

 Actuarial Cost
Estimates for
Health Insurance
Benefits Bill

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This study has been issued by the Division of the Actuary, under authority delegated by the Commissioner of Social Security. It is designed for the use of the staff of the Social Security Administration and for limited circulation to other persons in administration, insurance, and research concerned with the subject treated.

FOREWORD

Proposals to add health benefits for beneficiaries aged 65 and over to the OASDI program have created an interest in the data and methods used to develop actuarial cost estimates in this new area.

It is the policy of the Division of the Actuary to make its methods and procedures available to those interested. It is our hope that this Study will provide, in a condensed form, the information not readily available in other published reports.

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A. Introduction

This Study presents the long-range actuarial cost estimates for the Health Insurance Benefits Bill, H.R. 4222, introduced by Congressman King on February 13 (an identical bill, S. 909, was introduced by Senator Anderson on the same date). H.R. 4222 contains the recommendations for a health insurance program under the Old-Age, Survivors, and Disability Insurance system made by President Kennedy as part of his Message Transmitting Recommendations Relating to a Health Program (H. Doc. No. 85, 87th Cong., February 9, 1961).

This bill would provide a limited program of health benefits for all persons who are (1) aged 65 and over, and (2) "entitled" to monthly benefits under the OASDI system. The term "entitled" means that the individual meets all the statutory provisions governing eligibility for monthly benefits (old-age, dependent, or survivor) and has filed an application therefor (which may be concurrent with application for health benefits). The term thus includes not only beneficiaries in current-payment status, but also those who are not drawing monthly benefits because they are continuing their employment. The following health benefits would be provided:

- (a) 90 days of semi-private hospital care within a "benefit period", with a deductible of \$10 per day for the first 9 days (minimum deductible of \$20).
- (b) 180 days of skilled-nursing-home services within a "benefit period", when such services are furnished following transfer from a hospital and are necessary for continued treatment of a condition for which the individual was hospitalized.
- (c) 240 home-health-service visits during a calendar year.
- (d) Outpatient-hospital-diagnostic services in excess of a \$20 deductible, for each diagnostic study.

There is an overall limit on hospitalization and nursing-home benefits in that during any "benefit period" only 150 "units of service" can be used, where such a "unit" consists of 1 day of hospitalization benefits or 2 days of nursing-home benefits. The term "benefit period" means the period beginning with the first day that an individual receives hospitalization benefits and ending with the last day of the first 90-day period thereafter during which he has not been a patient in a hospital or a skilled nursing home. The health benefits would first be available in October 1962, except for nursing-home benefits, which would first be available in July 1963.

These benefits (and the accompanying administrative expenses) would be financed, on a long-range basis, by (1) an increase in the combined employer-employee contribution rate of $\frac{1}{2}\%$ (effective in 1963), with a corresponding increase of $\frac{3}{8}\%$ in the rate for the self-employed, and (2) the

"gain" to the OASDI system resulting from increasing the maximum earnings base from \$4800 to \$5000 (effective in 1962). The gain from increasing the earnings base is estimated to be equivalent to the effect of a rise in the combined employer-employee contribution rate of .1% of payroll. This income would be channelled into the Health Insurance Account of the Federal Social Insurance Trust Fund, which would also include the existing OASI and DI Trust Funds as two separate accounts.

This Study sets forth in Section B the basic data utilized, the assumptions made, and the computation procedure. In Section C, the cost estimates are presented, along with discussion of changes made in them in the past year. Finally, Section D outlines the problems involved in making actuarial cost estimates for the proposal.

B. Data, Assumptions, and Procedures

The various cost factors involved for each of the types of benefits have been developed by the Division of the Actuary in collaboration with the Division of Program Research. These factors have been applied to the estimated numbers of OASDI eligibles, which are available from the long-range actuarial cost estimates for the system. The latter are summarized in the 21st Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance Trust Fund and the Federal Disability Insurance Trust Fund, pages 27-32 and 37-44 (H.Doc. No. 60, 87th Congress, January 18, 1961). The general assumptions and procedures for these estimates are described in Actuarial Study No. 49.

