT VISITS

First CRVS4 modifier

CODES

. - Not applicable, missing

MOD41 indicates a special circumstance involved in the procedure listed in CRVS4. MOD41 is equivalent to variable DEI5607 on the claims line-item files.

MOD41

VALUE	FREQ	CUM FREQ	%	CUM %
.	938	.	.	.
26	22	22	43.14	43.14
30	1	23	1.96	45.10
51	1	24	1.96	47.06
58	26	50	50.98	98.04
80	1	51	1.96	100.00

VARIABLE CRVS5 HMO-FFS INPATIENT VISITS

Fifth CRVS code

CODES

. - Not applicable, missing

CRVS5 indicates the code of the fifth service provided by the health professional. CRVS codes appearing in this file are listed in Section II of "Codes Used." The service listed was taken from the claims line-item files as described in CRVS1. CRVS5 is equivalent to the variable DE15606 on the claims line-item files.

VARIABLE MOD51 HMO-FFS INPATIENT VISITS

First CRVS5 modifier

CODES

. - Not applicable, missing

MOD51 indicates a special circumstance involved in the procedure listed in CRVS5. MOD51 is equivalent to variable DE15607 on the claims line-item files.

MOD51

VALUE	FREQ	CUM FREQ	%	CUM %
.	968	.	.	.
26	15	15	71.43	71.43
30	1	16	4.76	76.19
58	5	21	23.81	100.00

VARIABLE CRVS6 HMO-FFS INPATIENT VISITS

Sixth CRVS code

CODES

. - Not applicable, missing

CRVS6 indicates the code of the sixth service provided by the health professional. CRVS codes appearing in this file are listed in Section II of "Codes Used." The service listed was taken from the claims line-item files as described in CRVS1. CRVS6 is equivalent to the variable DE15606 on the claims line-item files.

VARIABLE MOD61 HMO-FFS INPATIENT VISITS

First CRVS6 modifier

CODES

. - Not applicable, missing

MOD61 indicates a special circumstance involved in the procedure listed in CRVS6. MOD61 is equivalent to variable DE15607 on the claims line-item files.

MOD61

VALUE	FREQ	CUM FREQ	%	CUM %
.	974	.	.	.
26	14	14	93.33	93.33
58	1	15	6.67	100.00

VARIABLE CRVS7 HMO-FFS INPATIENT VISITS

Seventh CRVS code

CODES

. - Not applicable, missing

CRVS7 indicates the code of the seventh service provided by the health professional. CRVS codes appearing in this file are listed in Section II of "Codes Used." The service listed was taken from the claims line-item files as described in CRVS1. CRVS7 is equivalent to the variable DEI5606 on the claims line-item files.

VARIABLE MOD71 HMO-FFS INPATIENT VISITS

First CRVS7 modifier

CODES

. - Not applicable, missing

MOD71 indicates a special circumstance involved in the procedure listed in CRVS7. MOD71 is equivalent to variable DEI5607 on the claims line-item files.

MOD71

VALUE	FREQ	CUM FREQ	%	CUM %
.	979	.	.	.
26	10	10	100.00	100.00

VARIABLE CRVS8 HMO-FFS INPATIENT VISITS

Eighth CRVS code

CODES

. - Not applicable, missing

CRVS8 indicates the code of the eighth service provided by the health professional. CRVS codes appearing in this file are listed in Section II of "Codes Used." The service listed was taken from the claims line-item files as described in CRVS1. CRVS8 is equivalent to the variable DEI5606 on the claims line-item files.

VARIABLE MOD81 HMO-FFS INPATIENT VISITS

First CRVS8 modifier

CODES

. - Not applicable, missing

MOD81 indicates a special circumstance involved in the procedure listed in CRVS8. MOD81 is equivalent to variable DEI5607 on the claims line-item files.

MOD81

VALUE	FREQ	CUM FREQ	%	CUM %
.	980	.	.	.
26	8	8	88.89	88.89
30	1	9	11.11	100.00

VARIABLE DIAGA1 HMO-FFS INPATIENT VISITS

1st diagnosis

CODES

Blank - Not applicable, missing

DIAGA1 indicates the code of the discharge condition listed on the hospital record. Supplementary codes were added under the direction of a Rand HIE physician to describe diagnoses not adequately reflected by any existing H-ICDA code. The diagnosis codes used in this file are listed in Section I of "Codes Used." DIAGA1 is equivalent to variable DE15522 on the claims line-item files.

VARIABLE RULOUTA HMO-FFS INPATIENT VISITS

1st diagnosis qualifier

CODES

. - Not applicable, missing
1 - No qualifier given
2 - Rule out
3 - Probable/possible/?/question of
4 - With, associated with, complicated by, secondary to, due to
5 - Not, turned out not to be, was not
6 - Or, versus
9 - Well-care code assigned*

RULOUTA indicates a diagnosis qualifier for the first diagnosis. In some instances (i.e., codes 2, 3, 5), it is possible a diagnosis qualifier was used in the absence of a primary diagnosis. RULOUTA is equivalent to variable DE15523 on the claims line-item files.

(cont.)

RULOUTA

VALUE	FREQ	CUM FREQ	%	CUM %
.	14	.	.	.
1	847	847	86.87	86.87
2	8	855	0.82	87.69
3	22	877	2.26	89.95
4	97	974	9.95	99.90
6	1	975	0.10	100.00

VARIABLE RULOUTA (cont.)

*NOTE: Value #9 is not a true diagnosis qualifier. Occasionally, health maintenance procedures were performed by the provider which did not pertain to any of the diagnoses. In such cases, coders assigned a well-care code from the H-ICDA-2, and it was notated in this variable.

VARIABLE DIAGA2 HMO-FFS INPATIENT VISITS

1st associated diagnosis

CODES

Blank - Not applicable, missing

DIAGA2 indicates the first associated diagnosis code when required by the diagnosis qualifier. DIAGA2 is equivalent to variable DE15524 on the claims line-item files.

VARIABLE DIAGB1 HMO-FFS INPATIENT VISITS

2nd diagnosis

CODES

Blank - Not applicable, missing

DIAGB1 indicates the code of a second condition listed on the hospital record. All diagnosis codes appearing in this file are listed in Section I of "Codes Used." DIAGB1 is equivalent to variable DE15525 on the claims line-item files.

VARIABLE RULOUTB HMO-FFS INPATIENT VISITS

2nd diagnosis qualifier

CODES

. - Not applicable, missing
1 - No qualifier given
2 - Rule out
3 - Probable/possible/?/question of
4 - With, associated with, complicated by, secondary to, due to
5 - Not, turned out not to be, was not
6 - Or, versus
9 - Well-care code assigned*

RULOUTB indicates a diagnosis qualifier for the second diagnosis. In some instances (i.e., codes 2, 3, 5), it is possible a diagnosis qualifier was used in the absence of a primary diagnosis. RULOUTB is equivalent to variable DE15526 on the claims line-item files.

*See note for RULOUTA.

VARIABLE DIAGB2 HMO-FFS INPATIENT VISITS

2nd associated diagnosis

CODES

Blank - Not applicable, missing

DIAGB2 indicates the second associated diagnosis code when required by the qualifier. DIAGB2 is equivalent to variable DE15527 on the claims line-item files.

RULOUTB

VALUE	FREQ	CUM FREQ	%	CUM %
.	694	.	.	.
1	244	244	82.71	82.71
2	1	245	0.34	83.05
3	13	258	4.41	87.46
4	36	294	12.20	99.66
9	1	295	0.34	100.00

VARIABLE DIAGC1 HMO-FFS INPATIENT VISITS

3rd diagnosis

CODES

Blank - Not applicable, missing

DIAGC1 indicates the code of a third condition listed on the hospital record. All diagnosis codes appearing in this file are listed in Section I of "Codes Used." DIAGC1 is equivalent to variable DEI5528 on the claims line-item files.

VARIABLE RULOUTC HMO-FFS INPATIENT VISITS

3rd diagnosis qualifier

CODES

. - Not applicable, missing
1 - No qualifier
2 - Rule out
3 - Probable/possible/?/question of
4 - With, associated with, complicated by, secondary to, due to
5 - Not, turned out not to be, was not
6 - Or, versus
9 - Well-care code assigned*

RULOUTC indicates a diagnosis qualifier for the third diagnosis. In some instances (i.e., codes 2, 3, 5), it is possible a diagnosis qualifier was used in the absence of a primary diagnosis. RULOUTC is equivalent to variable DEI5529 on the claims line-item files.

