# ACTUARIAL STATUS OF THE TRUST FUND

## 1. ACTUARIAL SOUNDNESS OF THE SUPPLEMENTARY MEDICAL INSURANCE PROGRAM

The concept of actuarial soundness, as it applies to the SMI program, is closely related to the concept as it applies to private group insurance. The SMI program essentially is yearly renewable term insurance financed 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 maintain assets at a level to pay for services (including associated administrative costs) expected to be rendered during that period, 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 those benefits not paid until after the close of the year is added to the trust fund until needed. Thus, the 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. Additionally, legislation enacted after the financing has been established but effective for the period for which the financing has been set, may affect program costs. As a result, the income to the program may not be equal to incurred costs; therefore, trust fund assets should be maintained at a level which is adequate to cover the impact of a moderate degree of variation between actual and projected costs, as well as the value of incurred but unpaid expenses.

In testing the actuarial soundness of the SMI 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) assets and income for years for which financing has been established be sufficient to meet the projected benefits and associated administrative expenses incurred for that period and (2) assets be sufficient to cover projected liabilities that will have been incurred by the end of that time but will not have been paid yet. 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. However, to protect against the possibility that cost increases under the program will be higher than assumed, assets should be sufficient to include contingency levels to cover the impact of a moderate degree of variation between actual and projected costs.

Contingency levels to accommodate cost increases that may be higher than expected are measured by the excess of assets over liabilities. An appropriate target level for this excess depends on numerous factors. The most important of these factors are: (1) the difference from prior years in the actual performance of the program and the estimates made at the time financing was established and (2) the expected relationship between incurred and cash expenditures. Ongoing analysis is made of the former as the trends in the differences vary over time.

## 2. INCURRED EXPERIENCE OF THE SUPPLEMENTARY MEDICAL INSURANCE PROGRAM

The tests of actuarial soundness of the SMI 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. Outstanding 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. 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 8 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.

## 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 the end of each financing period, and of the administrative expenses related to processing these benefits, appear in Table 9. For some 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.--ESTIMATED INCOME AND DISBURSEMENTS INCURRED UNDER THE SUPPLEMENTARY MEDICAL INSURANCE PROGRAM FOR FINANCING PERIODS THROUGH DECEMBER 31, 1988
(In millions)

| Financing period | Premiums from enrollees | Government contributions | Interest and other income | Benefit payments | Administrative expenses | Net operations in year |
|---|---|---|---|---|---|---|
| Historical: | | | | | | |
| 12-month period ending June 30, | | | | | | |
| 1967 | $ 647 | $ 647 | $ 15 | $1,109 | $123 1/ | $ 77 |
| 1968 | 698 | 698 | 21 | 1,443 | 155 | -181 |
| 1969 | 903 | 903 | 24 | 1,766 | 198 | -134 |
| 1970 | 936 | 936 | 12 | 1,929 | 213 | -258 |
| 1971 | 1,253 | 1,253 | 18 | 2,090 | 259 | 175 |
| 1972 | 1,340 | 1,340 | 29 | 2,289 | 259 | 161 |
| 1973 | 1,427 | 1,426 | 45 | 2,500 | 302 | 96 |
| 1974 | 1,704 | 2,031 | 76 | 3,149 | 353 | 309 |
| 1975 | 1,887 | 2,396 | 105 | 3,928 | 438 | 22 |
| 1976 | 1,951 | 2,972 | 109 | 4,818 | 485 | -271 |
| 1977 | 2,156 | 4,697 | 157 | 5,861 | 515 | 634 |
| 1978 | 2,358 | 5,991 | 254 | 6,948 | 511 | 1,144 |
| 1979 | 2,601 | 6,570 | 365 | 8,171 | 649 | 716 |
| 1980 | 2,823 | 6,627 | 421 | 9,937 | 645 | -711 |
| 1981 | 3,178 | 8,219 | 371 | 12,044 | 692 | -968 |
| 1982 | 3,737 | 12,488 | 495 | 14,062 | 728 | 1,930 |
| 1983 | 4,202 | 13,951 | 686 | 17,049 | 708 | 1,082 |
| Transition semester 2/ | 2,120 | 7,836 | 374 | 9,750 | 483 | 97 |
| Calendar year | | | | | | |
| 1984 | 5,167 | 17,052 | 962 | 20,515 | 869 | 1,797 |
| 1985 | 5,613 | 18,243 | 1,248 | 23,047 | 992 | 1,065 |
| 1986 | 5,722 | 17,802 | 1,141 | 27,123 | 1,001 | -3,459 |
| 1987 | 6,717 | 21,377 | 880 | 31,788 | 1,032 | -3,846 |
| Projected: | | | | | | |
| Calendar year | | | | | | |
| Alternative A: | | | | | | |
| 1988 | 9,403 | 28,144 | 657 | 35,976 | 1,079 | 1,149 |
| Alternative B: | | | | | | |
| 1988 | 9,403 | 28,144 | 658 | 35,978 | 1,076 | 1,151 |

1/ Includes administrative expenses incurred prior to the beginning of the program.
2/ The transition semester is the 6-month period July 1, 1983 to December 31, 1983.

Table 9.--SUMMARY OF ESTIMATED ASSETS AND LIABILITIES OF THE SUPPLEMENTARY MEDICAL INSURANCE PROGRAM AS OF THE END OF THE FINANCING PERIOD, FOR PERIODS THROUGH DECEMBER 31, 1988
(Dollar amounts in millions)

| | Balance in trust fund | Government contributions due but unpaid | Total assets | Benefits incurred but unpaid | Administrative costs incurred but unpaid | Total liabilities | Excess of assets over liabilities | Ratio 1/ |
|---|---|---|---|---|---|---|---|---|
| Historical: | | | | | | | | |
| As of June 30, | | | | | | | | |
| 1967 | $ 486 | $ 24 | $ 510 | $ 445 | $-12 | $ 433 | $ 77 | 0.05 |
| 1968 | 307 | 88 | 395 | 498 | 1 | 499 | -104 | -0.05 |
| 1969 | 378 | 7 | 385 | 619 | 4 | 623 | -238 | -0.11 |
| 1970 | 57 | 15 | 72 | 569 | 0 | 569 | -497 | -0.21 |
| 1971 | 290 | 22 | 312 | 624 | 11 | 635 | -323 | -0.13 |
| 1972 | 481 | -3 | 478 | 658 | -19 | 639 | -161 | -0.06 |
| 1973 | 746 | -7 | 739 | 767 | 37 | 804 | -65 | -0.02 |
| 1974 | 1,272 | -5 | 1,267 | 1,042 | -19 | 1,023 | 244 | 0.06 |
| 1975 | 1,424 | 67 | 1,491 | 1,205 | 14 | 1,219 | 272 | 0.05 |
| 1976 | 1,219 | 106 | 1,325 | 1,351 | -29 | 1,322 | 3 | 0.00 |
| 1977 | 2,170 | 91 | 2,261 | 1,623 | 3 | 1,626 | 635 | 0.09 |
| 1978 | 3,786 | 48 | 3,834 | 2,014 | 40 | 2,054 | 1,780 | 0.20 |
| 1979 | 4,880 | 2 | 4,882 | 2,265 | 123 | 2,388 | 2,494 | 0.24 |
| 1980 | 4,657 | 0 | 4,657 | 2,686 | 188 | 2,874 | 1,783 | 0.14 |
| 1981 | 3,801 | 0 | 3,801 | 2,972 | 13 | 2,985 | 816 | 0.06 |
| 1982 | 5,534 | 1 | 5,535 | 2,798 | -9 | 2,789 | 2,746 | 0.16 |
| 1983 | 6,780 | 2 | 6,782 | 3,002 | -48 | 2,954 | 3,828 | 0.19 |
| As of December 31, | | | | | | | | |
| 1983 | 7,070 | 1 | 7,071 | 3,214 | -69 | 3,145 | 3,926 | 0.18 |
| 1984 | 9,698 | 2 | 9,700 | 4,068 | -91 | 3,977 | 5,723 | 0.24 |
| 1985 | 10,924 | 0 | 10,924 | 4,168 | -32 | 4,136 | 6,788 | 0.24 |
| 1986 | 8,291 | 0 | 8,291 | 5,052 | -91 | 4,961 | 3,330 | 0.10 |
| 1987 | 8,394 2/ | 0 | 8,394 2/ | 6,020 | 20 | 6,040 | 2,354 2/ | 0.06 2/ |
| Projected: | | | | | | | | |
| Alternative A: | | | | | | | | |
| 1988 | 7,625 | 0 | 7,625 | 6,972 | 20 | 6,992 | 633 | 0.02 |
| Alternative B: | | | | | | | | |
| 1988 | 7,628 | 0 | 7,628 | 6,973 | 20 | 6,993 | 635 | 0.02 |

