Actuarial Status of the Trust Fund

1. ACTUARIAL SOUNDNESS OF THE SUPPLEMENTARY MEDICAL INSURANCE PROGRAM

The concept of actuarial soundness, as it applied to the supplementary medical insurance program, is closely related to the concept as it applies to private group insurance. The supplementary medical insurance program essentially is yearly renewable term insurance intended to be self-supporting from premium income paid by the enrollees and from income contributed from general revenue in proportion to premium payments. The law requires the Secretary of Health and Human Services to establish income on the basis of incurred costs. That is, the income to the program during a 12-month period for which financing is being established must be sufficient to pay for services (including associated administrative costs) expected to be rendered during that period even though payments for some of these services will not be made until after the close of the period. The portion of income required to cover those benefits not paid until after the close of the year is added to the trust fund until needed. Thus, the amount of assets in the trust fund at any time should be no less than the costs of the benefits and administration incurred but not yet paid. Since the income per enrollee (premium plus government contribution rate) is established prospectively, it is subject to projection error. As a result, the income to the program may not be equal to incurred cost; therefore trust fund assets should be maintained at a level which is adequate to cover the impact of a moderate degree of projection error as well as the value of incurred but unpaid expenses.

In testing the actuarial soundness of the supplementary medical insurance program, it is not appropriate to look beyond the period for which the enrollee premium rate and level of general revenue financing have been established. The primary tests of actuarial soundness, then, are that (1) income for years for which financing has been established be sufficient to meet the projected benefits and associated administrative expenses incurred for that period, (2) assets be sufficient to cover projected liabilities which will have been incurred by the end of that time but will not have been paid yet, and (3) assets be sufficient further to protect against the possibility that cost increases under the program will be somewhat higher than assumed in the projection. Even if these tests of actuarial soundness are not met, the program can continue to operate if the trust fund remains at a level adequate to permit the payment of claims as presented.

2. INCURRED EXPERIENCE OF THE SUPPLEMENTARY MEDICAL INSURANCE PROGRAM

The tests of actuarial soundness of the supplementary medical insurance program noted above rely on the incurred experience of the program. Cash disbursements for benefits and administrative expenses by themselves are misleading, due to the relatively large

liabilities outstanding at any time for benefits and processing costs that must be paid for services already performed. These liabilities result from the lag between the time that services are performed and the time that payments for them are made.

The experience of the program is substantially more difficult to determine on an incurred basis than on a cash basis. In the early months of program operations, it appears that some bills containing errors were never resubmitted following correction. Payment for some services is reported only on a cash basis, and the incurred experience must be inferred from the cash payment information. For recent time periods, the tabulations of bills are incomplete due to normal processing delays. Finally, since bills are tabulated only for a sample of beneficiaries, the data is subject to bias and random fluctuation inherent in the sampling process.

Table 7 shows the estimated transactions of the trust fund on an incurred basis. For the reasons stated above, the incurred experience must be viewed as an estimate even for historical years. Various checks, such as cash outlay data, assure that the estimates are reasonably close, however.

TABLE 7.—ESTIMATED INCOME AND DISBURSEMENTS INCURRED UNDER SUPPLEMENTARY MEDICAL INSURANCE PROGRAM, 12-MONTH PERIODS ENDING JUNE 30, 1967–81

(In millions)

12-month period ending June 30	Premiums from participants	Government contributions	Interest on fund	Benefit payments	Administrative expenses	Net operations in year
Historical:						
1967	$647	$647	$15	$1,121	[1] $190	−$2
1968	698	698	21	1,446	149	−178
1969	903	903	23	1,768	210	−149
1970	936	936	12	1,931	212	−259
1971	1,253	1,253	17	2,091	255	177
1972	1,340	1,340	29	2,286	293	130
1973	1,427	1,426	45	2,501	257	140
1974	1,704	2,031	76	3,157	449	205
1975	1,887	2,395	108	3,923	421	46
1976	1,951	2,972	109	4,811	544	−323
1977	2,156	4,697	158	5,849	505	657
1978	2,358	5,991	247	7,009	506	1,081
1979	2,601	6,570	371	8,189	586	767
Projected:						
1980	2,821	6,630	408	9,759	691	−591
1981	3,183	8,250	395	11,549	766	−487

[1] Includes administrative expenses incurred prior to the beginning of the program.

3. ACCUMULATED EXCESS OF ASSETS OVER LIABILITIES

The liability outstanding at any time for the cost of services performed for which no payment has been made is referred to as "benefits incurred but unpaid." Estimates of the amount of benefits incurred but unpaid as of June 30 of each year, and of the administrative expenses related to processing these benefits, appear in table 8. For most years of the program, assets have not been as large as outstanding liabilities. Nonetheless, the fund has remained positive, allowing claims to be paid.