*See note for RULOUTA.

RULOUTC

VALUE	FREQ	CUM FREQ	%	CUM %
.	879	.	.	.
1	88	88	80.00	80.00
3	5	93	4.55	84.55
4	16	109	14.55	99.09
5	1	110	0.91	100.00

VARIABLE DIAGC2 HMO-FFS INPATIENT VISITS

3rd associated diagnosis

CODES

Blank - Not applicable, missing

DIAGC2 indicates the third associated diagnosis code when required by the qualifier. DIAGC2 is equivalent to variable DEI5530 on the claims line-item files.

VARIABLE DIAGD1 HMO-FFS INPATIENT VISITS

4th diagnosis

CODES

Blank - Not applicable, missing

DIAGD1 indicates the code of a fourth condition listed on the hospital record. All diagnosis codes appearing in this file are listed in Section I of "Codes Used." DIAGD1 is equivalent to variable DEI5531 on the claims line-item files.

VARIABLE RULOUTD HMO-FFS INPATIENT VISITS

4th diagnosis qualifier

CODES

. - Not applicable, missing
1 - No qualifier given
2 - Rule out
3 - Probable/possible/?/question of
4 - With, associated with, complicated by, secondary to, due to
5 - Not, turned out not to be, was not
6 - Or, versus
9 - Well-care code assigned*

RULOUTD indicates a diagnosis qualifier for the fourth diagnosis. In some instances (i.e., codes 2, 3, 5), it is possible for a diagnosis qualifier to be used in the absence of a primary diagnosis. RULOUTD is equivalent to variable DEI5532 on the claims line-item files.

*See note for RULOUTA.

VARIABLE DIAGD2 HMO-FFS INPATIENT VISITS

4th associated diagnosis

CODES

Blank - Not applicable, missing

DIAGD2 indicates the fourth associated diagnosis code when required by the qualifier. DIAGD2 is equivalent to variable DEI5533 on the claims line-items file.

RULOUTD

VALUE	FREQ	CUM FREQ	%	CUM %
.	951	.	.	.
1	35	35	92.11	92.11
4	3	38	7.90	100.00

VARIABLE HSPDOL — HMO-FFS INPATIENT VISITS

In-plan hospital charges

CODES

. - Missing

HSPDOL indicates the hospital charges for a hospitalization that were covered by the participant's HMO or FFS health plan. All charges are expressed in 1967 dollars.

SOURCE

File (HMO and FFSCOMP)		Variables	
FILE01	Hospital inpatient services	DE15513	Date of admission
		IMPCHRG	Imputed line-item charge
		DE15502	Provider number
		DE15560	Reason not covered (FFSCOMP only)

CONSTRUCTION

```
DO OVER (File Type--HMO or FFSCOMP) AND PERSON AND CONTYR AND
   DE15502 AND DE15513;

   IMPCHRG = IMPCHRG * (inflation adjustment);

   IF (HMO line-item)
      THEN HSPDOL = HSPDOL + IMPCHRG;

   IF (FFSCOMP line-item) AND (DE15560 /= 44 AND DE15560 /= 45)
      THEN HSPDOL = HSPDOL + IMPCHRG;

END;
```

NOTE: Inflation adjustment is based on the month and year service was rendered

(cont.)

HSPDOL

NUMBER OF OBSERVATIONS	981
NUMBER OF MISSING	8
MEAN	519.37
MEDIAN	345.76
MINIMUM VALUE	0.00
MAXIMUM VALUE	14383.98
STANDARD DEVIATION	778.99
COEFFICIENT OF VARIATION	149.99
SKEWNESS	8.64
KURTOSIS	118.52

VARIABLE HSPDOL (cont.)

VARIABLE VALUES

DE15560 44 - GHC-available services not obtained from GHC (GHC experimental group)
45 - HIE reimbursed 5% of covered charges not covered by GHC (GHC control group)

VARIABLE HSPDOLX HMO-FFS INPATIENT VISITS

Out-of-plan hospital charges

CODES

. - Missing

HSPDOLX indicates the charges for an HMO participant's hospitalization in an FFS hospital that were not covered by the HMO and were not fully reimbursed by the HIE. All charges are expressed in 1967 dollars.

SOURCE

File (FFSCOMP)	Variables	
FILE01 Hospital inpatient services	DE15513	Date of admission
	IMPCHRG	Imputed line-item charge
	DE15502	Provider number
	DE15560	Reason not covered

CONSTRUCTION

```
DO OVER PERSON AND CONTYR AND DE15502 AND DE15513;

   IMPCHRG = IMPCHRG * (inflation adjustment);

   IF DE15560 = 44 OR DE15560 = 45
      THEN HSPDOLX = HSPDOLX + IMPCHRG;

END;
```

(cont.)

HSPDOLX

NUMBER OF OBSERVATIONS	983
NUMBER OF MISSING	6
MEAN	10.59
MEDIAN	0.00
MINIMUM VALUE	0.00
MAXIMUM VALUE	3740.66
STANDARD DEVIATION	156.28
COEFFICIENT OF VARIATION	1475.26
SKEWNESS	19.73
KURTOSIS	425.02

VARIABLE HSPDOLX (cont.)

NOTE: Inflation adjustment is based on the month and year service was rendered

VARIABLE VALUES

DE15560 44 - GHC-available services not obtained from GHC (GHC experimental group)
45 - HIE reimbursed 5% of covered charges not covered by GHC (GHC control group)

VARIABLE MDSDOL HMO-FFS INPATIENT VISITS

In-plan physician charges

CODES

. - Missing

MDSDOL indicates the physician charges for the participant's hospital stay that were covered by the participant's HMO or FFS health plan. All physician charges are imputed. All charges are expressed in 1967 dollars.

NOTE: If the hospital did not itemize its staff physician charges, those charges will be found in HSPDOL. This applies primarily to FFS hospitalizations.

SOURCE

Files (HMO and FFSCOMP)		Variables
FILE03	Hospital inpatient services	DE15513 Date of admission DE15502 Provider number (PROVID)
FILE06	Services rendered by physician*	IMPCHRG Imputed line-item charge

(cont.)

MDSDOL

NUMBER OF OBSERVATIONS	983
NUMBER OF MISSING	6
MEAN	277.70
MEDIAN	203.13
MINIMUM VALUE	0.00
MAXIMUM VALUE	5251.39
STANDARD DEVIATION	322.33
COEFFICIENT OF VARIATION	116.07
SKEWNESS	5.59
KURTOSIS	64.31

VARIABLE MDSDOL (cont.)

SOURCE (cont.)

FILE10	Injections given by physician*	DE15560	Reason not covered (FFSCOMP only)
		DE15584	Place of service

*Inpatient records only: DE15584 = 4 or 5

CONSTRUCTION

File 06 and File 10 inpatient physician records were linked to File 03 records by the procedure described in the introduction. Thus the admission date DE15513, and a provider number, DE15502, were assigned in accordance with the hospitalization to which they were linked. Because the provider number on HMO File 03 is the physician and not the hospital, the value of DE15502 was replaced with the hospital identifier from the HMO File 01 records with the same admit and discharge dates as the HMO File 03 records.

```
DO OVER (File Type--HMO or FFSCOMP) AND PERSON AND CONTYR AND
   DE15502 AND DE15513;

   IMPCHRG = IMPCHRG * (inflation adjustment);

   IF (HMO line-item)
      THEN MDSDOL = MDSDOL + IMPCHRG;

   IF (FFSCOMP line-item) AND (DE15560 /= 44 AND DE15560 /= 45)
      THEN MDSDOL = MDSDOL + IMPCHRG;

END;
```

NOTE: Inflation adjustment is based on the month and year service was rendered

VARIABLE VALUES

DE15584	4	hospital
	5	nursing home

(cont.)

VARIABLE MDSDOL (cont.)

VARIABLE VALUES (cont.)

DE15560 44 - GHC-available services not obtained from GHC (GHC experimental group
45 - HIE reimbursed 5% of covered charges not covered by GHC (GHC control group)

VARIABLE MDSDOLX HMO-FFS INPATIENT VISITS

Out-of-plan physician charges

CODES

. - Missing

MDSDOLX indicates the physician charges for an HMO participant's hospitalization in an FFS hospital that were not covered by the HMO and were not fully reimbursed by the HIE. All physician charges are imputed. All charges are expressed in 1967 dollars.