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

2/ Section 708 of Title VII of the Social Security Act modified the provisions for the delivery of Social Security benefit checks when the regularly designated day falls on a Saturday, Sunday, or legal public holiday. Delivery of benefit checks normally due January 1988 occurred on December 31, 1987. Consequently, the SMI premiums withheld from the checks ($692 million) and the general revenue matching contributions ($2,178 million) were added to the SMI trust fund on December 31, 1987.

The excess of assets over liabilities of $2,354 million as of December 31, 1987 that appears in Table 9 is higher than it ordinarily would be. As noted earlier, the Social Security benefit checks normally delivered in January 1988 were delivered on December 31, 1987. Consequently, the $692 million in SMI premiums withheld from the checks and $2,178 million in general revenue contributions were included in the assets as of December 31, 1987. If the benefit checks had been delivered in January 1988, the excess of assets over liabilities would have been -$516 million as of December 31, 1987.

Program financing has been established through December 31, 1988. The financing established for CY 1988 was designed to begin to build the assets to more appropriate levels to maintain the actuarial soundness of the trust fund. Furthermore, Public Law 100-203 was enacted on December 22, 1987 after the financing had been established for CY 1988. As a result of both of these measures and if the benefit checks delivered on December 31, 1987 were deemed to have been delivered in January 1988, the assets would increase so that assets would exceed liabilities at the end of December 1988 by $633 million under Alternative A and by $635 million under Alternative B. This excess as a percent of incurred expenditures for the following year is expected to increase from -1.4 percent as of December 31, 1987 to 1.5 percent as of December 31, 1988.

## 4. SENSITIVITY TESTING

Some of the assumptions underlying the projections 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 projections (Alternatives A and B) 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. The values for the alternative assumptions were determined from a study on the average historical variation in the respective increase factors.

Table 10 indicates that, under the low cost assumptions, trust fund assets would exceed liabilities by the end of December 1988 (the period through which financing has been established), reaching a level of 13.0 percent of the following year's incurred expenditures. If these low growth rates were actually to materialize, then subsequent financing rates would be adjusted downward in order to lower the excess of assets over liabilities to an appropriate level to maintain the actuarial soundness of the trust fund. Under the high cost assumptions, trust fund liabilities would exceed assets by the end of December 1988, reaching a level of -8.3 percent of the following year's incurred expenditures. If these high growth rates were to occur, the subsequent financing rates would have to be adjusted upward in order to generate more appropriate levels for the excess of assets over liabilities.

Table 10.--ACTUARIAL STATUS OF THE SMI TRUST FUND UNDER THREE SETS OF ASSUMPTIONS FOR FINANCING PERIODS THROUGH DECEMBER 31, 1988

| | This projection | | | Low cost projection | | | High cost projection | | |
|---|---|---|---|---|---|---|---|---|---|
| | 12-month period ending June 30, | | | 12-month period ending June 30, | | | 12-month period ending June 30, | | |
| | 1987 | 1988 | 1989 | 1987 | 1988 | 1989 | 1987 | 1988 | 1989 |
| Projection factors (in percent): 1/ | | | | | | | | | |
| Physician fees 2/ | | | | | | | | | |
| Aged | 4.8 | 3.5 | 2.3 | 4.5 | 2.6 | 1.2 | 5.1 | 4.3 | 3.4 |
| Disabled | 4.8 | 3.5 | 2.3 | 4.5 | 2.6 | 1.2 | 5.1 | 4.3 | 3.4 |
| Utilization of physician services 3/ | | | | | | | | | |
| Aged | 9.5 | 6.0 | 5.6 | 7.7 | 4.3 | 3.3 | 11.4 | 7.6 | 8.0 |
| Disabled | 9.6 | 2.9 | 5.4 | 6.7 | -0.4 | 1.1 | 12.5 | 6.2 | 9.7 |
| Outpatient hospital services per enrollee | | | | | | | | | |
| Aged | 22.5 | 18.2 | 14.6 | 17.8 | 11.5 | 7.0 | 27.2 | 25.0 | 22.2 |
| Disabled | 14.2 | 6.8 | 4.8 | 9.8 | -4.0 | -9.0 | 18.7 | 17.7 | 18.6 |
| | As of December 31, | | | As of December 31, | | | As of December 31, | | |
| | 1986 | 1987 | 1988 | 1986 | 1987 | 1988 | 1986 | 1987 | 1988 |
| Actuarial status (in millions): | | | | | | | | | |
| Assets | $8,291 | $8,394 4/ | $7,628 | $8,291 | $8,394 4/ | $10,017 | $8,291 | $8,394 4/ | $5,029 |
| Liabilities | 4,961 | 6,040 | 6,993 | 4,622 | 4,482 | 5,161 | 5,301 | 7,632 | 8,889 |
| Assets less liabilities | $3,330 | $2,354 4/ | $ 635 | $3,669 | $3,912 4/ | $4,856 | $2,990 | $ 762 4/ | $-3,860 |
| Ratio of assets less liabilities to expenditures (in percent) 5/ | 10.1 | 6.4 4/ | 1.5 | 11.6 | 11.3 4/ | 13.0 | 8.8 | 1.9 4/ | -8.3 |

1/ Because of the manner in which alternative economic assumptions affect the projected operations of the SMI program, there is not a substantial difference in the projections based upon the two sets of assumptions. Therefore only one projection, Alternative B is presented here. Appendix A presents an explanation of the effects of Alternative A and Alternative B on the projections in this report.

2/ As recognized for payment under the program.

3/ Increase in the number of services received per enrollee and greater relative use of more expensive services.

4/ Section 708 of Title VII of the Social Security Act modified the provisions for the delivery of Social Security benefit checks when the regularly designated delivery day falls on a Saturday, Sunday, or legal public holiday. Delivery of benefit checks normally due January 1988 occurred on December 31, 1987. Consequently, the SMI premiums withheld from the checks ($692 million) and the general revenue matching contributions ($2,178 million) were added to the SMI trust fund on December 31, 1987.

5/ Ratio of assets less liabilities at the end of the year to total incurred expenditures during the following year, expressed as a percent.

# CONCLUSION

The financing of the SMI program has been established through December 1988 by the setting of the standard monthly premium rate (paid by or on behalf of each enrollee) of $24.80 for CY 1988 and of actuarial rates that determine the amount to be contributed from general revenue on behalf of each enrollee. General revenue contributions are expected to account for 73.7 percent of all SMI income during CY 1988.

