

**PREPAID HOSPITAL CARE AGE/SEX AND HOSPITAL
CONTINUATION STUDY**

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ABSTRACT

This paper sets forth hospital utilization data by age and sex and hospital continuation data. Data from both regular prepaid hospital care contracts and contracts supplementing medicare are included in the age/sex portion of the paper. The hospital continuation data are from regular contracts only. The data are derived from a large block of homogeneous prepaid hospital care contracts issued in the seventeen-county area of downstate New York.

Included in the paper are hospital admission rates, lengths of stay, inpatient days of care per 1,000 contracts, and pure claim costs. Data for outpatient as well as inpatient benefits are included, and there is a breakdown between nonmaternity and maternity cases.

The paper may be used as a basis for comparing experience under hospital contracts, for developing age, sex, and durational factors, and, with appropriate modification for demographic factors and utilization, for developing pure claim costs.

I. INTRODUCTION

Blue Cross and Blue Shield of Greater New York covers more persons for prepaid hospital care than any other similar private organization in the world. Further, very large blocks of these persons have identical benefits, thereby permitting detailed actuarial studies to be made without the problem of numerous benefit variations complicating the result. This paper sets forth a series of studies of hospital benefits for persons not covered by medicare and also for persons covered by contracts that supplement medicare.

To appreciate the data contained in this paper, the reader will need some familiarity with the rather specialized terminology associated with Blue Cross and Blue Shield organizations. A glossary is given in Appendix A. Furthermore, the detailed benefit design must also be understood, and that is covered in Appendix B.

II. HOSPITAL UTILIZATION

The study included 676,000 non-medicare supplementary contracts, including 647,000 between ages 20 and 64, for the calendar year 1978. This represents the bulk of Blue Cross and Blue Shield's small group and direct payment business. It excludes the large group (experience-rated) business and also excludes the small group 21/180-day contract. Additional coverage available under a variety of riders also has been excluded from the study. Table 1A presents the distribution of contracts by the various categories.

For the age group 20-64, the contracts studied generated \$303.4 million of covered charges (or claim cost) for 1978 admissions and outpatient care. Under the terms of hospital contractual relationships and New York State statutes, the corporation does not reimburse its member hospitals on a charges basis; however, charge data are gathered and the entire study is presented on this basis. In addition, the 21/180 contract experience has been adjusted to equalize the value of benefits with the 120-day contract. The adjustment for individual contracts was to increase the inpatient nonmaternity claim cost by 6.46 percent; for family contracts, the corresponding factor is 5.04 percent. Table 1B gives the distribution of covered charges by category.

The components of the inpatient covered charges are presented in the next series of tables. Inpatient claim costs can be thought of as a product of inpatient admission rates, inpatient lengths of stay, and inpatient average total charges per patient day. In addition, for individual female and family members, separate figures can be presented for nonmaternity and maternity. Following this format, the admissions per contract year are given in Tables 2A, 2B, and 2C.

The next variable is length of stay. Tables 3A and 3B present the non-maternity lengths of stay and the total lengths of stay. (Maternity length of stay averaged 3.59 days per claim and is not displayed on a category basis.) Admission rates and lengths of stay combine to produce total inpatient days, presented in Table 3C. The substantial variation in utilization among the various contract types is one of the key points of the study and is developed in detail.

The covered charges per contract year, or inpatient claim cost, can be thought of as the product of days per contract year, as developed above, and charges per day. For the year studied, the average level of charges per day was \$313. (There is some variation in charges per day for the various categories. This variation is associated with different utilization

of ancillary services, among many other factors; a study of this phenomenon is outside the scope of this paper.) Table 4 presents the covered charges per contract year for the major categories.

In an attempt to understand the causes for the varying levels of utilization and claim costs, certain possible contributing factors can be ruled out. First, the benefits are identical. Second, the geographical area is well defined and relatively small (the lower seventeen counties of New York State). The size of the categories would seem to rule out a major contribution from chance fluctuation. There remain differences in distribution by age and sex, and different underwriting and selection standards. The next section of this paper will focus on utilization parameters for the various categories in an attempt to sort out key factors in the different claim cost experience.

Utilization of inpatient hospital care varies by age and sex. Arthur Hunter and Allen Thompson, in their article entitled "Hospital Service Insurance," presented data on this subject almost forty years ago (*JASA*, XLIV [March 1943], 5). It seems logical, therefore, to start with a study of the data on this basis.

Tables 5A-5I present the components of the claim costs per contract year for each of the categories. The claim cost is separated for nonmaternity, maternity (where applicable), and outpatient. In addition, figures are supplied for detailed age categories. These data are classified by the age of the subscriber (contract holder or employee) rather than the age of the claimant. As can be seen, there is a wide variety of claim cost for the various categories; furthermore, the degree of age and sex variation differs by category.

A "standardized weighting" subtotal is presented on each of the non-group tables for the age-20-64 category. This statistic, which also is shown in other tables, is calculated by replacing the actual age-sex distribution of the direct payment populations with the group distribution. Looking at Table 5F as an example, the actual claim cost per contract year for the direct payment conversion family cell was \$788.25. Had the actual age distribution been the same as for group, the average would have been \$764.00.

The next series of tables separates the components of inpatient utilization. Tables 6A-6G give admission rates for nonmaternity, maternity, and total. The index values that are displayed are simply the ratios of the cell data to the data for the age-40-44 category. As such, the index values are a simple measure of age slope.

Following the admissions data, the next step in the analysis is length-

of-stay data as presented in Tables 7A–7F. The combination of the admissions data and the length-of-stay data produces inpatient days per contract year; Tables 8A, 8B, and 8C present this information.

The data by age and sex permit restatement of the earlier data for the group and direct payment cells, controlling for age, sex, and family differences. Tables 9A–9G restate Tables 2A–4 as if the age, sex, and percent family distributions for direct payment followed the distributions for group. This permits quantification of the impact of selection differences between group remittance and direct payment on admissions, length of stay, and claim cost, holding other factors constant.

Direct payment utilization is more adverse than group remittance. However, miscellaneous direct payment is producing more favorable utilization than group remittance after controlling for age, sex, and family distribution. It should be noted that Blue Cross and Blue Shield of Greater New York definitely follows more liberal underwriting standards for small group business than do other insurers. This suggests that a degree of caution should be followed in generalizing from some of these comparisons.

III. CONTINUATION STUDY

As a separate study, continuance table values were developed from the inpatient claim experience. The continuance data are drawn from calendar year 1977 (the age-sex study is from calendar year 1978). These data are presented in Tables 10A–10C.

Table 10D, unlike all the other tables in this paper, is drawn from a sample of large experience-rated groups, each of which provides 365-day coverage for all conditions including mental and nervous disorders. The first three columns of data, which show a much shorter length of stay, were derived from groups that do not cover this condition in psychiatric specialty hospitals. The second three columns of data give the corresponding figures for groups providing coverage for all hospitals.

The mental and nervous hospital admission data must be used with caution for at least two reasons. First, there is wide variation in the number and type of psychiatric beds available in different regions of the country. Second, questions of benefit administration may also arise. From the point of view of establishing length-of-stay guidelines, psychiatric diagnoses probably present more uncertainty than all other conditions. Determining when a patient is ready for discharge will reflect not only the patient's condition but also a host of social and environmental factors outside of the hospital setting that the patient will have to face. The insurer must maintain continual vigilance to prevent many patients from remaining in the hospital for the full duration of benefits.

Despite these limitations, it is clear that mental and nervous specialty hospital inpatient admissions represent a very substantial portion of long length-of-stay cases and, as such, pose important problems for benefit design and administration, as well as for pricing.

The final section of this study is an analysis of the medicare supplementary coverage claim cost per contract year. These data are presented in Tables 11A, 11B, and 11C. Careful attention must be paid to the benefit design that is studied here: Appendix B, II, gives the required information. In looking at the supplementary benefit components, the "other" category is dominated by benefit payments after the exhaustion of the ninety-day medicare benefit and, if applicable, the lifetime reserve days.

IV. ADDITIONAL DATA

For medicare supplementary coverage, it is to be noted that the under 65 claim cost is significantly higher than the claim cost in any of the cells in the 65 and over experience. In particular, the outpatient cost shows an extreme variance, viz., in Table 11C, \$1.49 for all persons 65 and over vs. \$89.99 for persons under 65. This is because the experience of the under 65 disabled population is greatly affected by persons with End Stage Renal Disease (ESRD). The outpatient component of cost for persons with ESRD is very largely the cost of ambulatory hemodialysis.

The authors have additional data available to them in the form of a historical analysis of the various components of outpatient care, that is, accident, sudden and serious illness, ambulatory surgery, and so forth. Should reader interest warrant it, these data can be presented subsequently.

GUIDE TO TABLES

CATEGORY	HOSPITAL UTILIZATION										
	Inpatient Admissions per Contract Year		Inpatient Length of Stay		Inpatient Days per Contract Year		Inpatient and Outpatient Covered Charges per Contract Year				
	Actual	Weighted	Actual	Weighted	Actual	Weighted	Individual/Family		Group	Direct Payment	
							Actual	Weighted		Conversions	Miscellaneous
	Data by Payment Basis and Sex at Attained Age 20-64										
Nonmaternity	2A	9A	3A	9D							
Maternity	2B	9B									
Total	2C	9C	3B	9E	3C	9F	4	9G			
	Data by Age and Payment Basis										
Individual male	6A		7A		8A				5A	5D	5G
Individual female											
Nonmaternity	6B		7B								
Maternity	6D		7D								
Total	6E		7E		8B				5B	5E	5H
Family contracts											
Nonmaternity	6C		7C								
Maternity	6F		7D								
Total	6G		7F		8C				5C	5F	5I

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AGGREGATE DISTRIBUTIONS BY PLAN AND PAYMENT PROVISION

Distribution of contracts	1A
Distribution of covered charges	1B

CONTINUANCE TABLES

Nonmaternity and total by type of contract	10A
Total maternity and nonmaternity by type of contract	10B
Components of maternity experience	10C
Mental and nervous hospital admissions	10D

MEDICARE SUPPLEMENTARY COVERAGE CLAIM COST PER CONTRACT YEAR

Individual male	11A
Individual female	11B
Total individual	11C

TABLE 1A
DISTRIBUTION OF CONTRACTS: ATTAINED AGES 20-64

PAYMENT BASIS	INDIVIDUAL CONTRACTS			FAMILY CONTRACTS	TOTAL CONTRACTS
	Male	Female	Subtotal		
Group remittance	12.6%	16.7%	29.3%	33.2%	62.5%
Direct payment:					
Conversion	6.2	10.7	16.9	8.1	25.0
Miscellaneous	3.5	5.2	8.7	3.8	12.5
Subtotal	9.7%	15.9%	25.6%	11.9%	37.5%
Grand total	22.3%	32.6%	54.9%	45.1%	100.0%

NOTE.—Total contracts: 647,050.

TABLE 1B
DISTRIBUTION OF COVERED CHARGES: ATTAINED AGES 20-64

PAYMENT BASIS	INDIVIDUAL CONTRACTS			FAMILY CONTRACTS	TOTAL CONTRACTS
	Male	Female	Subtotal		
Group remittance	5.7%	11.6%	17.3%	47.3%	64.6%
Direct payment:					
Conversion	3.6	9.0	12.6	13.6	26.2
Miscellaneous	1.3	3.1	4.4	4.8	9.2
Subtotal	4.9%	12.1%	17.0%	18.4%	35.4%
Grand total	10.6%	23.7%	34.3%	65.7%	100.0%

NOTE.—Total covered charges: \$303.4 million.