NOTE: If the hospital did not itemize its staff physician charges, those charges will be found in HSPDOLX. This applies primarily to FFS hospitalizations.

SOURCE

Files (FFSCOMP)		Variables	
FILE03	Hospital inpatient services	DE15513	Date of admission
		DE15502	Provider number (PROVID)
FILE06	Services rendered by physician*	IMPCHRG	Imputed line-item charge
FILE10	Injections given by physician*	DE15560	Reason not covered
		DE15584	Place of service

*Inpatient records only: DE15584 = 4 or 5

(cont.)

MDSDOLX

NUMBER OF OBSERVATIONS	985
NUMBER OF MISSING	4
MEAN	5.09
MEDIAN	0.00
MINIMUM VALUE	0.00
MAXIMUM VALUE	1212.50
STANDARD DEVIATION	62.25
COEFFICIENT OF VARIATION	1223.49
SKEWNESS	15.24
KURTOSIS	253.99

VARIABLE MDSDOLX (cont.)

CONSTRUCTION

File 06 and File 10 inpatient physician records were linked to File 03 records by the procedure described in the introduction. Thus the admission date DE15513 was assigned in accordance with the hospitalization to which they were linked. Because the provider number on HMO File 03 is the physician and not the hospital, the value of DE15502 was replaced with the hospital identifier from the HMO File 01 records with the same admit and discharge dates as the HMO File 03 records.

```
DO OVER PERSON AND CONTYR AND DE15502 AND DE15513;

   IMPCHRG = IMPCHRG * (inflation adjustment);

   IF (DE15560 = 44 OR DE15560 = 45)
      THEN MDSDOLX = MDSDOLX + IMPCHRG;

END;
```

NOTE: Inflation adjustment is based on the month and year in which visit occurred.

VARIABLES VALUES

DE15584	4	hospital
	5	nursing home
DE15560	44	GHC-available services not obtained from GHC (GHC experimental group)
	45	HIE reimbursed 5% of covered charges not covered by GHC (GHC control group)

VARIABLE TOTDOL HMO-FFS INPATIENT VISITS

Total in-plan amount

CODES

. - Missing

TOTDOL indicates the in-plan imputed charges for the participant's hospital stay, i.e., the total of hospital and physician charges that were covered by the participant's HMO or FFS plan. If either the hospital or physician charges were missing, TOTDOL was set to missing. All charges are expressed in 1967 dollars.

INPUT VARIABLES

HSPDOL In-plan hospital charges
MDSDOL In-plan physician charges

CONSTRUCTION

```
TOTDOL = HSPDOL + MDSDOL;
```

TOTDOL

NUMBER OF OBSERVATIONS	977
NUMBER OF MISSING	12
MEAN	793.20
MEDIAN	582.20
MINIMUM VALUE	0.00
MAXIMUM VALUE	19635.38
STANDARD DEVIATION	1009.93
COEFFICIENT OF VARIATION	127.32
SKEWNESS	8.85
KURTOSIS	134.25

VARIABLE TOTDOLX HMO-FFS INPATIENT VISITS

Total out-of-plan amount

CODES

. - Missing

TOTDOLX indicates the total out-of-plan imputed charges for the HMO participant's hospital stay at an FFS hospital, i.e., the total of hospital and physician charges that were not covered by GHC but were covered by the HIE. If either the hospital or physician charges were missing, TOTDOLX was set to missing.

INPUT VARIABLES

HSPDOLX Out-of-plan hospital charges
MDSDOLX Out-of-plan physician charges

CONSTRUCTION

```
TOTDOLX = HSPDOLX + MDSDOLX;
```

TOTDOLX

NUMBER OF OBSERVATIONS	980
NUMBER OF MISSING	9
MEAN	15.40
MEDIAN	0.00
MINIMUM VALUE	0.00
MAXIMUM VALUE	4803.63
STANDARD DEVIATION	209.62
COEFFICIENT OF VARIATION	1361.10
SKEWNESS	17.88
KURTOSIS	357.17

Appendix A
PARTICIPATION INCENTIVE PAYMENTS

HIE-insured families were paid a participation incentive (PI) if their HIE plans could conceivably impose a greater financial burden than their existing health insurance policies.[1] Calculated yearly, the PI consisted of (1) an amount calculated to be the *maximum* difference between what the family would have to pay for health care under its HIE insurance plan and what it would have paid under its existing insurance plan, unless (2) the premium a family paid to maintain its existing insurance exceeded the maximum difference. In that case, the family was paid an amount equal to the premium payment.

The calculation of item 1 ignored the family's actual medical expenses. To illustrate, consider family X whose HIE plan specified 95 percent coinsurance up to a maximum out-of-pocket expenditure of $450, above which care was free.[2] Family X's existing insurance specified a $100 deductible, above which the family had to pay 20 percent coinsurance. Under its HIE policy, the family had to spend $473.68 for medical services (with the 5 percent reimbursement) to reach the $450 out-of-pocket maximum. For the same charge under its existing insurance, the family would have paid $100 (the deductible) plus 20 percent of the amount between $100 and $473.68. The maximum difference was thus 473.68 - 100 - 0.2 (473.68 - 100) = 298.94. Family X was entitled to $298.94 per year for that portion of its participation incentive.

The total PI could not exceed the MDE specified in the family's HIE plan unless the family's share of its insurance premium exceeded the MDE. For example, if family X paid an insurance premium of $300, its

---

[1]Participation incentive payments were not offered to families receiving free care (plan A, described on p. 3) who had no premium to pay, families who had no health insurance before the experiment, and families whose other policies had equal or less generous terms, under all circumstances, than their HIE plan.

[2]In HIE terminology, maximum out-of-pocket expenditure is called "maximum dollar expenditure," or MDE.

total PI entitlement was $450, not $598.94 (300 + 298.94). If the family paid a premium of $600, its PI was $600 because the premium exceeded the MDE of $450. On the other hand, a family who had a high MDE in its HIE plan and an existing insurance policy with 0 percent coinsurance, no deductible, and an employer-paid premium was entitled to the full MDE amount. The purpose of PI payments was to ensure that a family was no worse off financially by participating in the experiment--whether because of the cost of its insurance premium or the "worse" terms of its HIE insurance plan compared with its existing policy.[3]

As encouragement for families to complete their assigned enrollment terms, a portion of the family's annual PI was withheld until the last year of the term.[4] The family received its full annual PI that last year, and the amount previously withheld was paid as part of a completion bonus when the family completed the physical screening examination and medical health questionnaire at exit.[5]

To measure enrollees' responsiveness to PI payments, a subset of families received their full annual PI in the next-to-last, as well as the last, year of their term. That "super PI bonus" was offered to 44.4 percent of the families assigned to insurance plans requiring 95 percent coinsurance, the highest rate (plans K-N, described on pp. 3-4). Super PI

---

[3]Calculation of PI is further described in Clasquin and Brown, op. cit. The formula on p. 20 of that report should read PI = max[K x PG, PR].

[4]The percentage of PI withheld depended on the site and assigned enrollment term, as follows:

	3-yr Term	*5-yr Term*
Dayton	25	15
Seattle	25	15
Fitchburg	33.3	25
Franklin Co.	33.3	25
Charleston	33.3	20
Georgetown Co.	33.3	20

If the discounted PI was not enough to reimburse the cost of the family's insurance premium, however, the family received the full amount of its premium. The difference between the premium and the discounted PI was then subtracted from the withheld amount.

[5]The rest of the completion bonus was the largest annual PI to which the family had been entitled during its enrollment (minus the withheld amount) or $120, whichever was greater.

recipients represented all sites and both terms of enrollment except Dayton enrollees assigned to three-year terms, who had already begun their next-to-last year when super PI was instituted. Within the 95 percent coinsurance plans, super PI recipients were chosen using the "finite selection model." That model was developed by RAND to assign enrollees to experimental insurance plans so that, across plans, families resembled each other in 24 health and socioeconomic characteristics.[6]

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[6]The finite selection model is described in Carl N. Morris, "A Finite Selection Model for Experimental Design of the Health Insurance Study," *Journal of Econometrics*, Vol. 11, 1979, pp. 43-61.

Appendix B
HIE DATA FILES

This appendix identifies the data files that the HIE has either issued or expects to issue, grouped in topical series. As a tape of each file is issued, a companion codebook is published as a RAND Note. One Note may contain the codebooks for several files. In addition to issuing files and codebooks, HIE staff will prepare a user's guide to provide assistance in understanding and using the HIE database for analysis.