Under both sets of intermediate assumptions used in this report, disbursements are projected to exceed income during CY 1988. Income is composed of premiums paid by the enrollees, general revenue contributions, and interest earned by the trust fund. As a result, the assets in the trust fund on a cash basis are projected to decrease from $8.4 billion at the end of CY 1987 to an estimated $7.6 billion at the end of CY 1988. However, after adjusting for the January 1988 income received in December 1987, income is projected to exceed disbursements for CY 1988, and the assets in the trust fund are projected to increase from $5.5 billion at the end of CY 1987 to $7.6 billion at the end of CY 1988. In CY 1989, income is expected to exceed disbursements, and the assets in the trust fund are projected to increase to $8.9 billion by the end of the year.

The financing for CY 1988 was established to begin to build assets to more appropriate levels to maintain the actuarial soundness of the trust fund. In addition, Public Law 100-203 was enacted on December 22, 1987 after the financing had been established for CY 1988. As a result of both of these measures, assets are projected to exceed liabilities at the end of December 1988 by $633 million under Alternative A, and by $635 million under Alternative B, representing 1.5 percent of the projected incurred expenditures. Under more pessimistic

assumptions as to cost increases, assets based on financing already established will be insufficient to cover outstanding liabilities. However, the trust fund should remain positive allowing claims to be paid. Hence, the financing established through December 1988 is sufficient to cover projected benefit and administrative costs incurred through that time period, and to maintain a level of trust fund assets adequate to cover the impact of a small degree of variation between actual and projected costs.

Although the SMI program is financially sound, the Board notes with concern the rapid growth in the cost of the program. Growth rates have been so rapid that outlays of the program have doubled in the past five years. For the same time period, the program grew 40 percent faster than the economy as a whole. This growth rate shows no sign of abating despite recent efforts to control the cost of the program. The Board recommends that Congress continue to work to curtail the rapid growth in the SMI program.

# APPENDIX A

## ACTUARIAL METHODOLOGY AND PRINCIPAL ASSUMPTIONS FOR COST ESTIMATES FOR THE SUPPLEMENTARY MEDICAL INSURANCE PROGRAM

### 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 calculating reasonable charges incurred per enrollee in a recent year (the 12-month period ending June 30, 1986, 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 smaller amounts for other services such as laboratory tests, durable medical equipment and supplies) 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 reduction 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.

As a check on the validity of the projection base, incurred reimbursement amounts are compared with cash expenditures reported by the 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 the SMI program are paid by the same fiscal intermediaries that pay for HI services. The principal institutional services covered under the SMI program are outpatient hospital care 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). However, the cost of laboratory tests in outpatient departments of hospitals is no longer determined on a reasonable-cost basis but on a fee-schedule basis. 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 plans, which are not reimbursed through carriers, are reimbursed directly by the Health Care Financing Administration on a reasonable cost or on a capitation basis. Comprehensive data on such direct reimbursements are available on a cash basis. Certain approximations must be made to allocate 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 1986. Also shown are average enrollment figures for these years. In order to analyze the historical trends in prices and use of services, these reimbursement 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.

c. Per Enrollee Increases

(1) Physician Services

Per enrollee charges for physician services are affected by a variety of factors. One factor, increase in average charge per service, can be identified explicitly. Others can be recognized only by the fact that the increase in the average charge per service does 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 CPI provides an estimate of the historical increases in submitted charge per service. Increases in this index are shown in the first column of Table A3.

Table A1.--INCURRED REIMBURSEMENT AMOUNTS PER ENROLLEE: HISTORICAL

| Year ending June 30, | Average enrollment (millions) | All services | Physician | Outpatient hospital | Home health agency | Group practice prepayment plan | Independent lab |
|---|---|---|---|---|---|---|---|
| Aged: | | | | | | | |
| 1967 | 17.750 | $62.51 | $59.12 | $1.41 | $0.79 | $0.89 | $0.30 |
| 1968 | 18.038 | 80.06 | 74.47 | 2.40 | 1.49 | 1.35 | 0.35 |
| 1969 | 18.833 | 93.71 | 85.47 | 4.31 | 1.96 | 1.57 | 0.40 |
| 1970 | 19.312 | 99.91 | 90.03 | 5.91 | 1.99 | 1.50 | 0.48 |
| 1971 | 19.664 | 106.25 | 95.05 | 7.53 | 1.67 | 1.40 | 0.60 |
| 1972 | 20.043 | 114.22 | 101.63 | 8.55 | 1.60 | 1.66 | 0.78 |
| 1973 | 20.428 | 122.39 | 107.98 | 9.43 | 2.17 | 1.87 | 0.94 |
| 1974 | 20.988 | 134.38 | 117.48 | 11.32 | 2.03 | 2.35 | 1.20 |
| 1975 | 21.504 | 160.26 | 136.28 | 15.45 | 3.83 | 3.06 | 1.64 |
| 1976 | 22.089 | 188.60 | 156.27 | 21.26 | 5.19 | 3.86 | 2.02 |
| 1977 | 22.604 | 221.38 | 179.30 | 28.68 | 6.52 | 4.41 | 2.47 |
| 1978 | 23.133 | 254.20 | 207.05 | 33.38 | 6.82 | 4.03 | 2.92 |
| 1979 | 23.693 | 289.55 | 233.99 | 40.51 | 6.86 | 4.87 | 3.32 |
| 1980 | 24.287 | 343.00 | 277.24 | 47.08 | 7.58 | 7.04 | 4.06 |
| 1981 | 24.827 | 407.42 | 328.14 | 56.72 | 8.04 | 9.13 | 5.39 |
| 1982 | 25.363 | 465.40 | 381.02 | 66.41 | 0.52 | 10.98 | 6.47 |
| 1983 | 25.873 | 558.26 | 454.90 | 81.70 | 0.77 | 13.55 | 7.34 |
| 1984 | 26.433 | 638.57 | 511.35 | 100.31 | 0.99 | 16.78 | 9.14 |
| 1985 | 26.914 | 701.18 | 537.99 | 128.07 | 1.05 | 19.11 | 14.96 |
| 1986 | 27.453 | 790.24 | 603.21 | 133.88 | 1.17 | 30.56 | 21.42 |
| Disabled (excluding ESRD): | | | | | | | |
| 1974 | 1.638 | 116.65 | 97.59 | 13.88 | 3.45 | 1.08 | 0.65 |
| 1975 | 1.816 | 149.48 | 125.69 | 17.32 | 3.57 | 1.84 | 1.06 |
| 1976 | 2.018 | 178.83 | 148.38 | 21.70 | 5.12 | 2.17 | 1.46 |
| 1977 | 2.231 | 220.43 | 174.81 | 36.44 | 4.79 | 2.39 | 2.00 |
| 1978 | 2.423 | 256.25 | 202.91 | 42.76 | 5.53 | 2.45 | 2.60 |
| 1979 | 2.563 | 301.57 | 240.74 | 50.49 | 5.13 | 2.04 | 3.17 |
| 1980 | 2.641 | 363.44 | 288.53 | 60.72 | 6.09 | 4.27 | 3.83 |
| 1981 | 2,687 | 430.92 | 340.65 | 73.21 | 7.22 | 5.14 | 4.70 |
| 1982 | 2.685 | 517.42 | 395.48 | 109.82 | 0.00 | 6.26 | 5.86 |
| 1983 | 2.628 | 632.79 | 485.68 | 132.26 | 0.00 | 7.56 | 7.29 |
| 1984 | 2.593 | 675.38 | 528.24 | 129.98 | 0.00 | 8.25 | 8.91 |
| 1985 | 2.593 | 712.80 | 550.16 | 140.29 | 0.00 | 8.76 | 13.59 |
| 1986 | 2.629 | 766.09 | 585.04 | 150.33 | 0.00 | 11.76 | 18.96 |