TABLE 2A
NONMATERNITY INPATIENT ADMISSIONS PER CONTRACT YEAR
AT ATTAINED AGES 20-64
FOR ACTUAL AGE AND SEX DISTRIBUTION

PAYMENT BASIS	INDIVIDUAL CONTRACTS			FAMILY CONTRACTS	TOTAL CONTRACTS
	Male	Female	Subtotal		
Group remittance . . . . .	.074	.114	.097	.259	.183
Direct payment:					
Conversion . . . . .	.084	.125	.110	.282	.166
Miscellaneous . . . . .	.064	.098	.084	.231	.129
Subtotal . . . . .	.077	.116	.101	.265	.153
Grand total . . . . .	.075	.115	.099	.261	.172

TABLE 2B
MATERNITY INPATIENT ADMISSIONS PER CONTRACT YEAR
AT ATTAINED AGES 20-64
FOR ACTUAL AGE AND SEX DISTRIBUTION

Payment Basis	Individual Female Contracts	Family Contracts	Total Contracts
Group remittance . . . . .	.011	.049	.036
Direct payment:			
Conversion . . . . .	.010	.061	.032
Miscellaneous . . . . .	.009	.055	.029
Subtotal . . . . .	.010	.059	.031
Grand total . . . . .	.010	.052	.034

TABLE 2C
TOTAL INPATIENT ADMISSIONS PER CONTRACT YEAR
AT ATTAINED AGES 20-64
FOR ACTUAL AGE AND SEX DISTRIBUTION

PAYMENT BASIS	INDIVIDUAL CONTRACTS			FAMILY CONTRACTS	TOTAL CONTRACTS
	Male	Female	Subtotal		
Group remittance . . . . .	.074	.125	.103	.309	.212
Direct payment:					
Conversion . . . . .	.084	.135	.116	.343	.190
Miscellaneous . . . . .	.064	.107	.090	.286	.149
Subtotal . . . . .	.077	.126	.107	.325	.176
Grand total . . . . .	.075	.125	.105	.313	.199

TABLE 3A
NONMATERNITY INPATIENT LENGTH OF STAY (DAYS)
AT ATTAINED AGES 20-64
FOR ACTUAL AGE AND SEX DISTRIBUTION

PAYMENT BASIS	INDIVIDUAL CONTRACTS			FAMILY CONTRACTS	TOTAL CONTRACTS
	Male	Female	Subtotal		
Group remittance	8.47	8.49	8.48	7.04	7.40
Direct payment:					
Conversion	9.20	9.44	9.38	7.55	8.37
Miscellaneous	7.77	8.09	7.99	6.43	7.14
Subtotal	8.77	9.07	8.98	7.24	8.02
Grand total	8.61	8.77	8.72	7.10	7.61

TABLE 3B

TOTAL INPATIENT LENGTH OF STAY (DAYS)
AT ATTAINED AGES 20-64
FOR ACTUAL AGE AND SEX DISTRIBUTION

PAYMENT BASIS	INDIVIDUAL CONTRACTS			FAMILY CONTRACTS	TOTAL CONTRACTS
	Male	Female	Subtotal		
Group remittance	8.47	8.02	8.16	6.50	6.88
Direct payment:					
Conversion	9.20	8.97	9.03	6.88	7.77
Miscellaneous	7.77	7.66	7.69	5.86	6.62
Subtotal	8.77	8.60	8.65	6.59	7.45
Grand total	8.61	8.30	8.39	6.52	7.07

TABLE 3C

TOTAL INPATIENT DAYS PER CONTRACT YEAR
AT ATTAINED AGES 20-64
FOR ACTUAL AGE AND SEX DISTRIBUTION

PAYMENT BASIS	INDIVIDUAL CONTRACTS			FAMILY CONTRACTS	TOTAL CONTRACTS
	Male	Female	Subtotal		
Group remittance . . . . .	.623	1.004	.840	2.006	1.459
Direct payment:					
Conversion . . . . .	.777	1.212	1.052	2.358	1.476
Miscellaneous . . . . .	.494	.819	.687	1.676	.989
Subtotal . . . . .	.674	1.084	.928	2.140	1.313
Grand total . . . . .	.645	1.043	.881	2.042	1.404

TABLE 4

TOTAL INPATIENT AND OUTPATIENT COVERED CHARGES PER CONTRACT YEAR
AT ATTAINED AGES 20-64
FOR ACTUAL AGE AND SEX DISTRIBUTION

PAYMENT BASIS	INDIVIDUAL CONTRACTS			FAMILY CONTRACTS	TOTAL CONTRACTS
	Male	Female	Subtotal		
Group remittance	\$213.15	\$326.49	\$277.71	\$667.94	\$484.83
Direct payment:					
Conversion	268.42	394.48	348.13	788.25	490.99
Miscellaneous	178.14	280.64	239.09	588.59	345.63
Subtotal	\$235.69	\$357.30	\$311.03	\$724.36	\$442.46
Grand total	\$222.97	\$341.49	\$293.23	\$682.86	\$468.94

TABLE 5A
CLAIM COST PER CONTRACT YEAR—GROUP
INDIVIDUAL MALE

ATTAINED AGES	INPATIENT			OUT-PATIENT	TOTAL INPATIENT AND OUTPATIENT	NUMBER OF CONTRACTS
	Non-maternity	Maternity	Total			
Major ages:						
20-29	\$ 99.54	\$0	\$ 99.54	\$12.76	\$112.30	44,433
30-39	143.59	0	143.59	9.64	153.23	14,423
40-44	204.52	0	204.52	12.18	216.70	3,941
45-49	292.10	0	292.10	9.09	301.19	3,961
50-54	438.57	0	438.57	9.98	448.55	4,713
55-59	448.83	0	448.83	8.16	456.99	5,022
60-64	714.09	0	714.09	11.02	725.11	5,173
Ages 20-64	\$201.70	\$0	\$201.70	\$11.45	\$213.15	81,666
Balance of experience:						
Under 20	\$107.21	\$0	\$107.21	\$15.34	\$122.55	5,149
65 and over	221.02	0	221.02	2.88	223.90	1,389
Grand total	\$196.49	\$0	\$196.49	\$11.54	\$208.03	88,204

TABLE 5B
CLAIM COST PER CONTRACT YEAR—GROUP
INDIVIDUAL FEMALE

ATTAINED AGES	INPATIENT			OUT-PATIENT	TOTAL INPATIENT AND OUTPATIENT	NUMBER OF CONTRACTS
	Non-maternity	Maternity	Total			
Major ages:						
20-29	\$134.67	\$21.02	\$155.69	\$13.33	\$169.02	40,008
30-39	200.44	27.10	227.54	12.48	240.02	15,386
40-44	296.11	3.95	300.06	12.22	312.28	5,319
45-49	362.45	.31	362.76	12.14	374.90	6,423
50-54	389.34	.11	389.45	11.34	400.79	9,344
55-59	462.21	0	462.21	11.08	473.29	13,535
60-64	576.47	0	576.47	10.96	587.43	18,065
Ages 20-64	\$302.40	\$11.86	\$314.26	\$12.23	\$326.49	108,080
Balance of experience:						
Under 20	\$117.88	\$ 8.14	\$126.02	\$13.57	\$139.59	5,158
65 and over	94.35	0	94.35	1.78	96.13	2,247
Grand total	\$290.11	\$11.46	\$301.57	\$12.09	\$313.66	115,485

TABLE 5C
CLAIM COST PER CONTRACT YEAR—GROUP
FAMILY

ATTAINED AGES	INPATIENT			OUT-PATIENT	TOTAL INPATIENT AND OUTPATIENT	NUMBER OF CONTRACTS
	Non-maternity	Maternity	Total			
Major ages:						
20-29	\$ 299.83	\$192.53	\$ 492.36	\$32.17	\$ 524.53	25,991
30-39	372.39	101.77	474.16	41.96	516.12	55,785
40-44	467.71	28.50	496.21	44.71	540.92	26,775
45-49	600.42	12.49	612.91	39.16	652.07	27,399
50-54	727.58	4.51	732.09	29.73	761.82	30,141
55-59	821.24	1.18	822.42	22.49	844.91	28,855
60-64	1,056.99	.97	1,057.96	21.28	1,079.24	19,687
Ages 20-64	\$ 577.62	\$ 55.80	\$ 633.42	\$34.52	\$ 667.94	214,633
Balance of experience:						
Under 20	\$ 240.16	\$157.48	\$ 397.64	\$39.37	\$ 437.01	254
65 and over	389.59	6.57	396.16	8.77	404.93	1,825
Grand total.....	\$ 575.64	\$ 55.50	\$ 631.14	\$34.32	\$ 665.46	216,712

TABLE 5D
CLAIM COST PER CONTRACT YEAR
DIRECT PAYMENT—CONVERSION
INDIVIDUAL MALE

ATTAINED AGES	INPATIENT			OUT-PATIENT	TOTAL INPATIENT AND OUTPATIENT	NUMBER OF CONTRACTS
	Non-maternity	Maternity	Total			
Major ages:						
20-29	\$140.48	\$0	\$140.48	\$14.12	\$154.60	21,029
30-39	177.77	0	177.77	7.97	185.74	6,899
40-44	263.96	0	263.96	12.09	276.05	1,819
45-49	331.31	0	331.31	8.55	339.86	1,989
50-54	383.04	0	383.04	8.62	391.66	2,204
55-59	583.41	0	583.41	7.55	590.96	2,385
60-64	720.69	0	720.69	9.94	730.63	3,823
Ages 20-64:						
Actual weighting	\$256.81	\$0	\$256.81	\$11.61	\$268.42	40,148
Standardized weighting	240.27	0	240.27	11.68	251.95	.....
Balance of experience:						
Under 20	\$214.79	\$0	\$214.79	\$21.81	\$236.60	2,384
65 and over	607.13	0	607.13	2.65	609.78	377
Grand total	\$257.56	\$0	\$257.56	\$12.10	\$269.66	42,909

TABLE 5E

CLAIM COST PER CONTRACT YEAR
DIRECT PAYMENT—CONVERSION
INDIVIDUAL FEMALE

ATTAINED AGES	INPATIENT			OUT-PATIENT	TOTAL INPATIENT AND OUTPATIENT	NUMBER OF CONTRACTS
	Non-maternity	Maternity	Total			
Major ages:						
20-29	\$147.55	\$32.87	\$180.42	\$12.53	\$192.95	18,038
30-39	199.22	23.88	223.10	9.01	232.11	7,663
40-44	314.11	3.67	317.78	9.54	327.32	2,725
45-49	387.98	.27	388.25	9.95	398.20	3,718
50-54	468.15	0	468.15	10.67	478.82	6,090
55-59	512.79	0	512.79	12.89	525.68	9,930
60-64	539.92	0	539.92	9.39	549.31	20,873
Ages 20-64:						
Actual weighting	\$372.26	\$11.40	\$383.66	\$10.82	\$394.48	69,037
Standardized weighting	316.43	15.76	332.19	11.09	343.28	.....
Balance of experience:						
Under 20	\$190.79	\$21.13	\$211.92	\$16.90	\$228.82	2,366
65 and over	421.68	0	421.68	2.17	423.85	1,381
Grand total	\$367.30	\$11.50	\$378.80	\$10.85	\$389.65	72,784