The list below cites codebooks for the files that have been issued, and file names for those not yet issued. At this time it is impossible to predict exact issue dates for future files and codebooks. This preliminary list is to alert prospective users to the variety of subject matter covered by the HIE database and to the existence of related files that should be used together.

Before ordering a file or codebook, be sure to verify its availability with the RAND Publications Department, using the reference numbers cited below (e.g., MS3).

ISSUED TO DATE

Master Sample Series

MS1. *Vol. 1: Codebook for Eligibility-Family Changes File*, by S. M. Polich and C. d'Arc Taylor, The RAND Corporation, N-2264/1-HHS, May 1986.

MS2. *Vol. 2: Codebook for Full Sample Demographic File*, by S. M. Polich, N. F. Campbell, C. d'Arc Taylor, D. L. Wesley, J. W. Keesey, and E. S. Bloomfield, The RAND Corporation, N-2264/2-HHS, May 1986.

Aggregated Claims Series

AC1. *Vol. 1: Codebook for Fee-for-Service Annual Expenditures and Visit Counts*, by C. E. Peterson, M. Nelsen, and E. S. Bloomfield, The RAND Corporation, N-2360/1-HHS, May 1986.

ISSUED TO DATE (cont.)

AC2-AC4. *Vol. 2: Codebooks for Fee-for-Service Visits--Outpatient, Inpatient, and Dental*, by C. E. Peterson, M. Nelsen, D. L. Wesley, and E. S. Bloomfield, The RAND Corporation, N-2360/2-HHS, June 1986.

AC2. FFS outpatient visits
AC3. FFS inpatient visits
AC4. FFS dental visits

AC5-AC6. *Vol. 3: Codebooks for Fee-for-Service Treatment Episodes and Annual Episode Counts*, by C. E. Peterson, C. d'Arc Taylor, and E. S. Bloomfield, The RAND Corporation, N-2360/3-HHS, June 1986.

AC5. FFS treatment episodes
AC6. FFS annual episode counts

AC8-AC9. *Vol. 4: Codebooks for Health Maintenance Organization and Seattle Fee-for-Service Visits--Outpatient and Inpatient*, by C. E. Peterson, M. Nelsen, and D. L. Wesley, The RAND Corporation, N-2360/4-HHS, December 1986.

AC8. HMO and Seattle FFS outpatient visits
AC9. HMO and Seattle FFS inpatient visits

Claims Line-Item Series

LI1-LI14. *Vol. 1: Codebooks for Fee-for-Service Claims*, by C. E. Peterson, M. Nelsen, D. L. Wesley, E. S. Bloomfield, and S. M. Polich, The RAND Corporation, N-2347/1-HHS, June 1986.

LI1. FFS data: hospital inpatient services
LI2. FFS data: inpatient physician procedures billed by institutions
LI3. FFS data: drugs prescribed by physicians
LI4. FFS data: supplies prescribed by physicians
LI5. FFS data: services rendered by physicians
LI6. FFS data: drugs sold by physicians
LI7. FFS data: supplies sold by physicians
LI8. FFS data: injections administered by physicians
LI9. FFS data: outpatient services billed by institutions
LI10. FFS data: services rendered by dentists
LI11. FFS data: drugs prescribed by dentists
LI12. FFS data: drugs purchased
LI13. FFS data: supplies purchased from pharmacies
LI14. FFS data: supplies purchased from nonpharmacy suppliers

LI15-LI25. *Vol. 2: Codebooks for Health Maintenance Organization Claims*, by C. E. Peterson, M. Nelsen, E. S. Bloomfield, D. L. Wesley, and A. M. Bell, The RAND Corporation, N-2347/2-HHS, August 1986.

LI15. Seattle HMO data: hospital inpatient services
LI16. Seattle HMO data: inpatient physician services
LI17. Seattle HMO data: drugs prescribed by physicians
LI18. Seattle HMO data: supplies prescribed by physicians

ISSUED TO DATE (cont.)

LI19. Seattle HMO data: services rendered by physicians
LI20. Seattle HMO data: drugs dispensed by physicians
LI21. Seattle HMO data: supplies dispensed by physicians
LI22. Seattle HMO data: injections administered by physicians
LI23. Seattle HMO data: outpatient services provided by institutions
LI24. Seattle HMO data: drugs dispensed
LI25. Seattle HMO data: supplies dispensed

LI26-LI29. *Vol. 3: Codebooks for Seattle Fee-for-Service Claims for Comparison with Health Maintenance Organization Claims*, by C. E. Peterson, M. Nelsen, and D. L. Wesley, The RAND Corporation, N-2347/3-HHS, October 1986.

LI26. Seattle FFS data for HMO comparison: hospital inpatient services
LI27. Seattle FFS data for HMO comparison: inpatient physician procedures billed by institutions
LI28. Seattle FFS data for HMO comparison: outpatient services rendered by physicians
LI29. Seattle FFS data for HMO comparison: injections administered by physicians

HIE Reference Series

RF1. *Vol. 1: Codes Used in HIE Claims--Diagnoses, Symptoms, Procedures, Drugs, and Supplies*, by M. Nelsen and C. A. Edwards, The RAND Corporation, N-2349/1-HHS, May 1986.

Health Status and Attitude Series

HS1-HS2. *Vol. 1: Codebooks for Adults and Children at Enrollment and Exit*, by E. M. Sloss, L. L. Colbert, D. L. Wesley, A. M. Bell, and A. B. Holland, The RAND Corporation, N-2447/1-HHS, November 1986.

HS1. Adults at enrollment and exit
HS2. Children at enrollment and exit

Medical History Questionnaire Series

MH1A-MH3A. *Vol. 1: Codebooks for Adults at Enrollment and Exit, Form A*, by C. A. Edwards, A. B. Holland, L. Y. Weissler, and M. Nelsen, The RAND Corporation, N-2485/1-HHS, August 1986.

MH1A. Dayton adults at enrollment, Form A
MH2A. NonDayton adults at enrollment, Form A
MH3A. Adults at exit, Form A

ISSUED TO DATE (cont.)

MH1B-MH3B. *Vol. 2: Codebooks for Adults at Enrollment and Exit, Form B*, by C. A. Edwards, A. B. Holland, L. Y. Weissler, and M. Nelsen, The RAND Corporation, N-2485/2-HHS, October 1986.

MH1B. Dayton adults at enrollment, Form B
MH2B. NonDayton adults at enrollment, Form B
MH3B. Adults at exit, Form B

MH4A-MH6B. *Vol. 3: Codebooks for Children at Enrollment and Exit*, by C. A. Edwards, A. M. Bell, D. L. Wesley, L. Y. Weissler, and M. Nelsen, The RAND Corporation, N-2485/3-HHS, November 1986.

MH4A. Dayton children at enrollment, Form A
MH4B. Dayton children at enrollment, Form B
MH5A. NonDayton children at enrollment, Form A
MH5B. NonDayton children at enrollment, Form B
MH6A. Children at exit, Form A
MH6B. Children at exit, Form B

MH7A-MH9B. *Vol. 4: Codebooks for Infants at Enrollment and Exit*, by C. A. Edwards, A. B. Holland, D. L. Wesley, A. M. Bell, L. Y. Weissler, and M. Nelsen, The RAND Corporation, N-2485/4-HHS, November 1986.

MH7A. Dayton infants at enrollment, Form A
MH7B. Dayton infants at enrollment, Form B
MH8A. NonDayton infants at enrollment, Form A
MH8B. NonDayton infants at enrollment, Form B
MH9A. Infants at exit, Form A
MH9B. Infants at exit, Form B

Insurance Preference

IP1. *Codebooks for Insurance Preference Files: Relation between Expense Limit and Premium*, by E. S. Bloomfield, L. Y. Weissler, and A. B. Holland, The RAND Corporation, N-2508-HHS, October 1986.

TO BE ISSUED

Master Sample Series

MS3. Supplemental data file

Aggregated Claims Series

AC7. HMO and Seattle FFS annual expenditures and visit counts

TO BE ISSUED (cont.)

HIE Reference Series

RF2. Providers cited in HIE data

RF3. User's guide to HIE data

Medical Disorder Series

MD1. Adult medical disorders at enrollment and exit

MD2. Infant and child medical disorders at enrollment and exit

Dental Examinations

DE1. Adults and children at enrollment and exit

Appendix C
FILE DICTIONARIES

This appendix contains the two file dictionaries for the character versions of the HMO and Seattle FFS visits files in technical terms. Each dictionary has three parts: basic identifying data, alphabetic listing of variables, and listing by location.