Table A2.--INCURRED REASONABLE CHARGES OR COSTS PER ENROLLEE: HISTORICAL

| Year ending June 30, | Average enrollment (millions) | All services | Physician | Outpatient hospital | Home health agency | Group practice prepayment plan | Independent lab |
|---|---|---|---|---|---|---|---|
| Aged: | | | | | | | |
| 1967 | 17.750 | $108.58 | $102.70 | $2.45 | $1.37 | $1.54 | $0.52 |
| 1968 | 18.038 | 128.08 | 119.02 | 3.89 | 2.42 | 2.18 | 0.57 |
| 1969 | 18.833 | 145.17 | 131.91 | 6.93 | 3.15 | 2.53 | 0.65 |
| 1970 | 19.312 | 153.63 | 137.86 | 9.43 | 3.17 | 2.40 | 0.77 |
| 1971 | 19.664 | 162.10 | 144.41 | 11.89 | 2.64 | 2.21 | 0.95 |
| 1972 | 20.043 | 172.75 | 153.15 | 13.32 | 2.49 | 2.58 | 1.21 |
| 1973 | 20.428 | 186.21 | 163.99 | 14.79 | 3.02 | 2.94 | 1.47 |
| 1974 | 20.988 | 204.19 | 178.33 | 17.75 | 2.54 | 3.69 | 1.88 |
| 1975 | 21.504 | 236.59 | 201.27 | 23.51 | 4.66 | 4.66 | 2.49 |
| 1976 | 22.089 | 272.01 | 225.46 | 31.62 | 6.18 | 5.74 | 3.01 |
| 1977 | 22.604 | 313.23 | 253.83 | 41.77 | 7.60 | 6.43 | 3.60 |
| 1978 | 23.133 | 354.22 | 288.60 | 47.85 | 7.82 | 5.77 | 4.18 |
| 1979 | 23.693 | 398.81 | 322.19 | 57.28 | 7.76 | 6.89 | 4.69 |
| 1980 | 24.287 | 465.78 | 376.39 | 65.50 | 8.44 | 9.80 | 5.65 |
| 1981 | 24.827 | 545.28 | 438.85 | 77.72 | 8.81 | 12.51 | 7.39 |
| 1982 | 25.363 | 629.09 | 513.50 | 91.12 | 0.52 | 15.07 | 8.88 |
| 1983 | 25.873 | 753.23 | 613.18 | 110.92 | 0.77 | 18.40 | 9.96 |
| 1984 | 26.433 | 855.86 | 685.14 | 134.88 | 0.99 | 22.56 | 12.29 |
| 1985 | 26.914 | 922.21 | 707.94 | 172.52 | 1.05 | 25.74 | 14.96 |
| 1986 | 27.453 | 1,028.12 | 785.09 | 179.47 | 1.17 | 40.97 | 21.42 |
| Disabled (excluding ESRD): | | | | | | | |
| 1974 | 1.638 | 171.05 | 143.27 | 20.99 | 4.17 | 1.63 | 0.99 |
| 1975 | 1.816 | 212.15 | 178.49 | 25.26 | 4.17 | 2.69 | 1.54 |
| 1976 | 2.018 | 250.25 | 207.86 | 31.25 | 5.90 | 3.13 | 2.11 |
| 1977 | 2.231 | 303.47 | 240.43 | 51.44 | 5.41 | 3.37 | 2.82 |
| 1978 | 2.423 | 349.56 | 276.50 | 59.80 | 6.19 | 3.43 | 3.64 |
| 1979 | 2.563 | 406.69 | 324.16 | 69.68 | 5.66 | 2.81 | 4.38 |
| 1980 | 2.641 | 484.35 | 383.99 | 82.69 | 6.63 | 5.82 | 5.22 |
| 1981 | 2.687 | 568.19 | 448.53 | 98.63 | 7.78 | 6.92 | 6.33 |
| 1982 | 2.685 | 687.51 | 523.38 | 147.81 | 0.00 | 8.43 | 7.89 |
| 1983 | 2.628 | 839.84 | 643.57 | 176.45 | 0.00 | 10.09 | 9.73 |
| 1984 | 2.593 | 895.85 | 700.15 | 172.88 | 0.00 | 10.97 | 11.85 |
| 1985 | 2.593 | 931.11 | 718.41 | 187.41 | 0.00 | 11.70 | 13.59 |
| 1986 | 2.629 | 993.28 | 758.09 | 200.54 | 0.00 | 15.69 | 18.96 |

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 | | Residual factors | Total increase in recognized charges per enrollee |
|---|---|---|---|---|
| | Increase in physician fee component of CPI | Net increase in reasonable charges | | |
| Aged: | | | | |
| 1967 | 7.6 | | | |
| 1968 | 5.9 | 4.8 | 10.6 | 15.9 |
| 1969 | 6.2 | 4.7 | 5.9 | 10.8 |
| 1970 | 6.7 | 3.9 | 0.6 | 4.5 |
| 1971 | 7.5 | 4.5 | 0.3 | 4.8 |
| 1972 | 5.2 | 3.9 | 2.0 | 6.0 |
| 1973 | 2.6 | 2.0 | 5.0 | 7.1 |
| 1974 | 5.0 | 3.2 | 5.4 | 8.8 |
| 1975 | 12.8 | 8.9 | 3.6 | 12.8 |
| 1976 | 11.4 | 8.2 | 3.5 | 12.0 |
| 1977 | 10.2 | 9.0 | 3.3 | 12.6 |
| 1978 | 8.9 | 9.0 | 4.3 | 13.7 |
| 1979 | 8.6 | 7.8 | 3.6 | 11.7 |
| 1980 | 11.5 | 8.6 | 7.6 | 16.8 |
| 1981 | 11.1 | 7.7 | 8.3 | 16.6 |
| 1982 | 9.9 | 10.8 | 5.6 | 17.0 |
| 1983 | 8.2 | 8.9 | 9.6 | 19.4 |
| 1984 | 7.5 | 7.2 | 4.2 | 11.7 |
| 1985 | 6.0 | 0.8 | 2.5 | 3.3 |
| 1986 | 6.7 | 0.0 | 10.9 | 10.9 |
| Disabled (excluding ESRD): | | | | |
| 1974 | 5.0 | | | |
| 1975 | 12.8 | 8.9 | 14.4 | 24.6 |
| 1976 | 11.4 | 8.2 | 7.6 | 16.4 |
| 1977 | 10.2 | 9.0 | 6.1 | 15.6 |
| 1978 | 8.9 | 9.0 | 5.5 | 15.0 |
| 1979 | 8.6 | 7.8 | 8.8 | 17.3 |
| 1980 | 11.5 | 8.6 | 9.1 | 18.5 |
| 1981 | 11.1 | 7.7 | 8.4 | 16.7 |
| 1982 | 9.9 | 10.7 | 5.4 | 16.7 |
| 1983 | 8.2 | 8.9 | 12.9 | 23.0 |
| 1984 | 7.5 | 7.2 | 1.5 | 8.8 |
| 1985 | 6.0 | 0.8 | 1.8 | 2.6 |
| 1986 | 6.7 | 0.0 | 5.6 | 5.6 |

Bills submitted to the carriers during a specified period, the fee-screen year, are subject by statute to certain limitations on the level of fees to be recognized by the program for reimbursement purposes. Prior to the passage of Public Law 98-369, the fee-screen year was the 12-month period ending July 30. Public Law 98-369 changed the fee-screen year to the 12-month period ending September 30, effective on October 1, 1985, and Public Law 99-272 changed the fee-screen year to a calendar-year basis effective January 1, 1987. 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 base period. Public Law 98-369 changed the base period from the preceding calendar year to the preceding 12-month period ending March 31, and Public Law 99-272 changed the base period to the preceding 12-month period ending June 30. This median charge is called the "customary charge." Fees are subject to further reduction if they exceed the prevailing charges 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 the MEI. The customary and prevailing charge limits maintained by the carriers are called "fee screens." Reasonable charges, after they have been reduced by the fee screens, are charges on which reimbursement is based.