TABLE 5F

CLAIM COST PER CONTRACT YEAR
DIRECT PAYMENT—CONVERSION
FAMILY

ATTAINED AGES	INPATIENT			OUT-PATIENT	TOTAL INPATIENT AND OUTPATIENT	NUMBER OF CONTRACTS
	Non-maternity	Maternity	Total			
Major ages:						
20-29	\$ 371.53	\$310.53	\$ 682.06	\$32.20	\$ 714.26	5,745
30-39	397.93	130.17	528.10	37.44	565.54	12,261
40-44	559.32	27.40	586.72	39.20	625.92	6,096
45-49	662.67	9.94	672.61	38.11	710.72	6,640
50-54	884.96	4.12	889.08	29.36	918.44	7,289
55-59	891.83	2.33	894.16	24.86	919.02	7,724
60-64	1,171.11	1.04	1,172.15	18.16	1,190.31	6,718
Ages 20-64:						
Actual weighting	\$ 686.64	\$ 69.90	\$ 756.54	\$31.71	\$ 788.25	52,473
Standardized weighting	654.37	77.11	731.48	32.52	764.00	.....
Balance of experience:						
Under 20	\$ 822.05	\$434.78	\$1,256.83	\$28.99	\$1,285.82	69
65 and over	797.47	5.66	803.13	11.33	814.46	353
Grand total	\$ 687.55	\$ 69.95	\$ 757.50	\$31.57	\$ 789.07	52,895

TABLE 5G
CLAIM COST PER CONTRACT YEAR
DIRECT PAYMENT—MISCELLANEOUS
INDIVIDUAL MALE

ATTAINED AGES	INPATIENT			OUT-PATIENT	TOTAL INPATIENT AND OUTPATIENT	NUMBER OF CONTRACTS
	Non-maternity	Maternity	Total			
Major ages:						
20-29	\$ 93.16	\$0	\$ 93.16	\$10.66	\$103.82	14,627
30-39	182.99	0	182.99	13.61	196.60	3,159
40-44	225.32	0	225.32	16.79	242.11	893
45-49	256.25	0	256.25	7.66	263.91	914
50-54	393.73	0	393.73	9.60	403.33	1,041
55-59	393.51	0	393.51	7.64	401.15	1,047
60-64	540.65	0	540.65	7.84	548.49	1,148
Ages 20-64						
Actual weighting	\$167.27	\$0	\$167.27	\$10.87	\$178.14	22,829
Standardized weighting	187.47	0	187.47	10.91	198.38	.....
Balance of experience:						
Under 20	\$ 50.99	\$0	\$ 50.99	\$ 9.23	\$ 60.22	2,923
65 and over	611.28	0	611.28	6.46	617.74	155
Grand total	\$156.82	\$0	\$156.82	\$10.65	\$167.47	25,907

TABLE 5H
CLAIM COST PER CONTRACT YEAR
DIRECT PAYMENT—MISCELLANEOUS
INDIVIDUAL FEMALE

ATTAINED AGES	INPATIENT			OUT-PATIENT	TOTAL INPATIENT AND OUTPATIENT	NUMBER OF CONTRACTS
	Non-maternity	Maternity	Total			
Major ages:						
20-29	\$102.94	\$17.91	\$120.85	\$11.97	\$132.82	9,939
30-39	211.38	38.08	249.46	13.95	263.41	3,440
40-44	272.27	5.26	277.53	11.18	288.71	1,521
45-49	359.62	0	359.62	10.91	370.53	2,016
50-54	326.76	0	326.76	10.79	337.55	3,245
55-59	362.90	0	362.90	7.66	370.56	5,480
60-64	357.03	0	357.03	7.39	364.42	7,848
Ages 20-64:						
Actual weighting	\$261.00	\$ 9.46	\$270.46	\$10.18	\$280.64	33,489
Standardized weighting	236.34	12.31	248.65	10.74	259.39	.....
Balance of experience:						
Under 20	\$ 47.52	\$ 5.42	\$ 52.94	\$ 7.93	\$ 60.87	2,397
65 and over	497.98	0	497.98	2.75	500.73	729
Grand total	\$251.74	\$ 9.01	\$260.75	\$ 9.89	\$270.64	36,615

TABLE 51
CLAIM COST PER CONTRACT YEAR
DIRECT PAYMENT—MISCELLANEOUS
FAMILY

ATTAINED AGES	INPATIENT			OUT-PATIENT	TOTAL INPATIENT AND OUTPATIENT	NUMBER OF CONTRACTS
	Non-maternity	Maternity	Total			
Major ages:						
20-29	\$325.26	\$206.44	\$ 531.70	\$33.51	\$ 565.21	2,984
30-39	403.09	101.63	504.72	43.48	548.20	6,671
40-44	427.62	34.91	462.53	45.86	508.39	3,380
45-49	499.01	17.34	516.35	40.57	556.92	3,229
50-54	565.07	4.37	569.44	24.06	593.50	3,201
55-59	560.88	2.41	563.29	19.90	583.19	2,914
60-64	880.77	.44	881.21	15.11	896.32	2,316
Ages 20-64:						
Actual weighting	\$494.00	\$ 60.33	\$ 554.33	\$34.26	\$ 588.59	24,695
Standardized weighting	496.74	58.96	555.70	33.70	589.40	.....
Balance of experience:						
Under 20	\$928.26	\$162.79	\$1,091.05	\$23.26	\$1,114.31	43
65 and over	782.44	0	782.44	10.20	792.64	98
Grand total	\$495.89	\$ 60.27	\$ 556.16	\$34.15	\$ 590.31	24,836

TABLE 6A
INPATIENT UTILIZATION
TOTAL INPATIENT ADMISSIONS PER CONTRACT YEAR
INDIVIDUAL MALE

ATTAINED AGES	EXPERIENCE RATES			INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
Major ages:						
20-29 .....	.050	.061	.045	.676	.649	.523
30-39 .....	.057	.059	.070	.770	.628	.814
40-44 .....	.074	.094	.086	1.000	1.000	1.000
45-49 .....	.104	.111	.088	1.405	1.181	1.023
50-54 .....	.124	.108	.119	1.676	1.149	1.384
55-59 .....	.138	.148	.115	1.865	1.574	1.337
60-64 .....	.193	.190	.152	2.608	2.021	1.767
Ages 20-64:						
Actual weighting .....	.074	.084	.064	.....	.....	.....
Standardized weighting .....	.074	.081	.069	1.000	1.095	.932
Balance of experience:						
Under 20 .....	.058	.109	.034			
65 and over .....	.061	.204	.213			
Grand total .....	.072	.087	.061			

TABLE 6B
INPATIENT UTILIZATION
NONMATERNITY INPATIENT ADMISSIONS PER CONTRACT YEAR
INDIVIDUAL FEMALE

ATTAINED AGES	EXPERIENCE RATES			INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
Major ages:						
20-29 .....	.074	.074	.061	.540	.638	.513
30-39 .....	.097	.086	.108	.708	.741	.908
40-44 .....	.137	.116	.119	1.000	1.000	1.000
45-49 .....	.141	.139	.135	1.029	1.198	1.134
50-54 .....	.141	.144	.122	1.029	1.241	1.025
55-59 .....	.144	.161	.107	1.051	1.388	.899
60-64 .....	.164	.158	.109	1.197	1.362	.916
Ages 20-64:						
Actual weighting .....	.114	.125	.098	.....	.....	.....
Standardized weighting	.114	.113	.094	1.000	.991	.825
Balance of experience:						
Under 20 .....	.067	.115	.025			
65 and over .....	.030	.103	.147			
Grand total .....	.110	.124	.094			

TABLE 6C
INPATIENT UTILIZATION
NONMATERNITY INPATIENT ADMISSIONS PER CONTRACT YEAR
FAMILY

ATTAINED AGES	EXPERIENCE RATES			INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
Major ages:						
20-29 .....	.186	.224	.197	.732	.836	.785
30-39 .....	.232	.229	.241	.913	.854	.960
40-44 .....	.254	.268	.251	1.000	1.000	1.000
45-49 .....	.286	.294	.248	1.126	1.097	.988
50-54 .....	.285	.307	.212	1.122	1.146	.845
55-59 .....	.285	.313	.210	1.122	1.168	.837
60-64 .....	.328	.364	.240	1.291	1.358	.956
Ages 20-64:						
Actual weighting .....	.259	.282	.231	.....	.....	.....
Standardized weighting	.259	.276	.229	1.000	1.066	.884
Balance of experience:						
Under 20 .....	.173	.348	.163			
65 and over .....	.128	.280	.316			
Grand total .....	.258	.282	.231			

TABLE 6D
INPATIENT UTILIZATION
MATERNITY INPATIENT ADMISSIONS PER CONTRACT YEAR
INDIVIDUAL FEMALE

ATTAINED AGES	EXPERIENCE RATES		
	Group	Direct Payment	
		Conversion	Miscellaneous
Major ages:			
20-29 .....	.021	.031	.019
30-39 .....	.023	.021	.033
40-44 .....	.004	.004	.005
45-49 .....	.001	0	0
50-54	0	0	0
55-59	0	0	0
60-64	0	0	0
Ages 20-64:			
Actual weighting .....	.011	.010	.009
Standardized weighting .....	.011	.014	.012
Balance of experience:			
Under 20 .....	.010	.024	.006
65 and over	0	0	0
Grand total .....	.011	.011	.009

TABLE 6E
INPATIENT UTILIZATION
TOTAL INPATIENT ADMISSIONS PER CONTRACT YEAR
INDIVIDUAL FEMALE

ATTAINED AGES	EXPERIENCE RATES			INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
Major ages:						
20-29 .....	.095	.105	.080	.674	.875	.645
30-39 .....	.120	.107	.141	.851	.892	1.137
40-44 .....	.141	.120	.124	1.000	1.000	1.000
45-49 .....	.142	.139	.135	1.007	1.158	1.089
50-54 .....	.141	.144	.122	1.000	1.200	.984
55-59 .....	.144	.161	.107	1.021	1.342	.863
60-64 .....	.164	.158	.109	1.163	1.317	.879
Ages 20-64:						
Actual weighting .....	.125	.135	.107			
Standardized weighting .....	.125	.127	.106	1.000	1.016	.848
Balance of experience:						
Under 20 .....	.077	.139	.031			
65 and over .....	.030	.103	.147			
Grand total .....	.121	.135	.103			

TABLE 6F
INPATIENT UTILIZATION
MATERNITY INPATIENT ADMISSIONS PER CONTRACT YEAR
FAMILY

ATTAINED AGES	EXPERIENCE RATES		
	Group	Direct Payment	
		Conversion	Miscellaneous
Major ages:			
20-29 .....	.171	.268	.184
30-39 .....	.089	.113	.094
40-44 .....	.025	.027	.033
45-49 .....	.011	.011	.018
50-54 .....	.005	.004	.005
55-59 .....	.001	.002	.001
60-64 .....	.001	.001	.001
Ages 20-64:			
Actual weighting .....	.049	.061	.055
Standardized weighting .....	.049	.068	.055
Balance of experience:			
Under 20 .....	.158	.377	.209
65 and over .....	.007	.003	.000
Grand total .....	.049	.061	.055

TABLE 6G
INPATIENT UTILIZATION
TOTAL INPATIENT ADMISSIONS PER CONTRACT YEAR
FAMILY

ATTAINED AGES	EXPERIENCE RATES			INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
Major ages:						
20-29 .....	.357	.492	.381	1.280	1.668	1.342
30-39 .....	.321	.342	.335	1.151	1.159	1.180
40-44 .....	.279	.295	.284	1.000	1.000	1.000
45-49 .....	.297	.305	.266	1.065	1.034	.937
50-54 .....	.290	.311	.217	1.039	1.054	.764
55-59 .....	.286	.315	.211	1.025	1.068	.743
60-64 .....	.329	.365	.241	1.179	1.237	.849
Ages 20-64:						
Actual weighting .....	.309	.343	.286			
Standardized weighting .....	.309	.344	.284	1.000	1.113	.919
Balance of experience:						
Under 20 .....	.331	.725	.372			
65 and over .....	.135	.283	.316			
Grand total .....	.307	.343	.286			