TABLE 8.—SUMMARY OF ESTIMATED ASSETS AND LIABILITIES OF THE SUPPLEMENTARY MEDICAL INSURANCE PROGRAM, ON JUNE 30, 1967–81

[Dollar amounts in millions]

June 30	Assets			Liabilities				
	Balance in trust fund	Government contributions due and unpaid	Total assets	Benefits incurred but unpaid	Administrative costs thereon	Total liabilities	Excess of assets over liabilities	Ratio [1]
Past experience:								
1967	$486	$24	$510	$457	$56	$513	−$3	0
1968	307	88	395	513	62	575	−180	−0.09
1969	378	7	385	636	77	713	−328	−.15
1970	57	15	72	588	72	660	−588	−.25
1971	290	22	312	644	79	723	−411	−.16
1972	481	−3	478	675	84	759	−281	−.10
1973	746	−7	739	785	95	880	−141	−.04
1974	1,272	−5	1,267	1,068	135	1,203	64	.02
1975	1,424	67	1,491	1,226	152	1,378	113	.02
1976	1,219	105	1,324	1,366	167	1,533	−209	−.03
1977	2,170	91	2,261	1,626	189	1,815	446	.06
1978	3,786	40	3,826	2,078	222	2,300	1,526	.17
1979	4,880	2	4,882	2,347	242	2,589	2,293	.22
Projected:								
1980	4,719	0	4,719	2,747	270	3,017	1,702	.14
1981	4,729	0	4,729	3,213	301	3,514	1,215	.08

[1] Ratio of the excess of assets over liabilities to the following year's total incurred expenditures.

Program financing has been established through June 1981. On the basis of this financing the estimated excess of assets over liabilities of $2,293 million at the end of June 1979 is projected to decrease to $1,702 million at the end of June 1980, and then to further decrease to $1,215 million at the end of June 1981. The projected $1,215 million excess as of June 30, 1981 amounts to 8 percent of incurred expenditures for the following 12-month period, a level which is sufficient to cover the impact of a moderate degree of projection error.

4. SENSITIVITY TESTING

Some of the assumptions underlying the projection presented in this report are highly uncertain, and variations in these assumptions would have a substantial impact on expenditures. In order to test the future status of the program under varying assumptions, a low cost projection and a high cost projection were prepared by varying these key assumptions. The low and high cost alternative sets of assumptions are intended to reflect growth rates for the various components of program costs which are more favorable and adverse, respectively, than those of the intermediate projection and which are not unreasonable themselves in light of the nature and historical experience of the program. As such, they provide a range of financial outcomes within which the actual experience of the program might reasonably be expected to fall.

Table 9 indicates that, under the low cost assumptions, trust fund assets would exceed liabilities significantly by the end of June 1981 (the period through which financing has been established), reaching a level of 18 percent of the following year's incurred expenditures. If these low growth rates were actually to materialize, then subsequent

financing rates could be adjusted downward in order to lower the excess of assets over liabilities to more appropriate levels. Under the high cost assumptions, trust fund assets would be approximately equal to liabilities by the end of June 1981. If these high growth rates were to occur, the program would remain just solvent and subsequent financing rates would have to be adjusted upward in order to generate more appropriate levels for the excess of assets over liabilities.

TABLE 9.—ACTUARIAL STATUS OF THE SMI TRUST FUND UNDER THREE SETS OF ASSUMPTIONS FOR THE 12-MONTH PERIOD ENDING WITH JUNE OF THE YEAR SHOWN

	Intermediate projection (this report)		Low cost projection		High cost projection	
	1980	1981	1980	1981	1980	1981
Per enrollee increases over prior year in:						
Physician fees (percent)	7.9	10.9	6.4	9.4	9.4	12.4
Physician utilization (percent)	4.0	3.0	3.0	2.0	5.0	4.0
Outpatient hospital (percent)	20.0	15.0	10.0	5.0	30.0	25.0
Home health agency (percent)	15.0	15.0	5.0	5.0	25.0	25.0
Assets as of June 30 (in millions)	$4,719	$4,729	$4,972	$5,668	$4,463	$3,726
Liabilities as of June 30 (in millions)	3,017	3,514	2,939	3,328	3,100	3,720
Excess of assets over liabilities (in millions)	1,702	1,215	2,033	2,340	1,363	6
Ratio [1]	.14	.08	.18	.18	.10	

[1] Ratio of excess of assets over liabilities to the following year's total incurred expenditures.

Conclusion

The financing of the supplementary medical insurance program has been established through June 1981, by the promulgation of standard monthly premium rates (paid by or on behalf of each enrollee) of $8.70 for the year ending June 1980 and $9.60 for the year ending June 1981 and of adequate actuarial rates which determine the amount to be contributed from general revenue on behalf of each enrollee.

Under the intermediate assumptions used in this report, disbursements from the trust fund are projected to exceed income during fiscal year 1980, and then, during fiscal year 1981, income is projected to exceed disbursements. As a result the assets in the trust fund, on a cash basis, are projected to decrease from $4,994 million at the end of fiscal year 1979 to an estimated $4,885 million at the end of 1980 and then to increase to an estimated $4,982 million at the end of 1981. About 75 percent of this year-end balance, however, is attributable to liabilities for benefits and associated administrative costs which will have been incurred but not yet paid.

Program assets exceeded liabilities by approximately $2,293 million at the end of June 1979. Under the intermediate assumptions, the actuarial status of the trust fund is expected to remain sound, with assets exceeding liabilities by $1,215 million at the end of June 1981 (representing 8 percent of projected incurred expenditures for the following 12-month period). Even under more pessimistic assumptions as to cost increases, income produced on the basis of financing already established plus assets held in the trust fund will be sufficient for the trust fund to remain solvent through that period of time. Hence, the financing established through June 1981 is sufficient to cover projected benefit and administrative costs incurred through that time period and to build a level of trust fund assets which is adequate to cover the impact of a moderate degree of projection error.