Factors Affecting Hospitalization-Benefit Costs

The elements affecting costs in each year may be itemized as follows:

- (1) Number of eligible beneficiaries and their age-sex composition;
- (2) Rates of hospital admission;
- (3) Average duration of hospitalization;
- (4) Average daily per capita hospital charges; and
- (5) Effect of maximum-duration and deductible provisions.

Hospitalization-benefit costs for various future years are obtained by multiplying the estimated number of eligibles by a factor representing the average annual per capita cost of hospitalization (after taking into account any maximum-duration and deductible provisions). This is done separately by sex and by age groups (65-69, 70-74, and 75 and over, in connection with the cost estimates for H.R. 4222) since duration of hospitalization varies significantly by age and sex. Likewise, the age-sex composition of the eligible group will vary over the years. The per capita hospitalization-cost factor is derived in relation to all eligibles in the age-sex group, including those who are not hospitalized.

The per capita hospitalization-cost factor consists of two elements, the average length (in days) of compensable hospitalization (considering all eligibles, and including the effect of any deductible, as well as any maximum-duration provisions) and the average daily cost of hospitalization (including both room and board, and all other hospital services, averaged out on a daily basis).

Average Length of Hospitalization

First, considering the element of average length of hospitalization, the basic procedure is to make the detailed calculations for a 60-day maximum provision and then to modify the overall results for differences in the provisions of the particular proposal. The basic data are presented in Table 1, which shows hospital utilization rates on both low-cost and high-cost bases. The "hospital utilization rate" is defined as the average number of hospital days experienced per person exposed to risk. In other words, they are the result obtained by multiplying the proportion of persons experiencing hospitalization by the average duration of hospitalization for those hospitalized.

The basic data are from the BOASI Survey of Beneficiaries, but with modifications to recognize that the availability of benefits will result in greater utilization than that reported in the Survey. In addition, the basic data have been corrected to allow for hospitalization of persons who died during the year, who of course would not be reported in the Survey.

The corrections for the availability of hospitalization benefits were made in the following manner (described in more detail on pages 77-78 of the Department's 1959 Hospitalization Report). For the high-cost estimate, the admission rate was assumed to be the same as the rate reported in the Survey for those with insurance (approximately 60% higher than the reported rate for those without insurance). The average duration of hospitalization was taken to be the same as that reported in the Survey for those with insurance and those without insurance combined (the average duration for the latter category was about 50% higher than for the former); this assumption is, of course, a "conservative" one.

For the low-cost estimate, the hospital utilization rate was obtained by weighting such rate for insured persons in the Survey by the proportion of insured persons and by weighting such rate for those in the Survey without insurance by the average hospital utilization rate for all persons in the Survey (about 5% higher than the actual experience for the uninsured group). Also, an adjustment of the hospital utilization rate was made for men aged 65-69 to reflect the fact that utilization is substantially lower among employed persons than among retired persons. In connection with the latter point, it should be noted that the beneficiary group surveyed consisted of retired persons; thus, making no such downward adjustment in the high-cost estimate added an element of conservatism. Operating in the other direction, however, is the factor that utilization of the proposed health benefits by persons with insurance in the past may be somewhat increased because of the greater protection available in many instances (where the deductible does not have an offsetting effect).

Table 1

HOSPITALIZATION UTILIZATION RATES FOR PERSONS AGED 65 AND OVER,
60-DAY MAXIMUM, AVERAGE DAYS PER PERSON PER YEAR

Age Group	Low-Cost Estimate			High-Cost Estimate		
	Before Cor- rection for Decedents	Correc- tion for Decedents	Cor- rected Rate	Before Cor- rection for Decedents	Correc- tion for Decedents	Cor- rected Rate
Men						
65-69	1.59	.34	1.93	2.18	.43	2.61
70-74	1.66	.48	2.14	2.01	.60	2.61
75 & over	2.44	.93	3.37	3.46	1.17	4.63
Women						
65-69	1.59	.20	1.79	1.73	.25	1.98
70-74	2.42	.31	2.73	2.65	.38	3.03
75 & over	2.53	.78	3.31	3.11	.97	4.08
Total Persons						
Total ^{a/}	1.99	.47	2.46	2.43	.58	3.01

a/ Obtained by weighting the rates by age and sex by the estimated OASDI "eligible" population as of the beginning of 1960.