TABLE 7A
INPATIENT UTILIZATION
TOTAL INPATIENT LENGTH OF STAY (DAYS)
INDIVIDUAL MALE

ATTAINED AGES	GROUP	DIRECT PAYMENT		TOTAL GROUP AND DIRECT PAYMENT	INDEX VALUES
		Conversion	Miscellaneous		
Major ages:					
20-29	6.52	7.26	6.59	6.76	.783
30-39	7.88	8.90	7.20	8.06	.934
40-44	9.04	8.35	7.69	8.63	1.000
45-49	8.69	9.12	7.31	8.67	1.005
50-54	10.49	10.35	8.86	10.24	1.187
55-59	10.21	11.23	11.15	10.62	1.231
60-64	10.62	11.64	10.07	10.96	1.270
Ages 20-64:					
Actual weighting	8.47	9.20	7.77	8.61	
Standardized weighting ..	8.47	8.99	7.99	8.56	
Balance of experience:					
Under 20	6.30	6.12	4.66	5.98	
65 and over	12.64	11.81	11.76	12.16	
Grand total	8.42	9.04	7.66	8.52	

TABLE 7B
INPATIENT UTILIZATION
NONMATERNITY INPATIENT LENGTH OF STAY (DAYS)
INDIVIDUAL FEMALE

ATTAINED AGES	GROUP	DIRECT PAYMENT		TOTAL GROUP AND DIRECT PAYMENT	INDEX VALUES
		Conversion	Miscellaneous		
Major ages:					
20-29	5.91	6.28	5.17	5.92	.812
30-39	6.74	7.33	5.66	6.73	.923
40-44	7.06	8.32	6.36	7.29	1.000
45-49	8.15	8.78	8.05	8.33	1.143
50-54	9.02	10.40	8.50	9.41	1.291
55-59	10.32	10.18	9.87	10.20	1.399
60-64	10.98	10.75	10.15	10.77	1.477
Ages 20-64:					
Actual weighting	8.49	9.44	8.09	8.77	
Standardized weighting ..	8.49	8.88	7.58	8.50	
Balance of experience:					
Under 20	5.76	5.16	5.41	5.49	
65 and over	10.49	17.32	11.67	13.95	
Grand total	8.42	9.44	8.15	8.75	

TABLE 7C
INPATIENT UTILIZATION
NONMATERNITY INPATIENT LENGTH OF STAY (DAYS)
FAMILY

ATTAINED AGES	GROUP	DIRECT PAYMENT		TOTAL GROUP AND DIRECT PAYMENT	INDEX VALUES
		Conversion	Miscellaneous		
Major ages:					
20-29	5.71	5.61	5.36	5.66	.945
30-39	5.33	5.60	5.00	5.35	.893
40-44	6.02	6.25	5.27	5.99	1.000
45-49	6.64	6.99	6.25	6.68	1.115
50-54	7.83	8.62	8.01	8.00	1.336
55-59	8.80	8.83	7.92	8.76	1.462
60-64	9.75	9.88	10.13	9.80	1.636
Ages 20-64:					
Actual weighting	7.04	7.55	6.43	7.10	
Standardized weighting ..	7.04	7.35	6.49	7.06	
Balance of experience:					
Under 20	4.61	8.21	18.57	7.07	
65 and over	9.41	12.16	8.19	10.05	
Grand total	7.05	7.58	6.45	7.11	

TABLE 7D
INPATIENT UTILIZATION
MATERNITY LENGTH OF STAY (DAYS)
COMBINED GROUP AND DIRECT PAYMENT

Attained Ages	Individual Female	Family	Total
Major ages:			
20-29	3.20	3.77	3.66
30-39	3.34	3.62	3.60
40-44	2.73	3.42	3.39
45-49	1.75*	3.09	3.08
50-54	2.00*	3.14	3.14
55-59		3.03	3.03
60-64		3.38	3.38
Ages 20-64—actual weighting ..	3.22	3.65	3.60
Balance of experience:			
Under 20	2.71	3.56	3.02
65 and over		3.46	3.46
Grand total	3.20	3.65	3.59

* Fewer than 10 claims.

TABLE 7E
INPATIENT UTILIZATION
TOTAL INPATIENT LENGTH OF STAY (DAYS)
INDIVIDUAL FEMALE

ATTAINED AGES	GROUP	DIRECT PAYMENT		TOTAL GROUP AND DIRECT PAYMENT	INDEX VALUES
		Conversion	Miscellaneous		
Major ages:					
20-29	5.30	5.43	4.64	5.26	.737
30-39	6.11	6.51	5.15	6.07	.850
40-44	6.93	8.17	6.22	7.14	1.000
45-49	8.13	8.76	8.05	8.31	1.164
50-54	9.02	10.40	8.50	9.41	1.318
55-59	10.32	10.18	9.87	10.20	1.429
60-64	10.98	10.75	10.15	10.77	1.508
Ages 20-64:					
Actual weighting	8.02	8.97	7.66	8.30	
Standardized weighting ..	8.02	8.25	7.08	7.97	
Balance of experience:					
Under 20	5.30	4.75	5.07	5.05	
65 and over	10.49	17.32	11.67	13.95	
Grand total	7.95	8.95	7.72	8.27	

TABLE 7F
INPATIENT UTILIZATION
TOTAL INPATIENT LENGTH OF STAY (DAYS)
FAMILY

ATTAINED AGES	GROUP	DIRECT PAYMENT		TOTAL GROUP AND DIRECT PAYMENT	INDEX VALUES
		Conversion	Miscellaneous		
Major ages:					
20-29	4.76	4.70	4.54	4.73	.823
30-39	4.86	4.99	4.57	4.85	.843
40-44	5.79	5.96	5.05	5.75	1.000
45-49	6.50	6.86	6.04	6.53	1.136
50-54	7.77	8.54	7.89	7.93	1.379
55-59	8.77	8.80	7.89	8.73	1.518
60-64	9.73	9.87	10.10	9.79	1.703
Ages 20-64:					
Actual weighting	6.50	6.88	5.86	6.52	
Standardized weighting ..	6.50	6.65	5.92	6.48	
Balance of experience:					
Under 20	4.05	5.98	9.88	5.31	
65 and over	9.10	12.11	8.19	9.82	
Grand total	6.50	6.91	5.88	6.54	

TABLE 8A
INPATIENT UTILIZATION
TOTAL INPATIENT DAYS PER CONTRACT YEAR
INDIVIDUAL MALE

ATTAINED AGES	EXPERIENCE RATES			INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
Major ages:						
20-29 .....	.323	.439	.294	.486	.560	.443
30-39 .....	.452	.525	.504	.680	.670	.760
40-44 .....	.665	.784	.663	1.000	1.000	1.000
45-49 .....	.900	1.013	.640	1.353	1.292	.965
50-54	1.298	1.113	1.056	1.952	1.420	1.593
55-59	1.411	1.667	1.278	2.122	2.126	1.928
60-64	2.047	2.211	1.535	3.078	2.820	2.315
Ages 20-64:						
Actual weighting .....	.623	.777	.494	.....	.....	.....
Standardized weighting	.623	.725	.549	1.000	1.164	.881
Balance of experience:						
Under 20 .....	.367	.665	.159			
65 and over .....	.773	2.411	2.503			
Grand total .....	.610	.785	.468			

TABLE 8B
INPATIENT UTILIZATION
TOTAL INPATIENT DAYS PER CONTRACT YEAR
INDIVIDUAL FEMALE

ATTAINED AGES	EXPERIENCE RATES			INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
Major ages:						
20-29 .....	.505	.569	.370	.515	.581	.479
30-39 .....	.731	.696	.725	.746	.710	.938
40-44 .....	.980	.980	.773	1.000	1.000	1.000
45-49	1.152	1.221	1.090	1.176	1.246	1.410
50-54	1.275	1.500	1.040	1.301	1.531	1.345
55-59	1.487	1.635	1.053	1.517	1.668	1.362
60-64	1.795	1.700	1.111	1.832	1.735	1.437
Ages 20-64:						
Actual weighting	1.004	1.212	.819	.....	.....	.....
Standardized weighting	1.004	1.049	.750	1.000	1.045	.747
Balance of experience:						
Under 20 .....	.410	.663	.159			
65 and over .....	.317	1.781	1.713			
Grand total .....	.964	1.205	.793			

TABLE 8C
INPATIENT UTILIZATION
TOTAL INPATIENT DAYS PER CONTRACT YEAR
FAMILY

ATTAINED AGES	EXPERIENCE RATES			INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
Major ages:						
20-29	1.701	2.311	1.733	1.052	1.313	1.208
30-39	1.559	1.704	1.532	.964	.968	1.068
40-44	1.617	1.760	1.435	1.000	1.000	1.000
45-49	1.932	2.088	1.608	1.195	1.186	1.121
50-54	2.249	2.661	1.711	1.391	1.512	1.192
55-59	2.509	2.770	1.667	1.552	1.574	1.162
60-64	3.201	3.603	2.433	1.980	2.047	1.695
Ages 20-64:						
Actual weighting	2.006	2.358	1.676			
Standardized weighting	2.006	2.285	1.680	1.000	1.139	.837
Balance of experience:						
Under 20	1.339	4.333	3.674			
65 and over	1.227	3.431	2.592			
Grand total	1.999	2.368	1.684			

TABLE 9A
NONMATERNITY INPATIENT ADMISSIONS PER CONTRACT YEAR AT ATTAINED AGES 20-64,
WEIGHTED AS IF AGE, SEX, AND FAMILY DISTRIBUTION IN DIRECT
PAYMENT FOLLOWED DISTRIBUTION FOR GROUP
(See Table 2A)

PAYMENT BASIS	INDIVIDUAL CONTRACTS			FAMILY CONTRACTS	TOTAL CONTRACTS
	Male	Female	Subtotal		
Group remittance .....	.074	.114	.097	.259	.183
Direct payment:					
Conversion .....	.081	.113	.101	.276	.194
Miscellaneous .....	.069	.094	.084	.229	.161
Subtotal .....	.078	.108	.097	.264	.186
Grand total .....	.075	.112	.097	.261	.184

TABLE 9B

MATERNITY INPATIENT ADMISSIONS PER CONTRACT YEAR AT
 ATTAINED AGES 20-64, WEIGHTED AS IF AGE, SEX, AND FAMILY
 DISTRIBUTION IN DIRECT PAYMENT FOLLOWED
 DISTRIBUTION FOR GROUP

(See Table 2B)

Payment Basis	Individual Female Contracts	Family Contracts	Total Contracts
Group remittance .....	.011	.049	.036
Direct payment:			
Conversion .....	.014	.068	.050
Miscellaneous .....	.012	.055	.041
Subtotal.....	.013	.065	.048
Grand total .....	.012	.055	.041

TABLE 9C

TOTAL INPATIENT ADMISSIONS PER CONTRACT YEAR AT ATTAINED AGES 20-64,
 WEIGHTED AS IF AGE, SEX, AND FAMILY DISTRIBUTION IN DIRECT
 PAYMENT FOLLOWED DISTRIBUTION FOR GROUP

(See Table 2C)