APPENDIX A

ACTUARIAL METHODOLOGY AND PRINCIPAL ASSUMPTIONS FOR COST ESTIMATES FOR THE SUPPLEMENTARY MEDICAL INSURANCE PROGRAM [1]

1. ESTIMATES FOR AGED AND DISABLED (EXCLUDING ESRD) ENROLLEES

a. Introduction

Estimates for aged and disabled enrollees—excluding disabled persons with end stage renal disease (ESRD)—are prepared by establishing, as accurately as possible, reasonable charges incurred per enrollee in a recent year (the 12-month period ending June 30, 1978, for this report) and projecting these charges through the estimating period. The per enrollee charges are then converted to reimbursement amounts by subtracting the per enrollee values of the deductible and coinsurance. Aggregate reimbursement amounts are calculated by multiplying the per enrollee reimbursement amounts by the projected enrollment. In order to estimate cash disbursements, an allowance is made for the delay between receipt of service and payment therefor.

Disabled persons with ESRD have per enrollee costs which are higher and quite different in nature from those of most other disabled persons. Hence, program costs for them have been excluded from the analysis in this section and are included in a later section.

b. Establishing a Projection Base

(1) Physician Services

Reimbursement amounts for physician services (and small amounts for other services) are paid through organizations acting for the Health Care Financing Administration, referred to as carriers. The carriers determine whether billed services are covered under the program and determine the reasonable charges for the services. A record of the amount reimbursed after reductions for coinsurance and the deductible is transmitted to the central office in the form of a "payment record."

Payment records for 0.1 percent of aged beneficiaries and 1.0 percent of disabled beneficiaries are tabulated by date of service, thus providing a data base which is constructed on an incurred basis. Certain minor adjustments are made to the tabulated sample data to correct for biases and random fluctuation inherent in the sampling process. Having the data on an incurred basis is necessary to meet the statutory requirement that the program be financed on this basis; it also makes possible a comparison of program experience with non-program data sources.

As a check on the validity of the projection base, incurred reimbursement amounts are compared with cash expenditures reported by the

[1] Prepared by the Division of Medicare Cost Estimates, Office of Financial and Actuarial Analysis, Health Care Financing Administration.

carriers through an independent reporting system. In a program with continuously increasing incurred reimbursement amounts, cash payments are expected to be slightly lower than incurred expenses (except in the first year of coverage of a service or group of beneficiaries, when the difference should be substantial). These differences between cash and incurred reimbursement amounts occur because of the lag between receipt of services and payment therefor.

(2) Institutional and Other Services

Reimbursement amounts for institutional services under Part B are paid by the same fiscal intermediaries that pay for Part A services. The principal institutional services covered under Part B are outpatient hospital care and home health agency services.

Reimbursements for institutional services occur in two stages. Provider bills are submitted to the intermediaries, and interim payments are made on the basis of these bills. The bills are then submitted to the central office, and tabulations for a sample of beneficiaries are prepared in a manner parallel to that for payment records.

At the close of a provider's accounting period, a cost report is submitted and lump-sum payments or recoveries are made to correct for the difference between interim payments made to the provider and the retroactively determined reasonable cost for providing covered services (net of coinsurance and deductible amounts). The amounts of these retroactive settlements are reported on a cash basis, and approximations are necessary to allocate these payments to the time of service.

Group practice prepayment plans are reimbursed directly by the Health Care Financing Administration on a reasonable cost basis. Data are available for these payments only on a cash basis, and approximations must be made to assign expenses to the period when services were rendered.

(3) Summary of Historical Data

Table A1 summarizes the incurred reimbursement amounts per enrollee for the various services for each of the 12 month periods ending June 30, through 1978. Also shown are average enrollemnt figures for these years. In order to analyze the historical trends in prices and use of services, these remibursement amounts are converted to the reasonable charges or reasonable costs on which reimbursement was based. This process is necessary largely because the fixed deductible becomes a smaller percentage of charges each year and thus causes reimbursement to rise faster than charges or costs. Table A2 shows the reasonable charges or costs per enrollee corresponding to the reimbursement values shown in table A1.

TABLE A1.—INCURRED REIMBURSEMENT AMOUNTS PER ENROLLEE: HISTORICAL

Year ending June 30	Average enrollment (millions)	All services	Physician	Inpatient radiology and pathology[1]	Outpatient hospital	Home health agency	Group practice prepayment plan	Independent lab
Aged:								
1967	17.750	$63.16	$59.09	----------	$1.41	$.79	$1.64	$.23
1968	18.038	80.21	72.56	$1.89	2.40	1.49	1.52	.35
1969	18.833	93.85	79.05	6.57	4.22	1.92	1.69	.40
1970	19.312	100.04	82.82	7.14	5.93	1.99	1.68	.48
1971	19.664	106.33	87.78	7.21	7.56	1.68	1.49	.61
1972	20.043	114.06	94.81	6.77	8.57	1.61	1.52	.78
1973	20.428	122.42	100.89	6.99	9.44	2.22	1.94	.94
1974	20.988	134.38	109.87	7.43	11.35	2.12	2.42	1.19
1975	21.504	159.14	126.64	8.69	15.47	3.99	2.73	1.62
1976	22.089	186.91	144.15	10.84	21.28	5.37	3.29	1.98
1977	22.605	218.67	164.81	12.15	28.68	6.73	3.94	2.36
1978	23.133	253.21	190.29	14.71	33.42	7.01	4.98	2.80
Disabled (excluding ESRD):								
1974	1.647	119.01	89.48	7.50	13.82	3.58	4.08	.55
1975	1.828	148.75	115.93	8.33	17.22	3.69	2.54	1.04
1976	2.033	177.44	136.28	9.85	21.43	5.26	3.22	1.40
1977	2.248	216.61	158.30	12.73	36.04	4.88	2.86	1.80
1978	2.440	256.16	187.64	14.22	42.10	5.68	4.04	2.48

[1] Includes services on payment records and those using combined billing; amounts shown are for April 1968 and later when combined billings are authorized and inpatient radiology and pathology charges are reimbursed at 100 percent.