Note: The figures shown above for "corrected rates" are the same (except for one correction) as those in the table on page 101 of the Hospitalization Report of April 3, 1959, published by the House Ways and Means Committee.

The assumptions in the low-cost estimate produce costs only slightly above the Beneficiary Survey experience. This seems plausible for the near-future. For the long-range future, this low-cost assumption may be said to give recognition to the probable success of current efforts for progressive patient care, for reductions in hospitalization costs resulting from development of outpatient-hospital-diagnostic facilities, and for progressive cost-reducing trends in medical practice.

As yet unpublished hospital utilization data from the National Health Survey, for July 1958 to June 1960, have been used to develop utilization rates comparable with those obtained from the Beneficiary Survey data. In the aggregate, the hospital utilization rates derived from the NHS data confirm those developed from the Beneficiary Survey (used for the purposes of this Actuarial Study), being in fact somewhat lower.

The hospital utilization rates derived from the Beneficiary Survey, modified as described above to allow for the effect of benefits being available as a right, must be corrected in respect to hospitalization used by persons dying during the survey year, who would not have been included in the Survey. For both cost estimates, this correction was obtained for each age-sex group by applying to the estimated proportion dying in a year an assumed average number of days of hospitalization for decedents (8 days for the low-cost estimate and 10 days for the high-cost estimate). As indicated by Table 1, the relative size of this correction naturally varies considerably by age and sex. For both cost estimates, the correction amounts to about 24% of the rate derived from the Beneficiary Survey for all ages combined, but it is as little as about 15% for women aged 65-69 and as much as 35% for men aged 75 and over. The absolute amount of the correction for decedents averages .53 days for a cost estimate intermediate between the low-cost and high-cost ones.

Since the basic work was completed on these cost estimates, there has appeared a more extensive study on the general subject of correcting hospital utilization rates derived from surveys so as to allow for decedents ("Hospital Utilization in the Last Year of Life," Health Statistics from the U.S. National Health Survey, Series D, No. 3, January 1961). This report presented a preliminary study using data for the Middle Atlantic states (New Jersey, New York, and Pennsylvania) for 1957. On the whole, after modifications to obtain comparability, the results of this survey agreed reasonably well with the adjustments made in the cost estimates for the effect of the exclusion of decedents from the Beneficiary Survey.

The NHS report showed that for persons aged 65 and over, the unadjusted utilization rate was 1.67 days per person per year and that

the rate adjusted for decedents was 2.33 days^{1/}. This is a difference of .66 days, or a relative increase of 39%. The absolute correction for decedents in the NHS report is somewhat higher than used in these cost estimates (.53 days on the basis of the current age-sex distribution of the eligibles). The correction based on NHS data, however, did not include the effect of a 60-day maximum, which of course would have the effect of reducing the absolute correction (in days) and also the unadjusted utilization rate. Furthermore, it was derived from a population that is somewhat older on the average than the present OASDI "entitled" population which includes those who are not current beneficiaries because of the retirement test).

The percentage increase due to this correction factor was higher in the NHS report than in these cost estimates (39% vs. 24%) both because of the foregoing two elements and because the increase was measured against a lower unadjusted rate, computed solely on the basis of reported experience of persons alive at date of interview (namely, 1.67 days in the NHS report as compared with our 2.21 days). Current NHS statistics on hospital utilization by the population alive at date of interview are higher than formerly reported--as a consequence of the improved data-collection procedures now followed. Accordingly, when measured against this higher base, the days used by decedents would raise the estimated days used by all the aged (derived from the experience of survivors) by a significantly lower amount than 39%, especially after further adjustment for a 60-day limit and for age distribution.

As a further point of comparison between the NHS data and the assumptions in these cost estimates, the average number of days of hospitalization for decedents was 9.57 for the former, as against the assumption here of 8 days for the low-cost estimate and 10 days for the high-cost estimate.