Certain services included with the physician services are not subject to the same fee-screen reduction process as described above. Effective October 1, 1985, there is an additional screen considered for nonphysician services, supplies, and equipment. After applying the customary and prevailing charge screens, fees are further reduced if they exceed the inflation-indexed charge (IIC). The IIC

represents the lowest of the reasonable charge screens from the preceding fee-screen year as adjusted by an inflation factor. Effective July 1, 1984 charges for laboratory tests performed in physician offices and independent laboratories are determined by fee schedules. These fee schedules are updated at the beginning of the fee-screen year by an inflation adjustment factor.

Since legislation has twice changed the time span of the fee-screen year, and since the two transitional fee-screen years (1985 and 1986) cover 15-month periods, data presented in Tables A1 through A8 will be displayed for the same 12-month basis for all years. This basis will be the 12-month periods ending June 30.

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 period in which the fee screens are established and the 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 this increase in per enrollee charges due to price changes.

Per capita charges also have increased each year as a result of a number of possible factors including more physician visits per enrollee, the aging of the Medicare enrollment, greater use of specialists and more expensive techniques, and certain administrative actions. The third column of Table A3 shows the increases 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 last column of Table A3 shows the total increases 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. It compares with the corresponding historical data shown in Table A3. Column 1 of Table A4 shows the projected increases in the physician fee component of the CPI in each of the years ending June 30, 1987 through June 30, 1991. It represents an estimate of projected increases in the submitted fees disregarding the impact of the MAAC. Column 2 shows the projected net increases in reasonable charges, and column 3 shows the increases due to residual causes.

(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. Because these series provide only a rough indication of future trends in costs, identical series of increase factors are used for Alternative A and Alternative B.

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

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 in physician fee component of CPI | Increase due to price changes: Net increase in reasonable charges | Residual factors | Total increase in recognized charges per enrollee |
|---|---|---|---|---|
| Alternative A: | | | | |
| Aged: | | | | |
| 1987 | 7.5 | 4.8 | 9.5 | 14.8 |
| 1988 | 6.7 | 3.5 | 6.0 | 9.7 |
| 1989 | 6.8 | 2.3 | 5.6 | 8.0 |
| 1990 | 6.5 | 3.5 | 4.7 | 8.4 |
| 1991 | 6.3 | 4.8 | 4.7 | 9.7 |
| Disabled (excluding ESRD): | | | | |
| 1987 | 7.5 | 4.8 | 9.6 | 14.9 |
| 1988 | 6.7 | 3.5 | 2.9 | 6.5 |
| 1989 | 6.8 | 2.3 | 5.4 | 7.8 |
| 1990 | 6.5 | 3.5 | 5.0 | 8.7 |
| 1991 | 6.3 | 4.8 | 5.4 | 10.5 |
| Alternative B: | | | | |
| Aged: | | | | |
| 1987 | 7.5 | 4.8 | 9.5 | 14.8 |
| 1988 | 6.8 | 3.5 | 6.0 | 9.7 |
| 1989 | 7.3 | 2.3 | 5.6 | 8.0 |
| 1990 | 7.2 | 3.6 | 4.7 | 8.5 |
| 1991 | 7.2 | 4.9 | 4.7 | 9.8 |
| Disabled (excluding ESRD): | | | | |
| 1987 | 7.5 | 4.8 | 9.6 | 14.9 |
| 1988 | 6.8 | 3.5 | 2.9 | 6.5 |
| 1989 | 7.3 | 2.3 | 5.4 | 7.8 |
| 1990 | 7.2 | 3.6 | 5.0 | 8.8 |
| 1991 | 7.2 | 4.9 | 5.4 | 10.6 |

Table A5.--INCREASE IN RECOGNIZED CHARGES AND COSTS PER ENROLLEE FOR INSTITUTIONAL AND OTHER SERVICES
(In percent)

| Year ending June 30, | Outpatient hospital | Home health agency | Group practice prepayment plan | Independent lab |
|---|---|---|---|---|
| Aged: | | | | |
| Historical: | | | | |
| 1968 | 58.8 | 76.2 | 41.6 | 9.6 |
| 1969 | 78.1 | 30.2 | 16.1 | 14.0 |
| 1970 | 36.1 | 0.6 | -5.1 | 18.5 |
| 1971 | 26.1 | -16.7 | -7.9 | 23.4 |
| 1972 | 12.0 | -5.7 | 16.7 | 27.4 |
| 1973 | 11.0 | 21.3 | 14.0 | 21.5 |
| 1974 | 20.0 | -15.9 | 25.5 | 27.9 |
| 1975 | 32.5 | 83.5 | 26.3 | 32.4 |
| 1976 | 34.5 | 32.6 | 23.2 | 20.9 |
| 1977 | 32.1 | 23.0 | 12.0 | 19.6 |
| 1978 | 14.6 | 2.9 | -10.3 | 16.1 |
| 1979 | 19.7 | -0.8 | 19.4 | 12.2 |
| 1980 | 14.4 | 8.8 | 42.2 | 20.5 |
| 1981 | 18.7 | 4.4 | 27.7 | 30.8 |
| 1981 | 17.2 | -94.1 | 20.5 | 20.2 |
| 1983 | 21.7 | 48.1 | 22.1 | 12.2 |
| 1984 | 21.6 | 28.6 | 22.6 | 23.4 |
| 1985 | 27.9 | 6.1 | 14.1 | 21.7 |
| 1986 | 4.0 | 11.4 | 59.2 | 43.2 |
| Projected: | | | | |
| 1987 | 22.5 | 6.7 | 37.9 | 27.7 |
| 1988 | 18.2 | 11.8 | 22.6 | 14.4 |
| 1989 | 14.6 | 10.4 | 19.0 | 13.9 |
| 1990 | 17.2 | 9.0 | 14.7 | 21.0 |
| 1991 | 18.0 | 10.1 | 15.0 | 20.7 |
| Disabled (excluding ESRD): | | | | |
| Historical: | | | | |
| 1975 | 20.3 | 0.0 | 65.0 | 55.6 |
| 1976 | 23.7 | 41.5 | 16.4 | 37.0 |
| 1977 | 64.6 | -8.3 | 7.7 | 33.6 |
| 1978 | 16.3 | 14.4 | 1.8 | 29.1 |
| 1979 | 16.5 | -8.6 | -18.1 | 20.3 |
| 1980 | 18.7 | 17.1 | 107.1 | 19.2 |
| 1981 | 19.3 | 17.3 | 18.9 | 21.3 |
| 1982 | 49.9 | -100.0 | 21.8 | 24.6 |
| 1983 | 19.4 | 0.0 | 19.7 | 23.3 |
| 1984 | -2.0 | 0.0 | 8.7 | 21.8 |
| 1985 | 8.4 | 0.0 | 6.7 | 14.7 |
| 1986 | 7.0 | 0.0 | 34.1 | 39.5 |
| Projected: | | | | |
| 1987 | 14.2 | 0.0 | 38.8 | 28.1 |
| 1988 | 6.8 | 0.0 | 21.4 | 8.2 |
| 1989 | 4.8 | 0.0 | 19.7 | 11.0 |
| 1990 | 8.8 | 0.0 | 14.5 | 21.6 |
| 1991 | 10.3 | 0.0 | 14.5 | 21.7 |