TABLE A2.—INCURRED REASONABLE CHARGES OR COSTS PER ENROLLEE: HISTORICAL

Year ending June 30	Average enrollment (millions)	All services	Physician	Inpatient radiology and pathology[1]	Outpatient hospital	Home health agency	Group practice prepayment plan	Independent lab
Aged:								
1967	17.750	$110.32	$103.20	----------	$2.46	$1.38	$2.87	$0.41
1968	18.038	128.27	117.07	$1.89	3.88	2.41	2.46	.56
1969	18.833	145.86	126.15	6.57	6.74	3.06	2.70	.64
1970	19.312	154.10	131.01	7.14	9.38	3.15	2.66	.76
1971	19.664	162.61	137.64	7.21	11.85	2.63	2.33	.95
1972	20.043	173.09	146.97	6.77	13.29	2.49	2.36	1.21
1973	20.428	186.60	157.31	6.99	14.72	3.08	3.03	1.47
1974	20.988	204.42	171.06	7.43	17.67	2.64	3.76	1.86
1975	21.504	235.38	191.83	8.69	23.44	4.83	4.14	2.45
1976	22.089	270.17	213.62	10.84	31.53	6.37	4.87	2.94
1977	22.605	310.11	239.34	12.15	41.65	7.82	5.72	3.43
1978	23.133	353.57	271.96	14.71	47.76	8.02	7.12	4.00
Disabled (excluding ESRD):								
1974	1.647	180.32	139.56	7.50	21.56	4.47	6.37	.86
1975	1.828	218.70	174.61	8.33	25.93	4.45	3.82	1.56
1976	2.033	254.85	200.49	9.85	31.52	6.19	4.74	2.06
1977	2.248	304.20	227.40	12.73	51.77	5.61	4.11	2.58
1978	2.440	354.15	264.89	14.22	59.43	6.41	5.70	3.50

[1] Includes services on payment records and those using combined billing; amounts shown are for April 1968 and later when combined billings are authorized and inpatient radiology and pathology charges are reimbursed at 100 percent.

(c) Pre Enrollee Increases

(1) Physician Services.

Pre enrollee charges for physician services are affected by a variety of factors. Some of these can be identified explicity. Others can be recognized only by the fact that the explicitly quantifiable factors do not explain all of the increase in per enrollee charges year-to-year.

Increases in average charge per service are one of the most important elements creating increasing charges per enrollee. The physician fee component of the consumer price index provides an estimate of the historical increases in average charge per service. Increases in this index are shown in the first column of table A3.

Bills submitted to the carriers during a 12-month period beginning July 1 are subject, by statute, to certain limitations on the level of fees to be recognized by the program for reimbursement purposes. The fee level recognized for a particular service by a physician is subject to reduction if it exceeds the median charge that the physician assessed for the same service in the preceding calendar year. This median charge is called the "customary" charge. Fees are subject to further reduction if they exceed the "prevailing" charge for the locality. The prevailing charge is defined as the 75th percentile of customary charges for a particular service in a particular locality. Since July 1, 1975, the rate of increase in prevailing charges has been limited further by the application of an "economic index." The customary and prevailing charge limits maintained by the carriers are called "fee screens." Reasonable charges are charges on which reimbursement is based, after they have been reduced by the fee screens.

The average reduction in submitted fees has increased almost every year due both to administrative actions and to differentials in the rate of increase in fees between the calendar year in which the fee screens are established and the July to June period in which the screens are applied. The result is that the net increase in per enrollee charges due to price changes (i.e., the increase in fee levels recognized for reimbursement purposes) has been less than the increase in submitted fees. The second column of table A3 shows the reduction of charges due to the impact of the fee screen operation to date. The year-to-year changes in this impact are shown in the third column.

Per enrollee charges also have increased each year as a result of more physician visits per enrollee, increasing use of specialists and more expensive techniques, and other factors. The fifth column of table A3 shows the increase in charges per enrollee resulting from these residual causes. Because the measurement of increased recognized charges per service is subject to error, this error is included implicitly under residual causes.

The proportion of charges that has been denied as non-covered care has increased in most years. To the extent that this increase in denials reflects the effect of administrative actions defining covered services, it will cause a non-recurring distorting effect on the increase due to net residual factors. The gross residual factor is adjusted for the impact of changes in denials as shown in the sixth column of table A3. This column is used in the projection to indicate the amount of cost increases to be expected in the future from residual causes. The seventh column shows the net increase due to residual factors.

The last column of table A3 shows the total increase in charges per enrollee for physician services. It includes the effects of all the items discussed above.