Table C.1

THE HMO AND SEATTLE FFS OUTPATIENT VISITS FILE:
BASIC IDENTIFYING DATA

Data file name	DEWO2A01.PUF.DATA
Creation Date	December 3, 1986
Variable format	Character
Total number of data elements	45
Header length (bytes)	20
Derived data length (bytes)	312
Record length (bytes)	332

Table C.2

THE HMO AND SEATTLE FFS OUTPATIENT VISITS FILE:
LISTING BY ALPHABETIC ORDER

Name	Location	Length	Type
CAMT	317	8	F
CONTYR	17	2	A
CRVS1	197	8	I
CRVS2	221	8	I
CRVS3	245	8	I
CRVS4	269	8	I
DIAGA1	101	8	A
DIAGA2	117	8	A
DIAGB1	125	8	A
DIAGB2	141	8	A
DIAGC1	149	8	A
DIAGC2	165	8	A
DIAGD1	173	8	A
DIAGD2	189	8	A
ER	93	8	I
FILENAME	1	6	A
FILLER	19	2	A
FTF	61	8	I
HDATE	37	8	I
HMO	21	8	I
INSTAT	16	1	A
MER	53	8	I
MOD11	205	8	I
MOD12	213	8	I
MOD21	229	8	I
MOD22	237	8	I
MOD31	253	8	I
MOD32	261	8	I
MOD41	277	8	I
MOD42	285	8	I
PERSON	7	8	A
PREFTO1	301	8	A
PREFTO2	309	8	A
PROVID	29	8	A
PROVTYPE	45	8	A
RAP	85	8	I
REFERBY	293	8	A
RULOUTA	109	8	I
RULOUTB	133	8	I
RULOUTC	157	8	I
RULOUTD	181	8	I
SITE	15	1	A
VISTYPE	69	8	I
VPHYSMED	77	8	I
XCAMT	325	8	F

NOTE: "Type" refers to whether the variable values are alphanumeric (A), integer (I), or fixed-decimal in 8.2 format (F). Missing values are represented differently for each type: A = bbbbbbbb, I = bbbbbbb., and F = bbbbb.bb ("b" meaning blank). To obtain the appropriate positive and missing values, read all values as alphanumeric, then convert "I" data to integers and "F" data to 8.2 format.

Table C.3

THE HMO AND SEATTLE FFS OUTPATIENT VISITS FILE:
LISTING BY LOCATION

Name	Location	Length	Type
FILENAME	1	6	A
PERSON	7	8	A
SITE	15	1	A
INSTAT	16	1	A
CONTYR	17	2	A
FILLER	19	2	A
HMO	21	8	I
PROVID	29	8	A
HDATE	37	8	I
PROVTYPE	45	8	A
MER	53	8	I
FTF	61	8	I
VISTYPE	69	8	I
VPHYSMED	77	8	I
RAP	85	8	I
ER	93	8	I
DIAGA1	101	8	A
RULOUTA	109	8	I
DIAGA2	117	8	A
DIAGB1	125	8	A
RULOUTB	133	8	I
DIAGB2	141	8	A
DIAGC1	149	8	A
RULOUTC	157	8	I
DIAGC2	165	8	A
DIAGD1	173	8	A
RULOUTD	181	8	I
DIAGD2	189	8	A
CRVS1	197	8	I
MOD11	205	8	I
MOD12	213	8	I
CRVS2	221	8	I
MOD21	229	8	I
MOD22	237	8	I
CRVS3	245	8	I
MOD31	253	8	I
MOD32	261	8	I
CRVS4	269	8	I
MOD41	277	8	I
MOD42	285	8	I
REFERBY	293	8	A
PREFTO1	301	8	A
PREFTO2	309	8	A
CAMT	317	8	F
XCAMT	325	8	F

NOTE: "Type" refers to whether the variable values are alphanumeric (A), integer (I), or fixed-decimal in 8.2 format (F). Missing values are represented differently for each type: A = bbbbbbbb, I = bbbbbbb., and F = bbbbb.bb ("b" meaning blank). To obtain the appropriate positive and missing values, read all values as alphanumeric, then convert "I" data to integers and "F" data to 8.2 format.

Table C.4

THE HMO AND SEATTLE FFS INPATIENT VISITS FILE:
BASIC IDENTIFYING DATA

Data file name	DEWI2A01.PUF.DATA
Creation Date	December 2, 1986
Variable format	Character
Total number of data elements	53
Header length (bytes)	20
Derived data length (bytes)	376
Record length (bytes)	396

Table C.5

THE HMO AND SEATTLE FFS INPATIENT VISITS FILE:
LISTING BY ALPHABETIC ORDER

Name	Location	Length	Type
ADMIT	53	8	I
ADMPHY	77	8	A
ATTDPHY1	85	8	A
ATTDPHY2	93	8	A
CONTHOSP	69	8	I
CONTYR	17	2	A
CRVS1	117	8	I
CRVS2	141	8	I
CRVS3	157	8	I
CRVS4	173	8	I
CRVS5	189	8	I
CRVS6	205	8	I
CRVS7	221	8	I
CRVS8	237	8	I
DIAGA1	253	8	A
DIAGA2	269	8	A
DIAGB1	277	8	A
DIAGB2	293	8	A
DIAGC1	301	8	A
DIAGC2	317	8	A
DIAGD1	325	8	A
DIAGD2	341	8	A
DISCH	61	8	I
FILENAME	1	6	A
FILLER	19	2	A
HMO	21	8	I
HSPDOL	349	8	F
HSPDOLX	357	8	F
INSTAT	16	1	A
MDSDOL	365	8	F
MDSDOLX	373	8	F
MER	45	8	I
MISHOSP	109	8	I
MOD11	125	8	I
MOD12	133	8	I
MOD21	149	8	I
MOD31	165	8	I
MOD41	181	8	I
MOD51	197	8	I
MOD61	213	8	I
MOD71	229	8	I
MOD81	245	8	I
PERSON	7	8	A
PREG_MAT	101	8	I
PROVID	29	8	A
PROVTYPE	37	8	A
RULOUTA	261	8	I
RULOUTB	285	8	I
RULOUTC	309	8	I
RULOUTD	333	8	I
SITE	15	1	A
TOTDOL	381	8	F
TOTDOLX	389	8	F

NOTE: "Type" refers to whether the variable values are alphanumeric (A), integer (I), or fixed-decimal in 8.2 format (F). Missing values are represented differently for each type: A = bbbbbbbb, I = bbbbbbb., and F = bbbbb.bb ("b" meaning blank). To obtain the appropriate positive and missing values, read all values as alphanumeric, then convert "I" data to integers and "F" data to 8.2 format.

Table C.6

THE HMO AND SEATTLE FFS INPATIENT VISITS FILE:
LISTING BY LOCATION

Name	Location	Length	Type	Name	Location	Length	Type
FILENAME	1	6	A	MOD41	181	8	I
PERSON	7	8	A	CRVS5	189	8	I
SITE	15	1	A	MOD51	197	8	I
INSTAT	16	1	A	CRVS6	205	8	I
CONTYR	17	2	A	MOD61	213	8	I
FILLER	19	2	A	CRVS7	221	8	I
HMO	21	8	I	MOD71	229	8	I
PROVID	29	8	A	CRVS8	237	8	I
PROVTYPE	37	8	A	MOD81	245	8	I
MER	45	8	I	DIAGA1	253	8	A
ADMIT	53	8	I	RULOUTA	261	8	I
DISCH	61	8	I	DIAGA2	269	8	A
CONTHOSP	69	8	I	DIAGB1	277	8	A
ADMPHY	77	8	A	RULOUTB	285	8	I
ATTDPHY1	85	8	A	DIAGB2	293	8	A
ATTDPHY2	93	8	A	DIAGC1	301	8	A
PREG_MAT	101	8	I	RULOUTC	309	8	I
MISHOSP	109	8	I	DIAGC2	317	8	A
CRVS1	117	8	I	DIAGD1	325	8	A
MOD11	125	8	I	RULOUTD	333	8	I
MOD12	133	8	I	DIAGD2	341	8	A
CRVS2	141	8	I	HSPDOL	349	8	F
MOD21	149	8	I	HSPDOLX	357	8	F
CRVS3	157	8	I	MDSDOL	365	8	F
MOD31	165	8	I	MDSDOLX	373	8	F
CRVS4	173	8	I	TOTDOL	381	8	F
				TOTDOLX	389	8	F

NOTE: "Type" refers to whether the variable values are alphanumeric (A), integer (I), or fixed-decimal in 8.2 format (F). Missing values are represented differently for each type: A = bbbbbbbb, I = bbbbbbb., and F = bbbbb.bb ("b" meaning blank). To obtain the appropriate positive and missing values, read all values as alphanumeric, then convert "I" data to integers and "F" data to 8.2 format.