PAYMENT BASIS	INDIVIDUAL CONTRACTS			FAMILY CONTRACTS	TOTAL CONTRACTS
	Male	Female	Subtotal		
Group remittance ....	.074	.125	.103	.309	.212
Direct payment:					
Conversion .....	.081	.127	.107	.344	.233
Miscellaneous .....	.069	.106	.090	.284	.193
Subtotal .....	.077	.122	.103	.328	.223
Grand total .....	.075	.124	.103	.316	.216

TABLE 9D

NONMATERNITY INPATIENT LENGTH OF STAY (DAYS) AT ATTAINED AGES 20-64,
WEIGHTED AS IF AGE, SEX, AND FAMILY DISTRIBUTION IN DIRECT
PAYMENT FOLLOWED DISTRIBUTION FOR GROUP

(See Table 3A)

PAYMENT BASIS	INDIVIDUAL CONTRACTS			FAMILY CONTRACTS	TOTAL CONTRACTS
	Male	Female	Subtotal		
Group remittance	8.47	8.49	8.48	7.04	7.40
Direct payment:					
Conversion	9.15	8.84	8.94	7.32	7.72
Miscellaneous	8.10	7.80	7.90	6.73	7.02
Subtotal	8.86	8.55	8.65	7.16	7.53
Grand total	8.60	8.51	8.54	7.08	7.44

TABLE 9E

TOTAL INPATIENT LENGTH OF STAY (DAYS) AT ATTAINED AGES 20-64,
WEIGHTED AS IF AGE, SEX, AND FAMILY DISTRIBUTION IN DIRECT
PAYMENT FOLLOWED DISTRIBUTION FOR GROUP

(See Table 3B)

PAYMENT BASIS	INDIVIDUAL CONTRACTS			FAMILY CONTRACTS	TOTAL CONTRACTS
	Male	Female	Subtotal		
Group remittance	8.47	8.02	8.16	6.50	6.88
Direct payment:					
Conversion	9.15	8.28	8.55	6.71	7.13
Miscellaneous	8.10	7.36	7.59	6.19	6.51
Subtotal	8.85	8.02	8.28	6.56	6.95
Grand total	8.60	8.02	8.20	6.52	6.90

TABLE 9F

TOTAL INPATIENT DAYS PER CONTRACT YEAR AT ATTAINED AGES 20-64,
WEIGHTED AS IF AGE, SEX, AND FAMILY DISTRIBUTION IN DIRECT
PAYMENT FOLLOWED DISTRIBUTION FOR GROUP

(See Table 3C)

PAYMENT BASIS	INDIVIDUAL CONTRACTS			FAMILY CONTRACTS	TOTAL CONTRACTS
	Male	Female	Subtotal		
Group remittance . . . . .	.623	1.004	.840	2.006	1.459
Direct payment:					
Conversion . . . . .	.725	1.049	.910	2.285	1.640
Miscellaneous . . . . .	.549	.750	.663	1.680	1.203
Subtotal . . . . .	.679	.971	.846	2.128	1.526
Grand total . . . . .	.643	.992	.842	2.049	1.483

TABLE 9G

INPATIENT COVERED CHARGES PER CONTRACT YEAR AT ATTAINED AGES 20-64,
WEIGHTED AS IF AGE, SEX, AND FAMILY DISTRIBUTION IN DIRECT
PAYMENT FOLLOWED DISTRIBUTION FOR GROUP

(See Table 4)

PAYMENT BASIS	INDIVIDUAL CONTRACTS			FAMILY CONTRACTS	TOTAL CONTRACTS
	Male	Female	Subtotal		
Group remittance	\$213.15	\$326.49	\$277.71	\$667.94	\$484.83
Direct payment:					
Conversion	251.95	343.28	303.97	764.00	548.14
Miscellaneous	198.38	259.39	233.13	589.40	422.23
Subtotal	\$238.03	\$321.48	\$285.56	\$718.62	\$515.42
Grand total	\$221.96	\$324.72	\$280.49	\$685.88	\$495.66

TABLE 10A

SELECTED CONTINUANCE TABLE VALUES FOR EXPERIENCE COMPONENTS
DAYS OF CARE RENDERED AS A PROPORTION OF TOTAL DAYS OF
CARE OVER FIRST 120 DAYS OF STAY

COVERAGE	DAYS								
	5	10	15	20	25	30	60	90	120
Nonmaternity:									
Group individual . . . . .	.4569	.6802	.7979	.8680	.9116	.9397	.9886	.9977	1.0000
Direct individual . . . . .	.3925	.6172	.7469	.8265	.8782	.9135	.9806	.9957	1.0000
Group family . . . . .	.5084	.7279	.8352	.8940	.9278	.9494	.9890	.9974	1.0000
Direct family . . . . .	.4798	.7000	.8116	.8742	.9117	.9361	.9850	.9966	1.0000
Nonmaternity and maternity:									
Group individual . . . . .	.4650	.6861	.8017	.8705	.9132	.9408	.9888	.9977	1.0000
Direct individual . . . . .	.3983	.6211	.7493	.8280	.8792	.9141	.9807	.9958	1.0000
Group family . . . . .	.5403	.7498	.8487	.9028	.9338	.9537	.9899	.9976	1.0000
Direct family . . . . .	.5075	.7200	.8243	.8827	.9178	.9406	.9861	.9968	1.0000

TABLE 10B
CONTINUANCE TABLES
MATERNITY AND NONMATERNITY
COMBINED GROUP REMITTANCE AND DIRECT PAYMENT

DAYS	COVERAGE		
	Individual	Family	Combined
1.....	.1131	.1491	.1383
2.....	.2164	.2783	.2597
3.....	.3042	.3841	.3600
4.....	.3794	.4682	.4414
5.....	.4441	.5349	.5075
6.....	.5004	.5916	.5641
7.....	.5502	.6402	.6130
8.....	.5939	.6811	.6548
9.....	.6321	.7154	.6903
10.....	.6657	.7449	.7210
11.....	.6954	.7704	.7478
12.....	.7217	.7927	.7713
13.....	.7452	.8123	.7920
14.....	.7663	.8296	.8105
15.....	.7853	.8447	.8268
16.....	.8025	.8583	.8415
17.....	.8181	.8704	.8546
18.....	.8323	.8812	.8665
19.....	.8453	.8909	.8771
20.....	.8572	.8995	.8867
21.....	.8680	.9073	.8954
22.....	.8778	.9142	.9032
23.....	.8867	.9204	.9102
24.....	.8950	.9260	.9167
25.....	.9026	.9312	.9226
26.....	.9095	.9360	.9280
27.....	.9160	.9404	.9330
28.....	.9219	.9445	.9377
29.....	.9274	.9481	.9419
30.....	.9324	.9515	.9458
35.....	.9493	.9635	.9592
40.....	.9615	.9721	.9689
45.....	.9704	.9783	.9760
50.....	.9772	.9831	.9813
55.....	.9823	.9866	.9853
60.....	.9863	.9893	.9884
90.....	.9971	.9975	.9974
120.....	1.0000	1.0000	1.0000
Total claims.....	29,602	90,334	119,936
Total days.....	261,658	605,724	867,382
Average length of stay....	8.84	6.71	7.23

NOTE.—The factor to increase claim cost for increasing the benefit period from 120 days to 365 days is approximately 0.5 percent. This factor is derived from continuance data of a large experience-rated group with 365 days coverage.

TABLE 10C
 CONTINUANCE TABLES
 COMPONENTS OF MATERNITY EXPERIENCE
 COMBINED GROUP REMITTANCE AND DIRECT PAYMENT CONTRACTS
 INDIVIDUAL AND FAMILY COVERAGE

DAYS	COMPONENTS				TOTAL MATERNITY
	Normal Delivery	Cesarean Section	Total Abortions	Other Complications	
1.....	.2956	.1341	.6411	.2726	.2790
2.....	.5884	.2679	.8424	.4366	.5096
3.....	.8592	.4016	.9125	.5612	.7133
4.....	.9859	.5350	.9466	.6593	.8317
5.....	.9927	.6655	.9650	.7378	.8795
6.....	.9956	.7887	.9757	.8004	.9214
7.....	.9972	.8886	.9830	.8468	.9544
8.....	.9982	.9417	.9879	.8771	.9725
9.....	.9987	.9602	.9913	.8982	.9798
10.....	.9990	.9693	.9939	.9138	.9840
11.....	.9992	.9754	.9953	.9255	.9868
12.....	.9994	.9797	.9963	.9351	.9889
13.....	.9995	.9830	.9971	.9434	.9906
14.....	.9996	.9856	.9978	.9502	.9919
15.....	.9997	.9877	.9982	.9558	.9930
20.....	1.0000	.9939	.9991	.9742	.9963
25.....	1.0000	.9965	.9995	.9848	.9978
30.....	1.0000	.9979	.9999	.9903	.9987
60.....	1.0000	.9997	1.0000	.9989	.9998
90.....	1.0000	1.0000	1.0000	1.0000	1.0000
Total claims.....	24,930	5,713	8,580	3,022	42,245
Total days.....	84,339	42,600	13,383	11,084	151,406
Average length of stay ..	3.38	7.46	1.56	3.67	3.58

TABLE 10D

CONTINUANCE TABLE FOR MENTAL AND NERVOUS HOSPITAL ADMISSIONS
DAYS OF CARE RENDERED AS A PROPORTION OF THE TOTAL DAYS
OF CARE FOR 365-DAY COVERAGE

LENGTH OF STAY (DAYS)	COVERAGE PROVIDED					
	General Hospitals Only			All Hospitals		
	Adult	Child	Combined	Adult	Child	Combined
10	.4954	.2869	.4455	.2011	.1043	.1528
20	.7436	.4666	.6774	.3486	.1882	.2685
30	.8687	.5942	.8031	.4553	.2587	.3571
40	.9287	.6857	.8706	.5368	.3165	.4267
50	.9594	.7535	.9102	.6002	.3665	.4835
60	.9775	.8127	.9381	.6482	.4140	.5313
70	.9860	.8628	.9565	.6851	.4586	.5720
90	.9971	.9333	.9819	.7481	.5376	.6430
111	1.0000	.9564	.9896	.8000	.6055	.7028
120	1.0000	.9661	.9919	.8185	.6321	.7254
150	1.0000	.9865	.9968	.8694	.7124	.7910
180	1.0000	1.0000	1.0000	.9074	.7807	.8442
201	1.0000	1.0000	1.0000	.9282	.8211	.8747
250	1.0000	1.0000	1.0000	.9645	.8985	.9315
300	1.0000	1.0000	1.0000	.9858	.9575	.9717
365	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Average length of stay (days) . . .	14.65	26.54	16.40	42.39	86.68	56.91
Claim cost as percentage of in- patient nonmaternity nonpsy- chiatric claim cost	7.4%	16.6%	8.5%	19.5%	77.9%	32.9%

TABLE 11A

MEDICARE SUPPLEMENTARY COVERAGE
CLAIM COST PER CONTRACT YEAR
INDIVIDUAL MALE

ATTAINED AGES	BENEFIT					NUMBER OF CONTRACTS
	Deductible	Copayment	Outpatient	Other	Total	
Major ages:						
65-69	\$31.63	\$ 5.54	\$ 2.94	\$ 6.81	\$46.92	79,022
70-74	39.55	9.09	2.73	8.78	60.15	63,299
75-79	45.83	12.52	1.45	12.61	72.41	42,504
80-84	48.85	17.48	.86	15.67	82.86	24,537
85-89	52.59	21.16	.70	16.50	90.95	10,366
90-94	53.72	18.55	.23	20.05	92.55	2,471
95 and over	60.12	18.17	.18	.59	79.06	313
Ages 65 and over:						
Actual weighting	\$39.75	\$10.09	\$ 2.23	\$10.05	\$62.12	222,512
Standardized weighting	40.43	10.53	2.15	10.38	63.49	.....
Balance of experience:						
Under 65	\$68.73	\$20.84	\$123.37	\$29.30	\$242.24	9,846
Grand total	\$40.98	\$10.55	\$ 7.36	\$10.86	\$69.75	232,358