Projected increases in total recognized charges per enrollee are shown in table A4. Column 1 of table A4 shows the projected average increase in customary charges in each of the 12 month periods ending June 30, 1979 through 1983. As described above, each of these increases depends on the increases in fees actually submitted during the preceding calendar year. Thus, this column represents actual and projected average increases in physicians' fees for calendar years 1977 through 1981, respectively. In principle, further adjustments should be made for the year-to-year variations created by the process of selecting the 75th percentile of customary charges for each service in each locality to establish prevailing charges and for the fact that, of necessity, some fees are not screened in exactly the manner described (e.g., when new categories of services arise for which there is no historical data base). The impact on year-to-year increases in reasonable charges of these two factors is treated as negligible (although, of course, they have a substantial effect on the absolute level of fees). The effects of the economic index on the average charge increase is shown in column 2. The projected net increase in reasonable charges is shown in column 3; this compares with the corresponding historical data shown in column 4 of table A3.

The projection of residual factors assumes no further changes in the proportion of claims denied consistent with the very small changes observed in the last few years (see table A3).

TABLE A3.—COMPONENTS OF INCREASES IN TOTAL RECOGNIZED CHARGES PER ENROLLEE FOR PHYSICIAN SERVICES: HISTORICAL

[In percent]

Year ending June 30	Increase due to price changes				Increase due to residual factors			Total increase in recognized charges per enrollee
	Increase in physician fee component of CPI	Reduction due to fee screens		Net increase in reasonable charges	Gross residual factors	Effects of denials	Net residual factors	
		Cumulative effect	Yearly changes					
Aged:								
1967	7.6	−2.6						
1968	5.9	−3.6	−0.7	5.2	9.6	−1.4	8.2	13.4
1969	6.2	−5.0	−1.4	4.8	3.4	−.4	3.0	7.8
1970	6.7	−7.5	−2.8	3.9	3.1	−3.1	0	3.9
1971	7.5	−10.1	−3.0	4.5	3.8	−3.2	.6	5.1
1972	5.2	−11.2	−1.2	4.0	2.4	.4	2.8	6.8
1973	2.6	−11.7	−.5	2.1	5.5	−.6	4.9	7.0
1974	5.0	−13.2	−1.7	3.3	6.0	−.6	5.4	8.7
1975	12.8	−16.2	−3.7	9.1	3.3	−.3	3.0	12.1
1976	11.4	−18.6	−2.9	8.5	2.8	.1	2.9	11.4
1977	10.2	−19.5	−1.0	9.2	2.7	.1	2.8	12.0
1978	8.9	−19.3	.6	9.5	4.0	.1	4.1	13.6
Disabled (excluding ESRD):								
1974	5.0	−13.2						
1975	12.8	−16.2	−2.6	10.2	15.2	−.3	14.9	25.1
1976	11.4	−18.6	−2.7	8.7	6.0	.1	6.1	14.8
1977	10.2	−19.5	−.9	9.3	4.0	.1	4.1	13.4
1978	8.9	−19.3	.9	9.8	6.6	.1	6.7	16.5

TABLE A4.—COMPONENTS OF INCREASES IN TOTAL RECOGNIZED CHARGES PER ENROLLEE FOR PHYSICIAN SERVICES: PROJECTED

[In percent]

Year ending June 30	Increase due to price changes			Increase due to residual factors			Total increase in recognized charges per enrollee
	Increase before effect of economic index	Reduction due to economic index	Net increase in reasonable charges	Gross residual factors	Effects of denials	Net residual factors	
Aged:							
1979	9.3	−1.6	7.7	3.2	0	3.2	10.9
1980	8.4	−.5	7.9	4.3	0	4.3	12.2
1981	9.9	1.0	10.9	3.3	0	3.3	14.2
1982	13.0	.7	13.7	3.4	0	3.4	17.1
1983	12.7	−1.9	10.8	3.3	0	3.3	14.1
Disabled (excluding ESRD):							
1979	9.3	−1.6	7.7	3.2	0	3.2	10.9
1980	8.4	−.5	7.9	4.3	0	4.3	12.2
1981	9.9	1.0	10.9	3.3	0	3.3	14.2
1982	13.0	.7	13.7	3.4	0	3.4	17.1
1983	12.7	−1.9	10.8	3.3	0	3.3	14.1

(2) *Institutional and Other Services.*

The historical and projected increases in charges or costs per enrollee for institutional and other services are shown in table A5. The year-to-year changes in some services have been quite erratic. At best, these series provide only a rough indication of future trends in costs.

TABLE A5.—INCREASES IN RECOGNIZED CHARGES AND COSTS PER ENROLLEE FOR INSTITUTIONAL AND OTHER SERVICES

[In percent]

Year ending June 30	Inpatient radiology and pathology	Outpatient hospital	Home health agency	Group practice prepayment plan	Independent lab
Aged:					
Historical:					
1968		57.7	74.6	−14.3	36.6
1969	[1] −13.1	73.7	27.0	9.8	14.3
1970	8.7	39.2	2.9	−1.5	18.7
1971	1.0	26.3	−16.5	−12.4	25.0
1972	−6.1	12.2	−5.3	1.3	27.4
1973	3.2	10.8	23.7	28.4	21.5
1974	6.3	20.0	−14.3	24.1	26.5
1975	17.0	32.7	83.0	10.1	31.7
1976	24.7	34.5	31.9	17.6	20.0
1977	12.1	32.1	22.8	17.5	16.7
1978	21.1	14.7	2.6	24.5	16.6
Projected:					
1979	18.0	20.0	4.0	−18.0	15.0
1980	15.0	20.0	15.0	61.3	15.0
1981	15.0	15.0	15.0	15.0	15.0
1982	15.0	15.0	15.0	15.0	15.0
1983	15.0	15.0	10.0	10.0	15.0
Disabled (excluding ESRD):					
Historical:					
1975	11.1	20.3	−0.4	−40.0	81.4
1976	18.2	21.6	39.1	24.1	32.1
1977	29.2	64.2	−9.4	−13.3	25.2
1978	11.7	14.8	14.3	38.7	35.7
Projected:					
1979	18.0	20.0	4.0	−18.0	15.0
1980	15.0	20.0	15.0	61.3	15.0
1981	15.0	15.0	15.0	15.0	15.0
1982	15.0	15.0	15.0	15.0	15.0
1983	15.0	15.0	10.0	10.0	15.0

[1] Percentage change over prior year annualized value.