Appendix D

HMO CLAIMS LINE-ITEM FILES

File		Sample	Examples of Variables
(01)	Hospital Inpatient Services	Records concerning inpatient hospital services provided to HMO participants	Diagnoses, categories of hospital service, imputed charges
(03)	Inpatient Services Rendered by Physicians	Records concerning inpatient procedures and services provided by physicians to HMO participants	Physician services, diagnoses, admitting and attending physicians, imputed charges
(04)	Drugs Prescribed by Physicians	Drug prescriptions or suggestions written by HMO physicians for HMO participants	Drugs, dosages, drug generic codes, symptoms, diagnoses, treatment history, referral physicians (no imputed charges)
(05)	Supplies Prescribed by Physicians	Supply prescriptions or suggestions written by HMO physicians for HMO participants	Supplies, symptoms, diagnoses, treatment history, referral physicians (no imputed charges)
(06)	Outpatient Services Rendered by Physicians	Records of outpatient services provided by physicians to HMO participants	Physician services, diagnoses, symptoms, referral physicians, treatment history, imputed charges
(08)	Drugs Provided by Physicians	Records of drugs provided directly by physicians to HMO participants	Drugs, symptoms, diagnoses, NDC and generic codes, dosage instructions (no imputed charges)
(09)	Supplies Provided by Physicians	Records of supplies provided by physicians to HMO participants	Supplies, symptoms, diagnoses, treatment history (no imputed charges)

Appendix D (cont.)

HMO CLAIMS LINE-ITEM FILES

	File	Sample	Examples of Variables
(10)	Injections Administered by Physicians	Records of injections given by physicians to HMO participants	Injected drugs, symptoms, diagnoses, drug generic codes, drug therapeutic codes, treatment history, imputed charges
(11)	Outpatient Services Provided by Institutions	Hospital/clinic records of outpatient services provided to HMO participants	Physician services, diagnoses, symptoms, referral physicians, treatment history (no imputed charges)
(15)	Drugs Dispensed	Records of drugs dispensed at HMO pharmacies to HMO participants	Drugs, dosages, drug regimen, drug generic codes, drug therapeutic codes (no imputed charges)
(18)	Supplies Dispensed	Records of supplies (primarily eyewear) dispensed to HMO participants	Supplies dispensed, primary diagnoses, prescribers (no imputed charges)

Appendix E

SEATTLE FEE-FOR-SERVICE CLAIMS FILES FOR HMO COMPARISON

File		Sample	Variables
(01)	Inpatient Services Billed by Institutions	Hospital claims related to an inpatient stay in a hospital or nursing facility	Diagnoses, category of hospital service, actual FFS covered charges
(03)	Inpatient Physician Procedures Billed by Institutions	Hospital claims for hospital-employed physician procedures and services	Physician services, diagnoses, referral physicians, imputed covered charges
(06)	Services Rendered by Physicians	Claims by independent physicians and nonphysician health specialists for inpatient and outpatient services	Physician services, diagnoses, symptoms, referral physicians, imputed covered charges
(10)	Injections Administered by Physicians	Physician or health specialist claims for injections administered	Injected drugs, symptoms, diagnoses, referral physicians, imputed covered charges

Appendix F

CODES AND EXPLANATIONS FOR MEDICAL EXPENSES NOT COVERED BY THE HIE

1 - Inpatient hospital accommodations in a private room
2 - Inpatient hospital comfort items
3 - Inpatient hospital custodial care
4 - Cosmetic surgery not resulting from an accidental injury
5 - Psychiatric outpatient services in excess of 52 consultations per year
6 - Outpatient psychiatric services
7 - Outpatient personal care services
8 - Orthodontia not resulting from accidental injury
9 - Christian Science practitioner or sanitorium not listed in the *Christian Science Journal*
10 - Nonemergency transportation
11 - More than one eye or hearing examination during the accounting year
12 - More than one pair of eyeglass frames every two accounting years
13 - More than one set of eyeglass lenses during the accounting year
14 - More than one hearing aid during accounting year
15 - Exceeds limit on eyeglass frames or hearing aids
16 - Repairs to eyeglass frames and hearing aids
17 - Diagnostic, screening, preventive, or rehabilitation services not otherwise specified in the scope of coverage
18 - More than one piece of medical equipment, appliance, or supply
19 - Equipment, appliances, or supplies costing more than $25
20 - Not medically necessary
21 - Duplicate line item
22 - Amount paid on another Explanation of Benefits
23 - Service before enrollment (SAME AS 64)
24 - Procedure done twice
25 - Certificate of benefits stipulations on service not met
26 - Prior authorization not approved
27 - Participant not eligible for dental care
28 - Blood credit
29 - Over-the-counter drugs
32 - Services covered by Workers' Compensation or employer's liability laws
33 - Pass through (covered by other insurance; payment from other company was "passed through")
35 - Services covered by accident insurance policies

36 - Medicare paid
42 - Paid by other insurance carrier
43 - Paid by agency other than insurance company
46 - Services obtained at Group Health Cooperative
47 - Allowance on over-the-counter drugs per illness per accounting year has been met
48 - Services paid for by Group Health Cooperative
53 - Part paid by Group Health Cooperative; plan benefit = 5% of balance
54 - Charge information unavailable--charge coded as one cent
55 - Discount plus plan benefit is 5%
56 - Medicaid paid
57 - Company physical provided as fringe benefit--charge coded as one cent, but true charge unknown
58 Workers' Compensation--charge coded as one cent, but true charge unknown
59 - Services rendered after termination date
60 - Claim is duplicate
61 - Participant not eligible
62 - Suspended
63 - No service
64 - Before enrollment date (SAME AS 23)
65 - Claim filed after time limit
67 - Underpayment
68 - Overpayment, deducted on another claim
69 - Overpayment, returned
70 - Overpayment, deducted on this claim, overpaid on another claim
71 - Billed in error--patient not seen
73 - Duplicate payment recovered
74 - Duplicate payment not recovered
80 - Prepayment for future services--no Maximum Dollar Expenditure involved
81 - Prepayment--part applied to the Maximum Dollar Expenditure

Appendix G
PROVIDER CLASSIFICATION CODES

GENERAL INDEX

Provider	Description
011xx	Physicians (Doctors of Medicine)
01199	Physicians (M.D. specialty unknown)
012xx	Physicians (D.O)
01299	Physicians (D.O. specialty unknown)
013xx	Medical (Health Care) clinics and group practices
01399	Specialty unknown
014xx	Osteopathic clinics and group practices
01499	Specialty unknown
020xx	Hospital medical outpatient clinics
02900	Hospital emergency rooms/departments
031xx	Dentists
03199	Dentists, specialty unknown
032xx	Hospital dental outpatient clinics
033xx	Dental clinics and group practices
03399	Dental clinics and group practices, specialty unknown
041xx	Other providers
04500	Laboratories
051xx	Pharmacy
05200	Optician
05500	Other suppliers
061xx	Inpatient facilities--nursing homes, extended care facilities
07199	Unspecified nursing home
xxxxS	Hospital inpatient facilities (short-term)
xxxxL	Hospital inpatient facilities (long-term)
07939	Hospital unspecified
07998	Hospital out of country
07999	Hospital unspecified (rarely used)
09995	Uncodable "doctor" (after verification attempt, cannot verify that provider is a doctor, or, if so, which type)
09999	Uncodable provider (type unobtainable)
99999	Other nonprofessional (i.e., participant's friend)