Table A6.--INCURRED REASONABLE CHARGES OR COSTS PER ENROLLEE: PROJECTED

| Year ending June 30, | All services | Physician | Outpatient hospital | Home health agency | Group practice prepayment plan | Independent lab |
|---|---|---|---|---|---|---|
| Alternative A: | | | | | | |
| Aged: | | | | | | |
| 1987 | $1,206.02 | $ 901.00 | $219.90 | $1.25 | $56.52 | $27.35 |
| 1988 | 1,349.84 | 987.89 | 259.98 | 1.40 | 69.29 | 31.28 |
| 1989 | 1,484.76 | 1,067.25 | 297.92 | 1.55 | 82.44 | 35.60 |
| 1990 | 1,644.58 | 1,156.35 | 349.07 | 1.69 | 94.53 | 42.94 |
| 1991 | 1,842.80 | 1,268.82 | 411.90 | 1.86 | 108.68 | 51.54 |
| Disabled (excluding ESRD): | | | | | | |
| 1987 | 1,145.82 | 870.68 | 229.09 | 0.00 | 21.77 | 24.28 |
| 1988 | 1,224.12 | 926.65 | 244.77 | 0.00 | 26.44 | 26.26 |
| 1989 | 1,316.21 | 998.89 | 256.55 | 0.00 | 31.65 | 29.12 |
| 1990 | 1,436.07 | 1,085.38 | 279.14 | 0.00 | 36.25 | 35.30 |
| 1991 | 1,591.25 | 1,198.97 | 308.03 | 0.00 | 41.51 | 42.74 |
| Alternative B: | | | | | | |
| Aged: | | | | | | |
| 1987 | 1,206.02 | 901.00 | 219.90 | 1.25 | 56.52 | 27.35 |
| 1988 | 1,349.84 | 987.89 | 259.98 | 1.40 | 69.29 | 31.28 |
| 1989 | 1,484.88 | 1,067.35 | 297.92 | 1.55 | 82.44 | 35.62 |
| 1990 | 1,645.85 | 1,157.47 | 349.07 | 1.69 | 94.53 | 43.09 |
| 1991 | 1,846.31 | 1,271.87 | 411.90 | 1.86 | 108.68 | 52.00 |
| Disabled (excluding ESRD): | | | | | | |
| 1987 | 1,145.82 | 870.68 | 229.09 | 0.00 | 21.77 | 24.28 |
| 1988 | 1,224.12 | 926.65 | 244.77 | 0.00 | 26.44 | 26.26 |
| 1989 | 1,316.33 | 998.99 | 256.55 | 0.00 | 31.65 | 29.14 |
| 1990 | 1,437.25 | 1,086.43 | 279.14 | 0.00 | 36.25 | 35.43 |
| 1991 | 1,594.52 | 1,201.85 | 308.03 | 0.00 | 41.51 | 43.13 |

Table A7.--INCURRED REIMBURSEMENT AMOUNTS: PROJECTED

| Year ending June 30, | Average enrollment (millions) | Reimbursement amounts | |
|---|---|---|---|
| | | Per enrollee | Aggregate (millions) |
| Alternative A: | | | |
| Aged: | | | |
| 1987 | 28.013 | $ 939.78 | $26,326 |
| 1988 | 28.575 | 1,057.64 | 30,222 |
| 1989 | 29.132 | 1,168.61 | 34,044 |
| 1990 | 29.688 | 1,300.32 | 38,604 |
| 1991 | 30.209 | 1,463.54 | 44,212 |
| Disabled (excluding ESRD): | | | |
| 1987 | 2.676 | 895.74 | 2,397 |
| 1988 | 2.722 | 960.32 | 2,614 |
| 1989 | 2.762 | 1,036.21 | 2,862 |
| 1990 | 2.801 | 1,136.02 | 3,182 |
| 1991 | 2.841 | 1,264.34 | 3,592 |
| Alternative B: | | | |
| Aged: | | | |
| 1987 | 28.013 | 939.78 | 26,326 |
| 1988 | 28.575 | 1,057.64 | 30,222 |
| 1989 | 29.132 | 1,168.71 | 34,047 |
| 1990 | 29.688 | 1,301.37 | 38,635 |
| 1991 | 30.209 | 1,466.52 | 44,302 |
| Disabled (excluding ESRD): | | | |
| 1987 | 2.676 | 895.74 | 2,397 |
| 1988 | 2.722 | 960.32 | 2,614 |
| 1989 | 2.762 | 1,036.21 | 2,862 |
| 1990 | 2.801 | 1,137.09 | 3,185 |
| 1991 | 2.841 | 1,267.16 | 3,600 |

Table A8.--INCURRED REIMBURSEMENT AMOUNTS FOR END STAGE RENAL DISEASE

| Year ending June 30, | Disabled ESRD and ESRD only | | | ESRD only | |
|---|---|---|---|---|---|
| | | Reimbursement amounts | | Reimbursement amounts | |
| | Average enrollment (thousands) | Per enrollee | Aggregate (millions) | Aggregate (millions) | |
| 1974 | 12 | $11,333 | $ 136 | $ 96 | |
| 1975 | 18 | 11,778 | 212 | 144 | |
| 1976 | 24 | 12,125 | 291 | 190 | |
| 1977 | 29 | 12,621 | 366 | 229 | |
| 1978 | 32 | 13,938 | 446 | 273 | |
| 1979 | 38 | 14,158 | 538 | 322 | |
| 1980 | 44 | 14,727 | 648 | 408 | |
| 1981 | 49 | 15,714 | 770 | 470 | |
| 1982 | 54 | 16,093 | 869 | 475 | |
| 1983 | 59 | 15,949 | 941 | 491 | |
| 1984 | 65 | 13,154 | 855 | 399 | |
| 1985 | 69 | 11,928 | 823 | 377 | |
| 1986 | 75 | 11,227 | 842 | 398 | |
| 1987 | 82 | 11,854 | 972 | 497 | |
| 1988 | 86 | 12,151 | 1,045 | 550 | |
| 1989 | 90 | 12,233 | 1,101 | 595 | |
| 1990 | 94 | 12,479 | 1,173 | 636 | |
| 1991 | 97 | 12,876 | 1,249 | 687 | |

reimbursement amounts shown are derived by multiplying average enrollment by average reimbursement per enrollee.

## 2. ESTIMATES FOR PERSONS SUFFERING FROM END STAGE RENAL DISEASE

Certain persons suffering from ESRD have been eligible to enroll for SMI coverage since July 1973 (under Section 299I of Public Law 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 per capita charges for SMI ESRD services under Medicare will increase at an average of 2.6 percent per year during the projected period (July 1, 1986 through June 30, 1991). The estimates also assume a continued increase in enrollment. The historical and projected enrollment and costs are shown in Table A8.