(d) Projected Charges and Costs

Table A6 shows projections of per enrollee incurred charges and costs based on the assumptions in tables A4 and A5. Table A7 shows the total reimbursement amounts per enrollee that result from subtracting the average amounts of copayment per enrollee from the total covered charges in table A6. The aggregate reimbursement amounts shown are derived by multiplying average enrollment by average reimbursement per enrollee.

TABLE A6.—INCURRED REASONABLE CHARGES OR COSTS PER ENROLLEE: PROJECTED

Year ending June 30	All services	Physician	Inpatient radiology and pathology	Outpatient hospital	Home health agency	Group prepayment plan	Independent lab
Aged:							
1979	$395.14	$301.69	$17.36	$57.31	$8.34	$5.84	$4.60
1980	451.57	338.54	19.96	68.77	9.59	9.42	5.29
1981	516.68	386.70	22.95	79.09	11.03	10.83	6.08
1982	602.33	452.87	26.39	90.95	12.68	12.45	6.99
1983	687.46	516.83	30.35	104.59	13.95	13.70	8.04
Disabled (excluding ESRD):							
1979	397.32	293.85	16.78	71.32	6.67	4.67	4.03
1980	454.46	329.75	19.30	85.58	7.67	7.53	4.63
1981	520.08	376.66	22.20	98.42	8.82	8.66	5.32
1982	606.04	441.11	25.53	113.18	10.14	9.96	6.12
1983	692.08	503.41	29.36	130.16	11.15	10.96	7.04

TABLE A7.—INCURRED REIMBURSEMENT AMOUNTS: PROJECTED

Year ending June 30	Average enrollment (millions)	Reimbursement amounts	
		Per enrollee	Aggregate (millions)
Aged:			
1979	23.693	$286.72	$6,793
1980	24.284	332.38	8,072
1981	24.811	384.72	9,545
1982	25.331	454.08	11,502
1983	25.865	522.87	13,524
Disabled (excluding ESRD):			
1979	2.583	290.55	750
1980	2.687	337.00	906
1981	2.770	389.68	1,079
1982	2.892	459.02	1,327
1983	2.977	528.55	1,573

2. Estimates for Persons Suffering From End Stage Renal Disease

Certain persons suffering from end stage renal disease (ESRD) have been eligible to enroll for Part B coverage since July 1973 (under Section 299I of P.L. 92-603). For analytical purposes those enrollees suffering from ESRD who are also eligible as disability insurance beneficiaries are included in this section because their per enrollee costs are both higher and different in nature from those of most other disabled persons.

The estimates assume that charges for Part B ESRD services under Medicare will increase at an average of 8.8 percent per year over the projection period (July 1, 1978 through June 30, 1983). The estimates also assume a continued rapid increase in enrollment. The historical and projected enrollment and costs are shown in table A8.

TABLE A8.—INCURRED REIMBURSEMENT AMOUNTS FOR END STAGE RENAL DISEASE

	Disabled ESRD and ESRD only			ESRD only, reimbursement amounts, aggregate (millions)
	Average enrollment (thousands)	Reimbursement amounts		
		Per enrollee	Aggregate (millions)	
Year ending June 30:				
1974	14	$10,071	$141	$98
1975	21	10,857	228	155
1976	27	11,852	320	209
1977	31	13,516	419	267
1978	36	14,611	526	330
1979	41	15,756	646	399
1980	48	16,271	781	475
1981	53	17,453	925	556
1982	57	18,702	1,066	634
1983	61	19,951	1,217	717

3. Summary of Aggregate Reimbursement Amounts on a Cash Basis

Table A9 shows aggregate historical and projected reimbursement amounts on a cash basis, by type of beneficiary. The difference between reimbursement amounts on a cash basis and incurred reimbursement amounts results from the lag between the time of service and the time of payment.

TABLE A9.—AGGREGATE REIMBURSEMENT AMOUNTS ON A CASH BASIS

[In millions]

Fiscal year	Aged	Disabled (excluding ESRD)	Disabled ESRD and ESRD only	Total
Historical:				
1967	$664	----------	----------	$664
1968	1,390	----------	----------	1,390
1969	1,645	----------	----------	1,645
1970	1,979	----------	----------	1,979
1971	2,035	----------	----------	2,035
1972	2,255	----------	----------	2,255
1973	2,391	----------	----------	2,391
1974	2,651	$133	$90	2,874
1975	3,339	259	167	3,765
1976	4,069	343	259	4,671
Interim [1]	1,082	106	81	1,269
1977	4,988	498	381	5,867
1978	5,766	613	473	6,852
1979	6,893	762	604	8,259
Projected:				
1980	8,123	911	733	9,767
1981	9,646	1,094	869	11,609
1982	11,538	1,329	1,012	13,879

[1] Interim Period is the period from July 1, 1976 to September 30, 1976 and is the transitional period between fiscal years beginning July 1 and fiscal years beginning October 1.