SPECIFIC INDEX

Code No.	Description
011xx	PHYSICIANS (Doctors of Medicine)
01	General Practice (includes Family Practice)
02	Internal Medicine
03	Allergy
04	Cardiovascular Diseases
05	Dermatology
06	Gastroenterology
07	Pulmonary Diseases
08	Pediatrics
09	Pediatric Allergy
10	Pediatric Cardiology
11	General Surgery
12	Colon and Rectal Surgery
13	Neurological Surgery
14	Orthopedic Surgery
15	Plastic Surgery
16	Thoracic Surgery
17	Urology, Urological Surgery
18	Ophthalmology (includes Podiatric Ophthalmology)
19	Otolaryngology
20	Obstetrics and Gynecology (includes Limited to Obstetrics)
21	Anesthesiology
22	Neurology
23	Psychiatry
24	Child Psychiatry
25	Radiology (includes Pediatric Radiology)
26	Diagnostic Radiology
27	Therapeutic Radiology
28	Pathology
29	Forensic Pathology
30	Physical Medicine & Rehabilitation (includes Physiatrist)
31	Occupational Medicine (includes Insurance Company Physician)
32	General Preventive Medicine
33	Public Health (includes Health Department)
34	Aerospace Medicine
35	Other Specialty (includes: Nuclear Physician, Tumor Specialist, Clinical Pharmacologist, Psychosomatic Illness Specialist, Myelodysplasia Specialist, Medical Drug Dependency)
36	Other Internal Medicine (includes: Rheumatology, Endocrinology, Hematology, Nephrology)
37	Other Surgery Subspecialty (includes Pediatric Surgery, Intensive Care Unit Surgery)

Code No.	Description
38	Cardiovascular Surgery, Vascular Surgery
39	Neo-Natologist (disorders of the newborn infant)
40	Emergency Room Physician, M.D.
50	Acupuncture
90	Resident, intern on staff at a hospital (house staff)
95	Specialty cannot be determined (used by SDP-UV coding only)
99	Unspecified (includes Weight Loss)
012xx	PHYSICIANS (Doctors of Osteopathy)
01	General Practice
02	Internal Medicine
08	Pediatrics
11	General Surgery
13	Neurosurgery
14	Orthopedic Surgery
15	Oro-facial Plastic Surgery
16	Thoracic Surgery
17	Urological Surgery
18	Ophthalmology
19	Otorhinolaryngology
20	Obstetrics & Gynecology
21	Anesthesiology
22	Neurology
23	Psychiatry
24	Child Psychiatry
25	Radiology
26	Roentgenology
28	Pathology & Laboratory Medicine
30	Rehabilitation Medicine
35	Other Specialty (includes allergy, cardiology, endocrinology, other medical subspecialities, vascular specialties, sclerotherapy, nuclear/radiation therapy)
36	Ophthalmology & Otorhinolaryngology
37	Neuropsychiatry
38	Proctology
40	Dermatology (Skin disease)
41	Vascular Surgery
42	Emergency Room Physician D.O.
80	Practice Limited to Manipulative Therapy
90	Resident, Intern on staff at hospital (house staff)
95	Specialty cannot be determined (used by SDP-UV coding only)
99	Unspecified specialty (includes Weight Loss)

Code No.	Description
013xx	MEDICAL CLINICS
01-50	Same as for 011xx
80	Multi-specialty Medical group or clinic (includes military clinic, if designated as such, free education)
81	Public Health Department clinic (includes lead poisoning clinic)
85	Medical-Dental clinic
86	Mental Health clinic
87	Medical School
88	Alcoholism treatment, methadone maintenance
90	Type of clinic (i.e., medical, dental) unknown
95	Specialty cannot be determined (used by SDP-UV coding only)
99	Specialty of medical clinic unknown (includes Weight Loss)
014xx	OSTEOPATHIC CLINIC
01-42	Same as for 012xx
80	Multi-specialty Osteopathic group or clinic (includes military clinic, if designated as such)
86	Mental Health clinic
87	Osteopathic School
88	Alcoholism treatment, Methadone maintenance
99	Specialty of Medical clinic unknown (includes Weight Loss)
020xx	HOSPITAL MEDICAL OUTPATIENT CLINIC
01-50	Same as 011xx
80	Hospital Medical Outpatient clinic: Multi-specialty
85	Hospital Medical-Dental Outpatient clinic
88	Hospital Medical Outpatient clinic: Alcoholism treatment, Methadone maintenance
99	Specialty of Medical clinic unknown (includes Weight Loss)
02900	HOSPITAL EMERGENCY ROOMS/EMERGENCY DEPARTMENTS
031xx	DENTISTS, in independent practice, by specialty
01	General Dental - General Practice
02	Oral Surgery
03	Endodontics
04	Orthodontics
05	Pedodontics (Pediatric Dentistry)

Code No.	Description
06	Periodontics
07	Prosthodontics
08	Oral Pathology
09	Public Health
80	Multi-Specialty
90	Dental Schools
99	Unknown/Unspecified Specialty
032xx	HOSPITAL DENTAL OUTPATIENT CLINICS
01-99	Same as 031xx
033xx	DENTAL CLINICS AND GROUP PRACTICES
01-09	Same as 031xx
80	Multi-specialty Dental group or clinic (includes military dental clinic, if designated as such)
90	Dental School
95	Specialty cannot be determined (used by SDP-UV coding only)
99	Unknown
041xx	OTHER PROVIDERS
01	Audiologist
02	Chiropractor
03	Christian Science Practitioner
04	Medex, if specified
05	Physician's Assistant, Extender, etc.
06	Registered Nurse, School Nurse, Visiting Nurse/Unspecified Nurse
07	Nurse, private duty
08	Optometrist (includes School of Optometry)
09	Podiatrist or Chiropodist
10	Psychologist (includes Ph.D. in Psychology and/or Psychiatry)
11	Therapist (Speech, Hearing, Language, Physical, Occupational, Masso-therapist, Orthoptist, etc.)
12	Mental Health (includes Psychiatric Nurse, Biofeedback Therapist, Counselor, MSW, Ph.D. (not Psychiatrist or Psychologist)
13	Emergency Mobile Service (Police, Fire Department, Rampart, Rescue Service, and Paramedics)
14	Home Health Care Agency
15	Midwife

Code No.	Description
16	Dental Hygienist
17	Weight Control Program (nonprofessionally directed)
18	Alcohol and Drug Abuse Program (nonprofessionally directed)
21	Certified Registered Nurse Anesthetist
22	Military (if not designated as clinic)
23	Nurse Practitioner
24	Women's Health Care Specialist
86	Auditorium or Hall available for rental
87	Research Institute or Foundation
88	Family Planning (includes Planned Parenthood)
89	Child-related facility (Child Development Center, Head Start)
90	Government Agency (city, county, state, federal)
91	Funeral home
92	Other titled provider (Physiologist, Clinical Chemist with Ph.D., Director of speech-hearing-language who does not render services, Naturopath, Director of Public Health, MPH, Dietician (R.D.), X-Ray Technician)
93	Screening/Health Association (cancer control, multiphasic screening, heart association, lead poisoning testing)
94	Ambulance and Mobile Units
95	Schools (school infirmaries, universities, camps, dispensaries)
96	Psychologically oriented providers (creative life foundation, holistic health care facility, psychophysicist with a Ph.D.)
97	Data systems
98	Environmental manipulation (furnace cleaning, air conditioning)
99	All Other Providers not otherwise classified as suppliers or facilities (includes licensed acupuncture)
04500	LABORATORIES
051xx	PHARMACIES
01	Pharmacy - neighborhood (i.e., not one of a chain, and not associated with a medical arts building or a hospital
02	Pharmacy - one of a chain
03	Pharmacy - located in a medical arts building or hospital
04	Pharmacy - located in a hospital (this code is used only for ambulatory care prescriptions and suppliers)
05200	OPTICIANS (includes optical companies that dispense glasses)

Code No.	Description
055xx	OTHER SUPPLIERS
01	Optical Companies
02	Hearing Aid Centers
03	Orthopedic Supplies
04	Shoe Stores
05	Denture Services
06	Blood Banks
07	Grocery and Health Food Stores
08	Department and Sports Stores
09	Medical-Surgical Supply Houses
10	Biomedical Suppliers (oxygen, etc.)
11	Educational Supplies
00	All Other Suppliers
061xx	NURSING HOMES AND LONG-TERM CARE FACILITIES OTHER THAN HOSPITALS
01	Extended Care Facility (Skilled Nursing Facility)
02	Nursing Care Facility
03	Resident Care Facility
04	Health Care Facility
xxxxS xxxxL	HOSPITALS Uses the five-digit classification code published by the American Hospital Association (AHA) that consists of a two-digit Control Code, followed by a two-digit Service Code, and then a one-letter Length of Stay Code.