## 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 years* | 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 | 2,537 | $ 198 | $ 139 | 2,874 |
| 1975 | 3,289 | 265 | 211 | 3,765 |
| 1976 | 4,037 | 347 | 288 | 4,672 |
| T.Q. | 1,078 | 111 | 80 | 1,269 |
| 1977 | 5,005 | 502 | 360 | 5,867 |
| 1978 | 5,785 | 625 | 442 | 6,852 |
| 1979 | 6,929 | 792 | 538 | 8,259 |
| 1980 | 8,485 | 993 | 666 | 10,144 |
| 1981 | 10,362 | 1,190 | 793 | 12,345 |
| 1982 | 12,404 | 1,468 | 934 | 14,806 |
| 1983 | 14,783 | 1,730 | 974 | 17,487 |
| 1984 | 16,803 | 1,806 | 864 | 19,473 |
| 1985 | 19,080 | 1,911 | 817 | 21,808 |
| 1986 | 22,070 | 2,174 | 925 | 25,169 |
| 1987 | 26,350 | 2,560 | 1,027 | 29,937 |
| Projected: | | | | |
| Alternative A: | | | | |
| 1988 | 30,321 | 2,620 | 1,051 | 33,992 |
| 1989 | 34,351 | 2,884 | 1,112 | 38,347 |
| 1990 | 39,163 | 3,224 | 1,181 | 43,568 |
| 1991 | 44,825 | 3,645 | 1,260 | 49,730 |
| Alternative B: | | | | |
| 1988 | 30,321 | 2,620 | 1,051 | 33,992 |
| 1989 | 34,360 | 2,884 | 1,112 | 38,356 |
| 1990 | 39,202 | 3,228 | 1,181 | 43,611 |
| 1991 | 44,936 | 3,653 | 1,260 | 49,849 |

* For 1967 through 1976, fiscal years cover the interval from July 1 through June 30; the three month interval from July 1, 1976, through September 30, 1976, is labeled "T.Q.," the transition quarter; fiscal years 1977-1991 cover the interval from October 1 through September 30.

## 4. ADMINISTRATIVE EXPENSES

The ratio of administrative expenses to benefit payments has been under 5 percent in recent years and is projected to decline in future years. Projections of administrative costs are based on estimates of changes in average annual wages.

# APPENDIX B

## Statement of Actuarial Assumptions and Bases Employed in Determining the Monthly Actuarial Rates and the Standard Monthly Premium Rate for the Supplementary Medical Insurance Program Beginning January 1988*

### 1. Actuarial Status of the Supplementary Medical Insurance Trust Fund

Under the law, the starting point for determining the monthly premium is the amount that would be necessary to finance the SMI program on an incurred basis, i.e., the amount of income that would be sufficient to pay for services furnished during that year (including associated administrative costs) even though payment for some of these services will not be made until after the close of the year. The portion of income required to cover benefits not paid until after the close of the calendar year is added to the trust fund and used when needed.

Because the 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 that is adequate to cover 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 the end of the financing period for 1986 through 1987.

* This statement appeared in the Federal Register of September 30, 1987. Projections shown in this statement differ from the projections shown in the rest of the report because of changes in assumptions since the rates were announced.

TABLE 1--ESTIMATED ACTUARIAL STATUS OF THE SMI TRUST FUND
AS OF THE END OF THE FINANCING PERIODS,
JANUARY 1, 1986--DECEMBER 31, 1987
(In Millions of Dollars)

| Financing Period Ending | Assets | Liabilities | Assets Less Liabilities |
|---|---|---|---|
| December 31, 1986 | $8,291 | $5,106 | $3,185 |
| December 31, 1987 | 4,793 | 6,287 | -1,494 |

2. Monthly Actuarial Rate for Enrollees Age 65 and Older

The monthly actuarial rate is one-half of the monthly projected cost of benefits and administrative expenses for each enrollee age 65 and older, adjusted to allow for interest earnings on assets in the trust fund and a contingency margin. The contingency margin is an amount appropriate to provide for a moderate degree of projection error and to amortize unfunded liabilities.

The monthly actuarial rate for enrollees age 65 and older for calendar year 1988 was determined by projecting per-enrollee cost for the 12-month periods ending June 30, 1988, and June 30, 1989, by type of service. Although the actuarial rates are now applicable for calendar years, projections of per-enrollee costs were determined on a July to June period, consistent with the July 1 annual fee screen update used for benefits prior to the passage of section 2306(b) of Pub. L. 98-369. The values for the 12-month period ending June 30, 1985, were established from program data. Subsequent periods were projected using a combination of program data and data from external sources. The projection factors used are shown in Table 2. Those per-enrollee values

TABLE 2--PROJECTION FACTORS[1/]
12-MONTH PERIODS ENDING JUNE 30 OF 1985-1989
(In percent)

| 12-month period ending June 30 | Physicians' services | | Outpatient hospital services | Home health agency services | Group practice prepayment plans | Independent lab services |
|---|---|---|---|---|---|---|
| | Fees[2/] | Residual[3/] | | | | |
| Aged: | | | | | | |
| 1985 | 0.8 | 4.6 | 27.8 | 6.1 | 12.9 | 23.3 |
| 1986 | 0.4 | 8.9 | 4.2 | 5.4 | 57.7 | 42.5 |
| 1987 | 6.8 | 9.5 | 21.7 | 10.8 | 38.0 | 13.1 |
| 1988 | 4.6 | 7.6 | 18.1 | 12.4 | 22.3 | 18.0 |
| 1989 | 3.4 | 5.8 | 18.3 | 10.7 | 19.0 | 17.6 |
| Disabled: | | | | | | |
| 1985 | 0.8 | 1.7 | 8.3 | 0.0 | 26.4 | 14.8 |
| 1986 | 0.4 | 3.2 | 7.1 | 0.0 | 60.1 | 49.5 |
| 1987 | 6.8 | 9.1 | 13.4 | 0.0 | 18.7 | 9.0 |
| 1988 | 4.6 | 6.5 | 7.5 | 0.0 | -1.1 | -3.9 |
| 1989 | 3.4 | 6.0 | 10.1 | 0.0 | 30.9 | 14.2 |

1/ All values are per enrollee.
2/ As recognized for payment under the program.
3/ Increase in the number of services received per enrollee and greater relative use of more expensive services.

are then adjusted to apply to a calendar year period. The projected values for financing periods from January 1, 1985, through December 31, 1988, are shown in Table 3.

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 calendar year 1988 is $49.53. The monthly actuarial rate of $49.60 provides an adjustment of -$0.06 for interest earnings and $0.13 for a contingency margin. Based on current estimates, it appears that the assets are not sufficient to cover the amount of incurred but unpaid expenses and to provide for a moderate degree of projection error. Thus, a positive contingency margin is needed to build assets toward an appropriate level.

3. Monthly Actuarial Rate for Disabled Enrollees

Disabled enrollees are those persons enrolled in SMI because of entitlement (before age 65) to disabiltiy benefits for more than 24 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 projection for the aged, using appropriate actuarial assumptions (see Table 2). Costs for the end-stage renal disease program are projected differently because of the complex demographic problems involved. The combined results for all disabled enrollees are shown in Table 4.