TABLE 11B
MEDICARE SUPPLEMENTARY COVERAGE
CLAIM COST PER CONTRACT YEAR
INDIVIDUAL FEMALE

ATTAINED AGES	BENEFIT					NUMBER OF CONTRACTS
	Deductible	Copayment	Outpatient	Other	Total	
Major ages:						
65-69	\$24.02	\$ 5.88	\$ 1.76	\$ 6.05	\$37.71	125,026
70-74	28.31	7.94	1.19	8.06	45.50	111,862
75-79	32.53	11.97	.75	10.29	55.54	87,975
80-84	34.47	15.61	.39	10.98	61.45	57,151
85-89	37.94	20.07	.22	13.28	71.51	24,484
90-94	39.62	19.74	.31	8.56	68.23	5,941
95 and over	47.87	20.46	.29	13.17	81.79	708
Ages 65 and over:						
Actual weighting	\$29.53	\$10.15	\$ 1.09	\$ 8.65	\$49.42	413,147
Standardized weighting	29.30	9.93	1.11	8.56	48.90	.....
Balance of experience:						
Under 65	\$67.80	\$27.75	\$63.52	\$26.99	\$186.06	12,412
Grand total	\$30.64	\$10.66	\$ 2.91	\$9.19	\$53.40	425,559

TABLE 11C
MEDICARE SUPPLEMENTARY COVERAGE
CLAIM COST PER CONTRACT YEAR
TOTAL INDIVIDUAL

ATTAINED AGES	BENEFIT					NUMBER OF CONTRACTS
	Deductible	Copayment	Outpatient	Other	Total	
Major ages:						
65-69	\$26.97	\$ 5.75	\$ 2.22	\$ 6.33	\$41.27	204,048
70-74	32.37	8.36	1.75	8.32	50.80	175,161
75-79	36.86	12.15	.98	11.04	61.03	130,479
80-84	38.79	16.17	.53	12.39	67.88	81,688
85-89	42.30	20.39	.36	14.24	77.29	34,850
90-94	43.76	19.39	.29	11.93	75.37	8,412
95 and over	51.63	19.76	.25	9.31	80.95	1,021
Ages 65 and over:						
Actual weighting	\$33.11	\$10.13	\$ 1.49	\$ 9.13	\$53.86	635,659
Standardized weighting	33.11	10.13	1.49	9.13	53.86	.....
Balance of experience:						
Under 65	\$68.21	\$24.69	\$89.99	\$28.02	\$210.91	22,258
Grand total	\$34.30	\$10.62	\$ 4.48	\$ 9.78	\$59.18	657,917

APPENDIX A

GLOSSARY

Group remittance contracts are issued to all employees of an employer/employee group. Some of the group remittance exposure is from associations rather than employer/employee groups. Premium payments are made by a group administrator. These contracts are issued to groups of three or more employees; the average group size is approximately seventeen employees.

Group conversion contracts are issued to employees after termination of employment from either a group covered by group remittance contracts or a group covered by a master group (or experience-rated) contract.

Miscellaneous direct payment contracts are issued to persons applying for coverage outside of a group. These contracts are underwritten with a medical questionnaire and may be accepted, rejected, or accepted with a rider excluding coverage for a specific condition or conditions. They are not written at a higher premium rate.

Individual contracts cover only contract holders and not other members of their families. Only individual contracts are issued to supplement medicare.

Family contracts cover contract holders and their eligible dependents.

Because of cost considerations, when a family consists of an unmarried adult and one dependent child, the practice in our organization is to issue two individual contracts, one to the adult and one to the child. A family contract may be issued to a married contract holder with or without dependent children or to an unmarried contract holder with two or more dependent children.

For a family unit consisting of one medicare-eligible and one non-medicare-eligible person, an individual contract of each type is issued. If both members are medicare-eligible, two individual contracts are issued.

Number of days in a hospital stay are determined by counting the day of admission but not the day of discharge. An admission and discharge on the same day counts as a one-day stay. For example, a hospital stay with a Monday admission and a Thursday discharge is counted as a three-day stay.

APPENDIX B

BENEFITS

I. REGULAR HOSPITALIZATION CONTRACTS

Two varieties of contracts are included in the non-medicare-supplementary part of this study. They are the 21-full-day-and-180-half-day (21/180-day) contract and the 120-full-day contract.

Both of these contracts grant coverage to the contract holder and, if a family contract is issued, also to his spouse and any unmarried natural and adopted children under age 19. Foster children are not covered. Coverage for children ceases on December 31 of the calendar year in which they reach age 19 except that a small portion of the contracts in this study extend coverage to children up to age 23 or 25. Some of these ridered contracts require full-time college attendance for coverage beyond age 19. Children who became incapacitated as a result of mental retardation, physical handicap, mental illness, or developmental disability prior to age 19 remain covered under the family contract for as long as they are so incapacitated and remain unmarried.

Under the 21/180-day contract, full service benefits are available for semiprivate room care in a Blue Cross member hospital for the first twenty-one days of a benefit period; for the next 180 days of the benefit period, the subscriber is required to pay half of the hospital's charges for semiprivate care. (Group experience under the 21/180-day contract is not included in this study.) Under the 120-full-day contract, full service benefits are available for semiprivate room care in a Blue Cross member hospital for the first 120 days of a benefit period. While coverage is less liberal for nonmember hospitals, essentially all acute-care general hospitals are members. For purposes of computing a benefit period, multiple hospital stays are added together when they are not separated by at least ninety days. However, this study treated readmissions as separate cases.

A. Outpatient Benefits

Outpatient hospital benefits for the initial visit to the emergency room and operating room outpatient services are covered in full under both contracts. Subsequent care in the emergency room is not covered. Care in a clinic is not covered, and there is a thirty-visit limitation per year. Outpatient diagnostic, x-ray, and laboratory services and outpatient radiation therapy, physical therapy, and psychotherapy are not covered. Sudden and serious illness within twelve hours of onset of symptoms, accidental injury within seventy-two hours of occurrence, surgery, pre-surgical testing, and outpatient dialysis are covered.

B. Limitations and Exclusions

When the following limitations and exclusions apply to a hospital stay, no benefits will be available for any part of the hospital charges for the day or days to which they are applicable.

1. Preexisting conditions limitation: for conditions that start after the effective date of this contract, coverage starts immediately; for any condition, disease, or symptom that the insured had before the effective date of this contract, no benefits will be provided during the first eleven months the contract is in effect. Birth defects and prior coverage under another contract are exceptions to this rule. This limitation is waived for many of the groups with twenty-five or more contracts.
2. Unnecessary services and experimental and obsolete procedures are not covered.
3. Services covered under government programs are excluded, as are services usually given without charge.
4. Workers' compensation and no-fault automobile insurance benefits are excluded.
5. A hospital stay, or any portion of a hospital stay, that is primarily for diagnosis is excluded. This applies to a hospital stay during which the services received are primarily diagnostic x-rays, laboratory studies, or any other diagnostic studies. Similarly, the portion of a hospital stay that is primarily custodial or for a rest cure or for convalescent or sanitarium-type care is not covered.
6. The contract holder, spouse, or child is eligible for maternity benefits if she was covered at the time of inception of pregnancy. In-hospital benefits for childbirth or false labor are limited to a total of four days per pregnancy. Full benefits are provided for spontaneous abortions, ectopic pregnancy, cesarean section, and other complications of pregnancy.
7. There are no benefits for normal nursery care; under a family contract, newborn children are covered only for illness and injury including special nursery care if the infant needs incubator care or while it weighs less than 2,500 grams (5.5 pounds). There are no benefits for circumcision unless it is performed more than thirty days after birth.
8. Coordination-of-benefits provisions were not in effect during the period studied.
9. For mental or nervous disorders, thirty days full or partial benefits per calendar year are provided. Outpatient psychiatric benefits are not available. A hospital is covered if it is a general hospital that is not a governmental or public benefit corporation hospital. Psychiatric specialty hospitals are not covered, nor are the psychiatric units of general hospitals with average lengths of stay over sixty days.
10. Regular hospitalization contracts provide a maximum of thirty days full or partial benefits per calendar year for a hospital stay (or portions of a hospital stay) whose primary purpose is for physical therapy, physical medicine, or rehabilitation or a combination of same.

II. MEDICARE SUPPLEMENTARY CONTRACTS

Under medicare supplementary contracts, coverage consists of the following:

1. Fill-in of the initial inpatient deductible of a "spell of illness" as defined by medicare.
2. Fill-in of the daily copayment from the 61st through the 90th day of a spell of illness as defined by medicare.
3. When lifetime reserve days are used, fill-in of the daily copayment for lifetime reserve days used any time from the 91st through the 120th day of a spell of illness as defined by medicare.
4. When lifetime reserve days are not used, 30 days in full from the 91st through the 120th day per spell of illness as defined by medicare.
5. Fill-in of the extended-care facility daily copayment from the 21st through the 100th day of a confinement as defined by medicare.
6. Stays in foreign hospitals up to 90 days, provided that the insured has not been out of the United States for more than three consecutive months on the date of admission.
7. An allowance of up to \$10 for use of the hospital emergency room for minor surgery and for an accident, if the visit is made within 72 hours of the occurrence of the accident. This \$10 allowance fills in all or part of the 20 percent copayment and/or \$60 deductible under Part B of medicare. (Hospital outpatient services are covered by Part B of medicare, not Part A.)



DISCUSSION OF PRECEDING PAPER:

JOAN F. BOYLE AND ROBERT J. DYMOWSKI:

We are pleased to see this paper published in the *Transactions* and agree that it can be of value to actuaries working in the health field. Because of the nature of their benefit programs and their methods of maintaining claim and enrollment data, Blue Cross and Blue Shield Plans have developed a considerable volume of claim experience on hospital and medical benefits. We hope that the author's example and our discussion will encourage further contributions of such data.

This discussion presents data on inpatient admissions, lengths of stay, and total days per contract year similar to that contained in the paper. Such a comparison highlights the importance of considering significant factors affecting the experience presented in the paper before attempting to adapt it for use in other situations.

Our comparison is based on the experience of the Hospital Service Plan of New Jersey (HSP) for major segments of its community-rated business during calendar year 1982. The data was examined on an incurred basis using claims incurred in 1982, paid through July, 1983. Three segments of experience corresponding to the categories presented for Blue Cross/Blue Shield of Greater New York (BCBSGNY) were used.

1. *Community Group*. This segment includes experience for groups of 4–99 employees, although groups of 50–99 employees were being phased out of this category during the year. Experience was assembled on two types of group contracts, one providing 120 days coverage in full and the other providing coverage for 365 days. We made no adjustment to the group experience for the difference in maximum benefit available. The difference in the expected claim costs for these benefits is approximately 2 percent. The coverage included no preexisting limitations. The experience presented was based on an exposure of 339,875 contracts.
2. *Direct Payment Conversion*. This block of experience involves individual and family contracts on lives that previously were covered under either community-rated or experience-rated group contracts. Coverage is provided without any requirement of evidence of insurability and contains no preexisting conditions limitation. The same 120-day contract discussed

above for group contracts is used. The total exposure for this block was 62,390 contracts.