4. ADMINISTRATIVE EXPENSES

The ratio of administrative expenses to benefit payments has been approximately 7 percent in recent years and is projected to decline slowly in future years. Projections of administrative costs are based on estimates of workloads and approved budgets for carriers, intermediaries, and Federal administration agencies.

APPENDIX B

STATEMENT OF ACTUARIAL ASSUMPTIONS AND BASES EMPLOYED IN DETERMINING THE MONTHLY ADEQUATE ACTUARIAL RATES AND THE STANDARD MONTHLY PREMIUM RATE FOR THE SUPPLEMENTARY MEDICAL INSURANCE PROGRAM BEGINNING JULY 1980[1]

1. ACTUARIAL STATUS OF THE SUPPLEMENTARY MEDICAL INSURANCE TRUST FUND

The law requires that the Supplementary Medical Insurance (SMI) program be financed on an incurred basis. That is, program income during the 12–month period for which the adequate actuarial rates are effective must be sufficient to pay for services rendered during that period (including associated administrative costs) even though payment for some of these services will not be made until after the close of the period. The portion of income required to cover benefits not paid until after the close of the 12–month period is added to the trust fund until needed. Thus, the assets in the trust fund at any time should be no less than benefit and administrative costs incurred but not yet paid.

Because the adequate rates are established prospectively, they are subject to projection error. As a result, the income to the program may not equal incurred costs. Therefore, trust fund assets should be maintained at a level which is adequate to cover the impact of a moderate degree of projection error in addition to the amount of incurred but unpaid expenses. Table 1 summarizes the estimated actuarial status of the trust fund as of June 30 for each of the years 1978–80.

TABLE 1.—ACTUARIAL STATUS OF THE SMI TRUST FUND YEARS, ENDING JUNE 30 OF 1978–80

[In millions]

	Assets	Liabilities	Assets less liabilities
Year ending June 30:			
1978	$3,834	$2,299	$1,535
1979	4,883	2,592	2,291
1980	4,877	2,989	1,888

2. MONTHLY ADEQUATE ACTUARIAL RATE FOR ENROLLEES AGE 65 AND OLDER

The monthly adequate actuarial rate is one-half the monthly projected costs of benefits and administrative expenses for each enrollee

[1] This statement appeared in the Federal Register of December 31, 1979. Projections shown in this statement differ slightly from the projections shown in the rest of this report because of minor changes in assumptions since the rates were promulgated.

age 65 and older, adjusted to allow for the following: interest earnings on assets in the trust fund; contingency margin; and amortization of unfunded liabilities.

The monthly adequate actuarial rate for enrollees age 65 and older for the year ending June 30, 1981, was determined by projecting per enrollee cost for the 12-month period ending June 30, 1978, by type of service. The projected costs for the year ending June 30 of 1978–1981 are shown in table 2. The values for the 12-month period ending June 30, 1978, were established from program data. Subsequent years were projected using a combination of program data and data from external sources. The projection factors used are shown in table 3.

TABLE 2.—DERIVATION OF PROMULGATED MONTHLY RATE FOR ENROLLEES AGE 65 AND OVER YEARS, ENDING JUNE 30 OF 1978–81

	1978	1979	1980	1981
Covered services (at level recognized):				
Physicians' reasonable charges	$11.33	$12.57	$13.97	$15.90
Radiology and pathology	.61	.72	.83	.96
Outpatient hospital and other institutions	1.99	2.39	2.75	3.16
Home health agencies	.33	.35	.40	.46
Group practice plans	.30	.24	.39	.45
Independent lab	.17	.19	.22	.25
Total services	14.73	16.46	18.56	21.18
Cost sharing:				
Deductible	−1.77	−1.79	−1.81	−1.83
Coinsurance	−2.41	−2.73	−3.11	−3.59
Total benefits	10.55	11.94	13.64	15.76
Administrative expenses	.76	.85	.87	.89
Incurred expenditures	11.31	12.79	14.51	16.65
Value of interest on fund	−.20	−.33	−.34	−.35
Margin for contingencies and to amortize unfunded liabilities	1.19	.94	−.77	0
Promulgated monthly rate	12.30	13.40	13.40	16.30

TABLE 3.—PROJECTION FACTORS, YEARS ENDING JUNE 30 OF 1979–81

[In percent]

	1979	1980	1981
Physicians' services:			
Fees[1]	7.7	7.9	10.5
Utilization[2]	3.0	3.0	3.0
Outpatient hospital services per enrollee[3]	20.0	15.0	15.0
Home health agency services per enrollee[3]	4.0	15.0	15.0
Group practice plan services per enrollee[3]	−18.0	61.3	15.0
Other services per enrollee	17.0	15.0	15.0

[1] As recognized for payment under the program.
[2] Increase in the number of services received per enrollee and greater relative use of more expensive services.
[3] The values for 1979 and/or 1980 differ significantly from those contained in last year's promulgation notice due to an additional year's data which support the current values.

The projected monthly rate required to pay for one-half of the total of benefits and administrative costs for enrollees age 65 and over for the year ending June 30, 1981, is $16.65. The monthly adequate actuarial rate of $16.30 provides an adjustment for interest earnings and no margin for contingencies.