TABLE 3--DERIVATION OF MONTHLY ACTUARIAL RATE FOR ENROLLEES AGE 65 AND OVER FINANCING PERIODS ENDING DECEMBER 31, 1985 THROUGH DECEMBER 31, 1988

| | Financing Periods | | | |
|---|---|---|---|---|
| | CY 1985 | CY 1986 | CY 1987 | CY 1988 |
| Covered services (at level recognized): | | | | |
| Physicians' reasonable charges | $31.28 | $35.45 | $40.63 | $45.06 |
| Outpatient hospital and other institutions | 7.34 | 8.30 | 9.94 | 11.75 |
| Home health agencies | 0.05 | 0.05 | 0.05 | 0.06 |
| Group practice prepayment plans | 1.43 | 2.08 | 2.67 | 3.22 |
| Independent lab | 0.77 | 0.96 | 1.11 | 1.31 |
| Total services | $40.87 | $46.84 | $54.40 | $61.40 |
| Cost-Sharing: | | | | |
| Deductible | -2.63 | -2.69 | -2.69 | -2.68 |
| Coinsurance | -6.98 | -7.98 | -9.34 | -10.61 |
| Total benefits | $31.26 | $36.17 | $42.37 | $48.11 |
| Administrative expenses | 1.34 | 1.37 | 1.39 | 1.42 |
| Incurred expenditures | $32.60 | $37.54 | $43.76 | $49.53 |
| Value of interest | -1.17 | -0.92 | -0.34 | -0.06 |
| Contingency margin for projection error and to amortize the surplus or deficit | -0.43 | -5.62 | -7.62 | 0.13 |
| Monthly actuarial rate | $31.00 | $31.00 | $35.80 | $49.60 |

TABLE 4--DERIVATION OF MONTHLY ACTUARIAL RATE FOR DISABLED ENROLLEES
FINANCING PERIODS ENDING DECEMBER 31, 1985 THROUGH DECEMBER 31, 1988

| | Financing Periods | | | |
|---|---|---|---|---|
| | CY 1985 | CY 1986 | CY 1987 | CY 1988 |
| Covered services (at level recognized): | | | | |
| Physicians' reasonable charges | $33.74 | $37.45 | $42.78 | $47.23 |
| Outpatient hospital and other institutions | 19.97 | 20.93 | 22.21 | 23.46 |
| Home health agencies | 0.00 | 0.00 | 0.00 | 0.00 |
| Group practice prepayment plans | 0.08 | 0.11 | 0.12 | 0.13 |
| Independent lab | 0.91 | 1.11 | 1.17 | 1.25 |
| Total services | $54.70 | $59.60 | $66.28 | $72.07 |
| Cost-Sharing: | | | | |
| Deductible | -2.35 | -2.40 | -2.39 | -2.38 |
| Coinsurance | -9.85 | -10.66 | -11.90 | -12.97 |
| Total benefits | $42.50 | $46.54 | $51.99 | $56.72 |
| Administrative expenses | 1.82 | 1.76 | 1.70 | 1.67 |
| Incurred expenditures | $44.32 | $48.30 | $53.69 | $58.39 |
| Value of interest | -7.45 | -8.13 | -9.36 | -9.79 |
| Contingency margin for projection error and to amortize the surplus or deficit | 15.83 | 0.63 | 8.67 | -0.00 |
| Monthly actuarial rate | $52.70 | $40.80 | $53.00 | $48.60 |

The projected monthly rate required to pay for one-half of the total of benefits and administrative costs for disabled enrollees for calendar year 1988 is $58.39. The monthly actuarial rate of $48.60 provides an adjustment of -$9.79 for interest earnings and a $0.00 for a contingency margin.

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 of the rates announced here using alternative assumptions. The most unpredictable factors that contribute significantly to future costs are outpatient hospital costs, physician residual (as defined in Table 2), 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. One set represents increases that are lower and is, therefore, more optimistic than the current estimate. The other set represents increases that are higher and is, therefore, more pessimistic than the current version. The values for the alternative assumptions were determined from a study on the average historical error in the respective increase factors. All assumptions not shown in Table 5 are the same as in Table 2.

TABLE 5--PROJECTION FACTORS AND THE ACTUARIAL STATUS OF THE SMI TRUST FUND UNDER ALTERNATIVE SETS OF ASSUMPTIONS FOR FINANCING PERIODS THROUGH DECEMBER 31, 1988

| | This Projection | | | Low Cost Projection | | | High Cost Projection | | |
|---|---|---|---|---|---|---|---|---|---|
| | 12-month period ending June 30, | | | 12-month period ending June 30, | | | 12-month period ending June 30, | | |
| | 1987 | 1988 | 1989 | 1987 | 1988 | 1989 | 1987 | 1988 | 1989 |
| Projection factors (in percent): 1/ | | | | | | | | | |
| Physician services - fees 2/ | | | | | | | | | |
| Aged | 6.8 | 4.6 | 3.4 | 6.0 | 3.5 | 1.3 | 7.6 | 5.7 | 5.5 |
| Disabled | 6.8 | 4.6 | 3.4 | 6.0 | 3.5 | 1.3 | 7.6 | 5.7 | 5.5 |
| Physician services - Residual 3/ | | | | | | | | | |
| Aged | 9.5 | 7.6 | 5.8 | 7.9 | 5.2 | 3.4 | 11.1 | 10.0 | 8.3 |
| Disabled | 9.1 | 6.5 | 6.0 | 5.8 | 2.2 | 2.0 | 12.4 | 10.9 | 9.9 |
| Outpatient hospital services | | | | | | | | | |
| Aged | 21.7 | 18.1 | 18.3 | 15.0 | 10.5 | 12.7 | 28.4 | 25.7 | 23.8 |
| Disabled | 13.4 | 7.5 | 10.2 | 2.5 | -6.4 | -1.6 | 24.3 | 21.3 | 21.9 |
| | As of December 31, | | | As of December 31, | | | As of December 31, | | |
| | 1986 | 1987 | 1988 | 1986 | 1987 | 1988 | 1986 | 1987 | 1988 |
| Actuarial status (in millions): | | | | | | | | | |
| Assets | $8,291 | $4,793 | $6,184 | $8,291 | $6,878 | $12,190 | $8,291 | $2,573 | 4/ |
| Liabilities | 5,106 | 6,287 | 7,601 | 3,726 | 4,654 | 5,605 | 6,519 | 7,981 | 9,721 |
| Assets Less Liabilities | $3,185 | -$1,494 | -$1,417 | $4,565 | $2,224 | $6,585 | $1,772 | -$5,408 | 4/ |
| Ratio of assets less liabilities to expenditures (in percent) 5/ | 9.6 | -3.9 | -3.3 | 14.7 | 6.5 | 17.2 | 5.0 | -12.6 | 4/ |

1/ All values are per enrollee.
2/ As recognized for payment under the program.
3/ Increase in the number of services received per enrollee and greater relative use of more expensive services.
4/ The trust fund will be depleted by December 31, 1988 under this set of assumptions.
5/ 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 monthly actuarial rates will result in an excess of assets over liabilities of -$1,417 million by the end of December 1988. This amounts to -3.3 percent of the estimated total incurred expenditures for the following year. Assumptions which are somewhat more pessimistic (and, therefore, test the adequacy of the assets to accommodate projection errors) deplete the trust fund by the end of December 1988. Under fairly optimistic assumptions, the monthly actuarial rates will result in a surplus of $6,585 million by the end of December 1988, which amounts to 17.2 percent of the estimated total incurred expenditures for the following year.

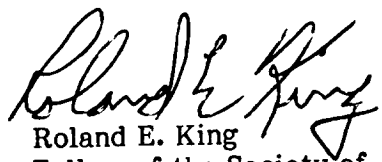
5. Standard Premium Rate

For calendar years 1984 through 1988, the law provides that the standard monthly premium rate for both aged and disabled enrollees shall be 50 percent of the monthly actuarial rate for enrollees age 65 and older. Therefore, the standard monthly premium rate for both aged and disabled enrollees for calendar year 1988 is $24.80, which is 50 percent of the monthly actuarial rate for this period ($49.60).

# APPENDIX C

## STATEMENT OF ACTUARIAL OPINION

It is my opinion that (1) the methodology used herein is based upon sound principles of actuarial practice and (2) all the assumptions used and the resulting cost estimates are in the aggregate reasonable for the purpose of evaluating the actuarial and financial status of the Federal Supplementary Medical Insurance Trust Fund, taking into account the experience and expectations of the program.



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