3. *Direct Payment Nongroup*. This category of subscribers also is covered under 120-day contract. There are no preexisting conditions exclusions for individuals who are able to provide satisfactory evidence of insurability. However, individuals covered during open enrollment periods, without evidence of insurability are included. Such contracts are subject to a one year preexisting conditions limitation. During the exposure pe-

TABLE 1
COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
INPATIENT UTILIZATION
TOTAL INPATIENT ADMISSIONS PER CONTRACT YEAR
INDIVIDUAL MALE
(SEE TABLE 6A OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS			HSP OF NJ INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
20-29	1.165	1.539	1.960	0.524	0.728	0.741
30-39	1.449	2.494	1.735	0.743	1.141	1.021
40-44	1.502	1.372	1.384	1.000	1.000	1.000
45-49	1.010	1.306	1.943	0.945	1.124	1.437
50-54	1.032	1.741	1.176	1.151	1.457	1.176
55-59	1.041	1.216	1.513	1.292	1.395	1.462
60-64	1.242	1.126	1.533	2.157	1.659	1.958
Standardized weighting	1.195	1.522	1.740			

TABLE 2
COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
INPATIENT UTILIZATION
NONMATERNITY INPATIENT ADMISSIONS PER CONTRACT YEAR
INDIVIDUAL FEMALE
(SEE TABLE 6B OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS			HSP OF NJ INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
20-29	0.972	1.394	1.663	0.599	0.576	0.593
30-39	1.044	2.068	1.253	0.843	0.994	0.792
40-44	0.877	1.543	1.437	1.000	1.000	1.000
45-49	0.872	1.000	1.104	1.023	0.777	0.871
50-54	0.876	1.257	1.213	1.029	1.011	0.865
55-59	0.858	0.963	1.168	1.029	0.866	0.731
60-64	1.089	1.373	1.771	1.487	1.212	1.129
Standardized weighting	0.968	1.325	1.443			

TABLE 3
COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
INPATIENT UTILIZATION
NONMATERNITY INPATIENT ADMISSIONS PER CONTRACT YEAR
FAMILY
(SEE TABLE 6C OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS			HSP OF NJ INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
20-29	1.376	1.730	1.721	0.908	1.250	1.087
30-39	1.213	1.361	1.338	0.998	1.005	1.033
40-44	1.110	1.157	1.243	1.000	1.000	1.000
45-49	0.957	1.034	1.141	0.970	0.981	0.907
50-54	0.938	1.052	1.396	0.948	1.042	0.949
55-59	1.011	1.118	1.519	1.022	1.129	1.022
60-64	1.269	1.181	1.746	1.476	1.387	1.343
Standardized weighting	1.113	1.211	1.402			

TABLE 4
COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
INPATIENT UTILIZATION
MATERNITY ADMISSIONS PER CONTRACT YEAR
INDIVIDUAL FEMALE
(SEE TABLE 6D OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS		
	Group	Direct Payment	
		Conversion	Miscellaneous
20-29	1.620	1.811	1.536
30-39	1.557	1.516	1.136
40-44	1.912	1.000	0.800
45-49	0.635		
50-54			
55-59			
60-64			
Standardized weighting	1.602	1.734	1.381

riod considered, these contracts represented approximately 4 percent of the total contracts in this category. While we have not displayed separate experience for the open enrollment category within the nongroup block, other studies have indicated that these subscribers exhibit significantly higher claims than the balance of the nongroup block, even after the effects of initial selection for the standard nongroup enrollees has worn off. This category consisted of 125,224 contracts.

PREPAID HOSPITAL CARE AND CONTINUATION

TABLE 5
COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
INPATIENT UTILIZATION
TOTAL INPATIENT ADMISSION PER CONTRACT YEAR
INDIVIDUAL FEMALE
(SEE TABLE 6E OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS			HSP OF NJ INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
20-29	1.115	1.517	1.633	0.829	0.870	0.746
30-39	1.142	1.960	1.226	1.073	1.146	0.988
40-44	0.906	1.525	1.411	1.000	1.000	1.000
45-49	0.870	1.000	1.111	0.967	0.760	0.857
50-54	0.876	1.257	1.213	0.967	0.989	0.846
55-59	0.858	0.963	1.168	0.967	0.847	0.714
60-64	1.089	1.373	1.771	1.398	1.186	1.103
Standardized weighting	1.025	1.357	1.437			

TABLE 6
COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
INPATIENT UTILIZATION
MATERNITY INPATIENT ADMISSIONS PER CONTRACT YEAR
FAMILY
(SEE TABLE 6F OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS		
	Group	Direct Payment	
		Conversion	Miscellaneous
20-29	0.860	0.810	1.071
30-39	1.088	1.022	1.338
40-44	1.044	1.000	1.121
45-49	0.762	0.636	0.556
50-54	0.536	0.500	1.000
55-59	1.000	1.000	1.000
60-64	0.634	0.000	1.000
Standardized weighting	0.971	0.903	1.174

As indicated above, the experience shown is for calendar year 1982. During this period, HSP was phasing in a new reimbursement methodology to hospitals known as the Diagnosis-Related Groups reimbursement method (DRG). The DRG method treats cases and days differently for newborn infants than under the per diem reimbursement methodology previously used. Under the earlier methodology, no cases or inpatient days were counted for newborn care, except where confinement for the newborn exceeded that of

TABLE 7
COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
INPATIENT UTILIZATION
TOTAL INPATIENT ADMISSIONS PER CONTRACT YEAR
FAMILY
(SEE TABLE 6G OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS			HSP OF NJ INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
20-29	1.129	1.229	1.407	1.308	1.794	1.536
30-39	1.178	1.249	1.338	1.228	1.268	1.284
40-44	1.104	1.142	1.229	1.000	1.000	1.000
45-49	0.949	1.020	1.102	0.915	0.923	0.840
50-54	0.931	1.045	1.387	0.877	0.964	0.862
55-59	1.011	1.117	1.517	0.939	1.045	0.917
60-64	1.267	1.178	1.743	1.353	1.276	1.203
Standardized weighting	1.090	1.156	1.358			

TABLE 8
COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
INPATIENT UTILIZATION
TOTAL INPATIENT LENGTH OF STAY (DAYS)
INDIVIDUAL MALE
(SEE TABLE 7A OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS			HSP OF NJ INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
20-29	0.981	1.315	1.178	0.795	0.871	0.907
30-39	0.929	1.255	1.203	0.910	1.019	1.012
40-44	0.890	1.313	1.113	1.000	1.000	1.000
45-49	0.901	1.323	1.126	0.974	1.101	0.961
50-54	0.923	0.729	1.182	1.203	0.689	1.223
55-59	0.916	1.015	0.844	1.162	1.040	1.099
60-64	0.969	0.893	0.948	1.279	0.948	1.116
Standardized weighting	0.951	1.187	1.137			

the mother, since the total costs involved were part of the per diem payable for the maternity benefit. Under DRG, the newborn represents a separate case, and, thus, cases and days are included for newborns for hospitals being reimbursed on this basis. We estimate that this may have increased inpatient hospital days incurred in 1982 by about 2.5 percent over what would have been reported on the previous basis.

TABLE 9
 COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
 INPATIENT UTILIZATION
 NONMATERNITY INPATIENT LENGTH OF STAY (DAYS)
 INDIVIDUAL FEMALE
 (SEE TABLE 7B OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS			HSP OF NJ INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
20-29	0.860	1.203	1.176	0.691	0.855	0.741
30-39	0.887	1.322	1.327	0.813	1.096	0.915
40-44	1.042	1.063	1.291	1.000	1.000	1.000
45-49	0.877	1.155	0.922	0.971	1.147	0.904
50-54	0.900	0.888	1.053	1.104	1.045	1.090
55-59	0.860	0.938	0.991	1.207	1.080	1.191
60-64	0.858	0.888	0.927	1.281	1.080	1.146
Standardized weighting	0.876	1.015	1.046			

TABLE 10
 COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
 INPATIENT UTILIZATION
 NONMATERNITY INPATIENT LENGTH OF STAY (DAYS)
 FAMILY
 (SEE TABLE 7C OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS			HSP OF NJ INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
20-29	0.836	0.823	0.869	0.826	0.852	0.890
30-39	0.947	0.907	0.950	0.873	0.937	0.908
40-44	0.960	0.867	0.992	1.000	1.000	1.000
45-49	0.949	0.990	1.026	1.090	1.277	1.226
50-54	0.845	0.825	0.838	1.145	1.312	1.283
55-59	0.879	0.882	0.948	1.339	1.437	1.438
60-64	0.840	0.888	0.789	1.416	1.618	1.528
Standardized weighting	0.895	0.885	0.914			

Ratios of inpatient admissions, lengths of stay, and total days per contract year for the HSP experience versus the BCBSGNY experience in the paper are presented. Age index values for each of these components, corresponding to those presented in the paper, also are shown. For the purpose of standardizing exposure to obtain ratios of aggregate experience, we used the BCBSGNY contract exposures presented in the paper.

The results of our comparison are presented as follows:

TABLE 11
 COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
 INPATIENT UTILIZATION
 TOTAL INPATIENT LENGTH OF STAY (DAYS)
 INDIVIDUAL FEMALE
 (SEE TABLE 7E OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS			HSP OF NJ INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
20-29.....	0.870	1.143	1.195	0.650	0.709	0.682
30-39.....	0.900	1.367	1.333	0.775	1.017	0.845
40-44.....	1.023	1.071	1.307	1.000	1.000	1.000
45-49.....	0.875	1.158	0.918	1.003	1.159	0.909
50-54.....	0.900	0.888	1.053	1.145	1.056	1.101
55-59.....	0.860	0.937	0.991	1.252	1.090	1.203
60-64.....	0.858	0.888	0.927	1.328	1.091	1.157
Standardized weighting.....	0.879	1.001	1.046			

TABLE 12
 COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
 INPATIENT UTILIZATION
 TOTAL INPATIENT LENGTH OF STAY (DAYS)
 FAMILY
 (SEE TABLE 7F OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS			HSP OF NJ INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
20-29.....	0.925	0.915	0.971	0.783	0.811	0.863
30-39.....	0.981	0.958	0.998	0.848	0.902	0.892
40-44.....	0.971	0.889	1.012	1.000	1.000	1.000
45-49.....	0.959	1.000	1.050	1.109	1.294	1.241
50-54.....	0.851	0.830	0.844	1.176	1.338	1.303
55-59.....	0.881	0.881	0.951	1.375	1.462	1.468
60-64.....	0.841	0.888	0.790	1.456	1.653	1.562
Standardized weighting.....	0.913	0.904	0.939			

1. Tables 1-3 compare nonmaternity inpatient admissions.
2. Maternity admissions and total inpatient admissions for females are shown in Tables 4-7.
3. Comparisons of lengths of stay are shown in Tables 8-12.
4. Comparisons of total inpatient days per contract year are shown in Tables 13-15.