3. MONTHLY ADEQUATE ACTUARIAL RATE FOR DISABLED ENROLLEES

Disabled enrollees are those persons enrolled in SMI because of entitlement to disability benefits for not less than 24 consecutive months or because of entitlement to Medicare under the end-stage renal disease program. Projected monthly costs for disabled enrollees (other than those suffering from end-stage renal disease) are prepared in a fashion exactly parallel to projections for the aged, using the same actuarial assumptions. Costs for the end-stage renal disease program are projected using a computer model because of the complex demographic problems involved. The combined results for all disabled enrollees are shown in table 4.

TABLE 4.—DERIVATION OF PROMULGATED MONTHLY RATE FOR DISABLED ENROLLEES, YEARS ENDING JUNE 30 OF 1978–81

	1978	1979	1980	1981
Covered services (at level recognized):				
Physicians' reasonable charges	$13.21	$14.77	$16.51	$18.77
Radiology and pathology	.59	.70	.80	.93
Outpatient hospital and other institutions	11.14	13.05	15.06	17.17
Home health agencies	.27	.28	.32	.37
Group practice plans	.24	.19	.31	.36
Independent lab	.22	.26	.29	.34
Total services	25.67	29.25	33.29	37.94
Cost sharing:				
Deductible	−1.64	−1.66	−1.67	−1.70
Coinsurance	−4.64	−5.33	−6.11	−6.99
Total benefits	19.39	22.26	25.51	29.25
Administrative expenses	1.40	1.59	1.62	1.65
Incurred expenditures	20.79	23.85	27.13	30.90
Value of interest on fund	−1.99	−2.70	−2.76	−2.81
Margin for contingencies and to amortize unfunded liabilities	6.20	3.85	.63	−2.59
Promulgated monthly rate	25.00	25.00	25.00	25.50

The projected monthly rate required to pay for one-half of the total of benefits and administrative costs for disabled enrollees for the year ending June 30, 1981, is $30.90. The monthly adequate actuarial rate of $25.50 provides an adjustment for interest earnings and a margin for contingencies.

4. SENSITIVITY TESTING

Several factors contribute to uncertainty about future trends in medical care costs. In view of this, it seems appropriate to test the adequacy under alternate assumptions of the rates promulgated here. The most unpredictable factors which contribute significantly to future costs are outpatient hospital costs, physician utilization (measured indirectly and reflecting the use of more visits per enrollee, the use of more expensive services, and other factors not explained by simple price per service increases), and increases in physician fees as constrained by the program's reasonable charge screens and economic index. Two alternative sets of assumptions and the results of those assumptions are shown in table 5. All assumptions not shown in table 5 are the same as in table 3.

TABLE 5.—PROJECTION FACTORS AND THE ACTUARIAL STATUS OF THE SMI TRUST FUND UNDER ALTERNATIVE SETS OF ASSUMPTIONS, YEARS ENDING JUNE 30 OF 1980–81

	This projection		Low assumption		High assumption	
	1980	1981	1980	1981	1980	1981
Projection factors (in percent):						
Physicians' fees[1]	7.9	10.5	5.9	8.5	9.9	12.5
Utilization of physicians' services[2]	3.0	3.0	1.0	1.0	5.0	5.0
Outpatient hospital services per enrollee[3]	15.0	15.0	5.0	5.0	25.0	25.0
Home health agency services per enrollee[3]	15.0	15.0	5.0	5.0	25.0	25.0
Actuarial status (in millions):						
Assets	$4,877	$5,191	$5,215	$6,416	$4,533	$3,899
Liabilities	2,989	3,468	2,889	3,236	3,088	3,712
Assets less liabilities	1,888	1,723	2,326	3,180	1,445	187
Ratio of assets less liabilities to expenditures (in percent)[4]	15.7	12.3	21.0	26.3	11.1	1.2

[1] As recognized for payment under the program.
[2] Increase in the number of services received per enrollee and greater relative use of more expensive services.
[3] The values for 1980 differ significantly from those contained in last year's promulgation notice due to an additional year's data which support the current values.
[4] Ratio of assets less liabilities at the end of the year to total incurred expenditures during the following year, expressed as a percent.

Table 5 indicates that, under the assumptions used in preparing this report, the promulgated monthly rates will result in an excess of assets over liabilities of $1,723 million by the end of June 1981. This amounts to 12.3 percent of the estimated total incurred expenditures for the following year. Assumptions which are somewhat more pessimistic produce an excess of assets over liabilities of $187 million by the end of June 1981, which amounts to 1.2 percent of the estimated total incurred expenditures for the following year. Under fairly optimistic assumptions, the promulgated monthly rates will result in an excess of $3,180 million, which amounts to 26.3 percent of the estimated total incurred expenditures for the following year.

5. STANDARD PREMIUM RATE

The law provides that the standard monthly premium rate, promulgated to apply for both aged and disabled enrollees, shall be the lesser of:

1. The adequate actuarial rate for enrollees age 65 and older; or
2. The current standard monthly premium, increased by the same percentage that the level of old-age, survivors, and disability insurance (OASDI) benefits has been increased since the May preceding the promulgation (and rounded to the nearer dime).

The standard monthly premium rate for the 12-month period ending with June 30, 1980, is $8.70. The OASDI benefit tables were increased 9.9 percent in June 1979. The $8.70 rate, increased by 9.9 percent and rounded to the nearer ten cent multiple, is $9.60. Since this is less than the adequate actuarial rate, the standard premium rate is $9.60 for the 12 months ending with June 1981.

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