CONTROL CODES

Government, nonfederal
12 - State
13 - County
14 - City
15 - City-county
16 - Hospital district or authority

Nongovernment not-for-profit
21 - Church operated
23 - Other

Investor-owned (for-profit)
31 - Individual
32 - Partnership
33 - Corporation

Government, federal
41 - Air Force
42 - Army
43 - Navy
44 - Public Health Service other than 47
45 - Veterans Administration
46 - Federal other than 41-45, 47-48
47 - Public Health Service Indian Service
48 - Department of Justice

Osteopathic
61 - Church operated
63 - Other not-for-profit
64 - Other
71 - Individual for-profit
72 - Partnership for-profit
73 - Corporation for-profit

SERVICE CODES

10 - General medical and surgical
11 - Hospital unit of an institution (prison hospital, college infirmary, etc.)
12 - Hospital unit within an institution for the mentally retarded
22 - Psychiatric
33 - Tuberculosis and other respiratory diseases
44 - Obstetrics and gynecology
45 - Eye, ear, nose, and throat
46 - Rehabilitation
47 - Orthopedic
48 - Chronic disease
49 - Other specialty
50 - Children's general
51 - Children's hospital unit of an institution
52 - Children's psychiatric
53 - Children's tuberculosis and other respiratory diseases
55 - Children's eye, ear, nose, and throat
56 - Children's rehabilitation
57 - Children's orthopedic
58 - Children's chronic disease
59 - Children's other specialty
62 - Institution for mental retardation
82 - Alcoholism

When a hospital restricts its service to a specialty not defined by a specific code, it is coded 49 (59 if a children's hospital) and the specialty is indicated in parentheses following the name of the hospital.

LENGTH OF STAY CODES

S - Short-term--average length of stay for all patients is less than 30 days, or more than 50 percent of all patients are admitted to units where average length of stay is less than 30 days.

L - Long-term--average length of stay for all patients is 30 days or more, or more than 50 percent of all patients are admitted to units where average length of stay is 30 days or more.

Appendix H
HIE BENEFIT COVERAGE

The lists below distinguish the services covered and excluded by insurance plans A-O of the HIE.[1] These plans represent 15 of the 16 experimental treatments described in Sec. I. Benefit coverage for the HMO control group, the remaining treatment, cannot be summarized because HMO control families retained whatever benefit package their employer had purchased from the HMO.

The same services were covered and excluded for all participants assigned to plans A-O. The covered services list provided below is subdivided because the location of service differed for members of the HMO experimental group (plan O). For enrollees in FFS plans (A-N), the charges for covered services (groups 1 and 2) applied toward meeting a family's annual out-of-pocket expense limit or, when that limit was reached, were completely reimbursed by the HIE. For those in the HMO experimental group (plan O), covered services in group 1 were available at GHC; covered services in group 2 were available outside GHC and were completely reimbursed by the HIE.[2]

To encourage the reporting of non-HMO care, the HIE reimbursed all HMO participants 5 percent of the cost of certain services obtained in the fee-for-service sector. For the HMO experimental group, these services included any service in group 1 that the enrollee chose to obtain outside GHC. For the HMO control group, they included any service in either group 1 or 2 that was obtained in the fee-for-service sector.

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[1]The lists paraphrase the formal certificate of benefits presented to each insured family at enrollment. These rules of coverage were subject to individual appeal.

[2]Benefit coverage for the HMO control group cannot be summarized because HMO control families retained whatever benefit package their employer had purchased from the HMO.

Covered Services: Group 1

Medical diagnosis and treatment
Surgery and anesthesia
X-ray and laboratory services
Prescribed medicines
Semiprivate hospital accommodations
Outpatient hospital care
Maternity care (prenatal and delivery)
Pediatric care
Vision care:
  Refractive examinations by an optometrist
  Eyeglasses (limit one pair every two years)
  Contact lenses (limit one pair per year)
Hearing diagnostic examinations by an audiologist
Mental health care (limit 10 visits per year)
Physical therapy
Occupational therapy
Private-duty nursing care
Home health care:
  Part-time or intermittent nursing care
  Physical, occupational therapy
  Medical social services
  Part-time or intermittent care by health aide
Medically necessary equipment, appliances, and supplies needed for treatment lasting less than six months
Ambulance transportation

Covered Services: Group 2

Dental care
Other health care (e.g., chiropractic, acupuncture, services by Christian Science practitioners)
Semiprivate accommodations in skilled nursing facility
Prosthetic devices medically prescribed to replace body organ
Speech therapy (medically necessary)
Care for drug addiction and alcoholism
Hearing aids
Mental health care (11th through 52nd visit per year)
Medically necessary equipment, appliances, and supplies needed for treatment lasting longer than six months
Emergency treatment outside GHC service area (and outside United States)

Excluded Services

Services covered by other insurance (e.g., Workers' Compensation) or provided free
Medically unnecessary "custodial or personal care"
Repairs and adjustments of eyeglasses or hearing aids

Excluded Services (cont.)

Personal convenience items while an inpatient (e.g., television, hairdressing)
Excluded dental services:
- Crowns and jackets made of gold or platinum
- Nonpreventive orthodontia
- Fixed bridge with more than seven units (unless patient is eligible for dentures but prefers bridge)
- Replacement of satisfactory dentures and bridges
- Medically unnecessary cosmetic dental surgery

Sterilization for persons younger than 21 or persons declared incompetent by a judge
Cosmetic surgery for preexisting condition
Nonprescribed drugs
More than 52 outpatient mental health visits per year

GLOSSARY

Attrition	Departure from the experiment by voluntary withdrawal before completion of assigned enrollment term.
Baseline participant	Person considered for enrollment at the beginning of the experiment in the site. May or may not have enrolled.
Baseline-only participant	Person considered for enrollment at the beginning of the experiment in the site who did not enroll.
Codes Used	Shorthand term for the HIE reference series volume containing the code definitions for the codes used to designate diagnoses, symptoms, health procedures, drugs, and supplies in the HIE claims files. See the explanation and reference in Sec. II, p. 14.
Contract year	Administrative unit of time for enrollees; year period(s) reckoned from date family signed enrollment contract. First contract year began on enrollment date, second contract year began on first anniversary of enrollment, and so on.
CRVS code	*California Relative Value Studies* code, a five-digit code created by the California Medical Association to define procedures and services performed by physicians and other health professionals.
DEI	A variable prefix for primary variables that stands for "data element indicator."
Exit	Departure from the experiment after completion of assigned enrollment term, three or five years.
FFS	Fee-for-service, the private economic sector in which fees are charged.
GHC	Group Health Cooperative of Puget Sound, the Seattle HMO that participated in the experiment.
HICDA codes	Codes that define the diagnoses of physicians and health professionals. HICDA codes were taken from the *Hospital Adaptation of the ICDA (International Classification of Disease Adapted for Use in the United States)*.
HIE	Health Insurance Experiment.

HIE-insured	Enrollee assigned to an experimental health insurance plan paid by the HIE (plans A-O, described on pp. 3-4). Includes members of HMO experimental group. Compare "HMO-insured."
HMO	Health maintenance organization; Group Health Cooperative of Puget Sound, the HMO that participated in the HIE.
HMO control group	Seattle enrollees drawn at random from existing HMO members who met HIE eligibility criteria. The HIE did not pay their insurance premiums.
HMO experimental group	Seattle enrollees experimentally transferred to an HMO from the fee-for-service system. The HIE paid their insurance premiums.
HMO-insured	Member of HMO control group.
Imputed line-item charge	A charge calculated by HIE analysts for a physician or health professional service covered by GHC; also used for FFS professional services presented for GHC comparison.
In-plan	Charges that were covered by the participant's HIE or HMO insurance plan.
Line item	An itemized claim for service, i.e., an item on a Medical Expense Report recording one instance of a provided service, drug, or supply.
MDE	Maximum dollar expenditure. The maximum out-of-pocket expense to be paid by an HIE-insured family before health care was free. The amount depended on the family's assigned insurance plan and family income.
NAMCS codes	Codes that define a participant's reasons or symptoms for a health care visit. NAMCS codes were taken from the *National Ambulatory Medical Care Survey: Symptom Classification*.
NDC	National Drug Code
Out-of-plan	A category of services and charges that apply only to GHC participants. They consist of FFS services that were not covered by GHC and were reimbursed 5 percent by the HIE.
Participant	Anyone with a record in the HIE database; includes baseline-only participants and enrollees.
Provider	Any person, institution, or organization who provided health services, drugs, or supplies to an HIE participant.
SAS	Statistical Analysis System. HIE files contain data in both SAS and character formats.