TABLE 13
 COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
 INPATIENT UTILIZATION
 TOTAL INPATIENT DAYS PER CONTRACT YEAR
 INDIVIDUAL MALE
 (SEE TABLE 8A OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS			HSP OF NJ INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
20-29.....	1.165	2.090	2.363	0.420	0.651	0.685
30-39.....	1.342	3.123	2.094	0.677	1.163	1.040
40-44.....	1.346	1.798	1.531	1.000	1.000	1.000
45-49.....	0.916	1.725	2.198	0.921	1.239	1.386
50-54.....	0.947	1.274	1.384	1.372	1.006	1.439
55-59.....	0.951	1.229	1.280	1.499	1.452	1.612
60-64.....	1.202	1.006	1.449	2.748	1.577	2.191
Standardized weighting.....	1.131	1.705	1.906			

TABLE 14
 COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
 INPATIENT UTILIZATION
 TOTAL INPATIENT DAYS PER CONTRACT YEAR
 INDIVIDUAL FEMALE
 (SEE TABLE 8B OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS			HSP OF NJ INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
20-29.....	0.960	1.759	2.021	0.536	0.622	0.527
30-39.....	1.025	2.670	1.642	0.828	1.155	0.839
40-44.....	0.923	1.641	1.836	1.000	1.000	1.000
45-49.....	0.763	1.159	1.018	0.972	0.880	0.782
50-54.....	0.790	1.117	1.278	1.113	1.042	0.937
55-59.....	0.736	0.905	1.162	1.209	0.920	0.863
60-64.....	0.941	1.221	1.636	1.867	1.290	1.281
Standardized weighting.....	0.886	1.316	1.503			

For ease of reference, all of our tables identify the corresponding table in the paper to which our comparisons were made.

Highlights from our comparisons are as follows:

Nonmaternity Inpatient Admissions (Tables 1-3)

1. Except for the experience of individual females, the HSP admission rates are higher than those shown in the paper. The worst results observed were for individual males; the best were for family contracts.

TABLE 15
 COMPARISON OF HSP OF NEW JERSEY VERSUS BCBSGNY EXPERIENCE
 INPATIENT UTILIZATION
 TOTAL INPATIENT DAYS PER CONTRACT YEAR
 FAMILY
 (SEE TABLE 8C OF PAPER)

ATTAINED AGES	EXPERIENCE RATIOS			HSP OF NJ INDEX VALUES		
	Group	Direct Payment		Group	Direct Payment	
		Conversion	Miscellaneous		Conversion	Miscellaneous
20-29	1.045	1.125	1.363	1.028	1.454	1.325
30-39	1.152	1.195	1.327	1.039	1.140	1.141
40-44	1.069	1.015	1.242	1.000	1.000	1.000
45-49	0.909	1.023	1.152	1.016	1.195	1.040
50-54	0.793	0.867	1.172	1.031	1.291	1.126
55-59	0.891	0.984	1.442	1.292	1.525	1.348
60-64	1.063	1.048	1.376	1.968	2.112	1.878
Standardized weighting	0.990	1.036	1.299			

2. The HSP index values for individual males are generally less steep than those contained in the paper, although these results may be distorted because of the high ratio of HSP to BCBSGNY experience observed in the 40-44 age grouping used as the reference base for the index values. The two sets of indices are fairly similar for individual females covered under group contracts, except at ages 60-64. For the conversion and nongroup contracts, the HSP results show unexplained declines in the index values at high ages. For family contracts, the group results are fairly similar for ages less than 60-64, although the HSP results are at a somewhat lower level relative to the age 40-44 base. The overall result is very flat. Results for the other categories were mixed.

Maternity Admissions (Tables 4 and 6)

We observed that individual female admissions were significantly higher for HSP than for BCBSGNY, but were generally lower for family contracts, particularly for the group and conversion categories.

Total Inpatient Admissions (Tables 5 and 7)

1. For individual females, the group inpatient admissions are close in aggregate, but this is the result of high ratios for the younger ages and lower ones for the older ages. The HSP results for conversion and nongroup contracts are higher overall, generally due to high ratios at the younger ages.

2. The index values for individual female contracts show the same flatness for group as observed for the nonmaternity experience, and are generally somewhat flatter than the BCBSGNY experience for conversion and non-group categories. The inpatient admissions shown for family contracts are higher than those for BCBSGNY. The index values show a "U" shape similar to that reported in the BCBSGNY experience, although generally higher at both ends of the age range.

Length of Stay (Tables 8-12)

1. The HSP group experience shows consistently shorter lengths of stay for all types of contracts, ranging from 87.6 percent of the BCBSGNY experience for individual females to 95.1 percent for individual males.
2. The family contracts also show a shorter length of stay for all three categories. The HSP results for individual males for conversion and non-group show the highest ratios relative to the BCBSGNY experience, particularly at the younger ages.
3. The group index values generally show more variation by age than the conversion and nongroup experience for individual male and female contracts. The age variations are consistent over all categories for family contracts. While the slopes of the group results for HSP are generally similar to those of the BCBSGNY experience, the HSP age variations for conversion and nongroup contracts are definitely flatter than those reported for BCBSGNY.

Total Inpatient Days Per Contract Year (Tables 13-15)

1. For individual males, the ratios of total inpatient days are similar to those shown for admissions, although the conversion and nongroup categories are higher.
2. The group experience under individual females and family contracts is lower than reported for BCBSGNY, with the most favorable comparison being observed at the higher ages.
3. The group individual male index values track well at the lower ages but not at the higher. Again, the conversion and nongroup indexes are flatter for HSP than reported for BCBSGNY. Also, while group family experience is mostly flatter for HSP, the experience for the other family categories shows the same "U" shape as noted for total inpatient admissions.

Our purpose is to illustrate the variations in a block of experience that might be expected to be reasonably similar to the BCBSGNY experience.

In this comparison, it appears that the preexisting conditions limitation included in the BCBSGNY contracts (noted in Appendix B, paragraph B-1 of the paper) may be contributing to relatively more favorable results even after the effects of initial selection have worn off. The unfavorable open enrollment experience and differences in underwriting may be responsible for the higher HSP nongroup experience. Differences in underwriting policy and benefit design can have obvious effects on the results observed for different blocks of experience. Furthermore, it is necessary to recognize regional variations in the patterns of delivery of medical care. Such adjustments normally are reflected by means of area factors included in rating structures for health benefits. Actuaries attempting to use the data presented either in the paper or in our discussion must recognize the need for similar adjustment to the data.

Again, we would like to thank the authors for presenting the BCBSGNY experience. We would be interested in their comments concerning the observed differences in experience.

(AUTHORS' REVIEW OF DISCUSSION)

PETER L. HUTCHINGS AND RICHARD E. ULLMAN

We are pleased that our paper has generated additional data. In order to facilitate comparison with the New Jersey data, we have prepared aggregate

TABLE I
TOTAL INPATIENT HOSPITAL UTILIZATION TREND
1978 TO 1982

INDIVIDUAL MALE CONTRACTS			
	ADMISSIONS PER CONTRACT PER YEAR	AVERAGE LENGTH OF STAY	DAYS OF CARE PER CONTRACT PER YEAR
Group			
1978 .....	.072	8.42	.610
1982 .....	.067	7.60	.508
Percentage change	- 6.900	- 9.70	- 16.700
Group Conversion			
1978 .....	.087	9.04	.785
1982 .....	.097	8.61	.836
Percentage change	+ 11.500	- 4.80	+ 6.500
Miscellaneous Direct Pay			
1978 .....	.061	7.66	.468
1982 .....	.076	7.46	.565
Percentage change	+ 24.600	- 2.60	+ 20.700

PREPAID HOSPITAL CARE AND CONTINUATION

TABLE 2
HOSPITAL UTILIZATION TREND
1978 TO 1982

INDIVIDUAL FEMALE AND FAMILY CONTRACTS

	INPATIENT NONMATERNITY		MATERNITY	INPATIENT INCLUDING MATERNITY		
	Admissions + Per Contract Per Year	Average Length of Stay	+ ADMISSIONS PER CONTRACT PER YEAR	Admissions Per Contract Per Year	Average Length of Stay	Days of Care Per Contract Per Year
Group Individual Female						
1978	0.110	8.42	0.011	0.121	7.95	0.964
1982	0.093	7.18	0.016	0.108	6.65	0.720
Percent change	-15.500	-14.70	+45.500	-10.700	-16.40	25.300
Group Family						
1978	0.258	7.05	0.049	0.307	6.50	1.999
1982	0.228	6.23	0.059	0.286	5.71	1.635
Percent change	-11.600	-11.60	+20.400	-6.800	-12.20	-18.200
Group Conversion Female						
1978	0.124	9.44	0.011	0.135	8.95	1.205
1982	0.124	8.86	0.014	0.138	8.32	1.151
Percent change	0.000	-6.10	+27.300	2.200	-7.00	-4.500
Group Conversion Family						
1978	0.282	7.58	0.061	0.343	6.91	2.368
1982	0.257	6.81	0.059	0.317	6.23	1.975
Percent change	-8.900	-10.20	-3.300	-7.600	-9.80	-16.600
Miscellaneous Direct Individual Female						
1978	0.094	8.15	0.009	0.103	7.72	0.793
1982	0.106	8.28	0.008	0.114	7.95	0.906
Percent change	+12.800	+1.60	-11.100	+10.700	+3.00	+14.200
Miscellaneous Direct Family						
1978	0.231	6.45	0.055	0.286	5.88	1.684
1982	0.240	5.92	0.052	0.292	5.52	1.610
Percent change	+3.900	-8.20	-5.500	+2.100	-6.10	-4.400

MATERNITY LENGTH OF STAY (DAYS)
COMBINED GROUP AND DIRECT PAYMENT

Coverage	Year		Percent Change
	1978	1982	
Individual	3.20	3.52	10.0
Family	3.65	3.72	1.9
Combined	3.59	3.69	2.8

data for the downstate New York area for 1982. It is important to bear in mind that our company has witnessed a long-term decline in the inpatient

hospital use pattern. This is clearly evident in the group data. The group conversion and miscellaneous direct payment data show a mixed pattern because the selection process changed significantly during the 1978-82 period. Tables 1 and 2 present these figures.

The improvement in the Greater New York utilization experience over the 1978-82 interval increased the difference between the lower New York experience and the higher New Jersey experience.

Two of the many possible causes for these differences are the limited bed supply and the ready availability of ambulatory care in the New York area. The result is a much lower admission rate but a longer length of stay for more severe cases. Ambulatory medical care is not readily accessible in rural areas, so there is a tendency to admit less severe cases to the hospital.

A comparison of our data with hospital inpatient data for a prepaid group practice health maintenance organization reveals this same tendency to a marked degree. Thus, the overall days of care per person per year are significantly lower for the HMO. The admission rate is much lower for the HMO, whereas the length of stay is higher. The financial discouragement to hospitalize in a prepaid group practice setting markedly reduces admissions of less severe cases.

The New Jersey experience indicates a much higher rate of maternity utilization for individual female contracts. While the percentage difference is significant, the base is very small; the maternity inpatient admission rate for individual females is only 1 percent.

The 10 percent increase in maternity length of stay from 1978-82 for individual contracts in New York probably is due to a shift in the mix of these cases away from induced abortions and toward more births via either normal delivery or Caesarean section. The increased length of stay for family contracts probably is due to a trend toward more Caesarean sections rather than an absolute increase in length of stay for each of the categories of maternity confinements.

Ms. Boyle and Mr. Dymowski note the general flatness of the female nonmaternity curve with respect to hospital admissions and the U-shaped family curve with respect to total days per contract per year. The flatness and sometimes the decline in the female nonmaternity curve for admissions probably is due to the relatively high incidence of gynecological surgical procedures performed in the middle age range. These tend to diminish significantly at the upper ages. The U-shaped family curve is due to the high incidence of maternity cases and children cases at the younger ages, the decline in these causes of hospitalization at the middle ages, and the increase in degenerative diseases that occurs later in life.