A growing body of additional data on hospitalization experience of persons aged 65 and over, subdivided by health-insurance ownership and other relevant characteristics, is becoming available from the National Health Survey. In some respects these findings are at variance with those from the Beneficiary Survey, partly because of the later time period and differing population groups represented, and partly because of differences in survey techniques. Preliminary investigation indicates, however, that on balance the present cost estimates would be little changed if NHS data were substituted for corresponding Beneficiary Survey data.

^{1/} In Table 8 on page 11 of this report, the adjusted rate for persons aged 65 and over is shown as 2,373 per 1,000 persons. Actually, it should be 2,332 since it is derived by dividing the 5,021,000 nights of hospital care used by those alive (Table 6) plus the 1,976,000 nights used by those who died (Table 7) by the 3,000,000 persons in the exposure (Table 6).

The foregoing discussion has related to the derivation of hospital utilization rates on the basis of a 60-day maximum provision. It is assumed that such rates apply with equal accuracy whether the maximum relates to a calendar year, a benefit year, or a benefit period as defined in the proposal. Proceeding from those basic cost factors, modifications have been made for proposals considered from time to time in the past that have had different maximum-duration periods or that introduced deductible periods (whether expressed in terms of the first "n" days of hospitalization, a flat dollar deductible regardless of length of hospitalization, or a uniform dollar deductible for the first "n" days of hospitalization).

The relative effect on cost factors of increasing the maximum duration of benefits from 60 days to various other durations is as follows: 90 days - 9%; 120 days - 10½%; 180 days - 12%; and 360 days - 15%. Conversely, if the maximum duration is reduced from 60 days to 21 days, the cost will be lowered by 15%. These factors have been derived from consideration of data from the National Health Survey and from private insurance experiences.

In considering the effect of a deductible provision on hospitalization-cost factors, it is necessary to have what is termed a hospitalization continuance table applicable to the particular beneficiary group involved. Such a table was derived from data in the National Health Survey (Health Statistics, Series B, No. 7) and is shown in Table 2.

Average Daily Cost of Hospitalization

The second element in hospitalization-benefit cost factors is the average daily cost (including both room and board and other hospital costs). The Hospitalization Report derived a figure of \$21 a day for persons aged 65 and over in 1956 (see pp. 79-80). This figure was used as the basis for the long-range actuarial cost estimates made for that Report, since all the actuarial cost estimates for the OASDI system made at that time used the 1956 general earnings level. The figure, however, was adjusted upward by 14% (to \$24) to take into account the fact that, as of 1956, hospital charges had been increasing more rapidly than the general wage level and would probably do so for at least a few more years. The basis of this 14% increase was the assumption that over the next 4 or 5 years after 1956, hospital charges might increase at an average rate of about 6% (perhaps 7-8% in the beginning and lessening amounts thereafter) before an assumed leveling-off so as to have the same rate of increase as the general wage level. Thus, during this period, the "real increase" of hospital costs in relation to the general wage level might begin at 3-4% a year and then decline, so that a cumulative relative increase of 14% would precede the leveling-off at the end of the 4-5 year period.

Table 2

HOSPITALIZATION CONTINUANCE TABLE FOR AGED PERSONS FOR 60-DAY MAXIMUM BENEFIT

Waiting Period (days)	Proportion Hospitalized for		Days of Hospitalization for Those With		Hospitalization Excluded by	
	Exactly the Length of the Waiting Period	Length of the Waiting Period or a Shorter Time	Exactly the Length of the Waiting Period	Length of the Waiting Period or a Shorter Time	Waiting Period Days	Pro- portion
1	3.8%	3.8%	3.8	3.8	100.0	7.2%
3	6.6	17.5	19.8	37.8	285.3	20.6
5	6.0	29.8	30.0	93.0	444.0	32.0
7	5.6	41.2	39.2	167.0	578.6	41.7
10	4.5	56.0	45.0	299.4	739.4	53.3
14	3.1	70.9	43.4	483.8	891.2	64.3
20	1.2	81.5	24.0	664.3	1034.3	74.6
30	.6	89.6	18.0	866.4	1178.4	85.0
60	.1	95.0	306.0 ^{a/}	1386.1 ^{a/}	b/	b/

a/ Including 60 days of hospitalization for the 5.0% who are hospitalized more than 60 days.

b/ Not meaningful (to have waiting period coincide with maximum benefit-period covered).

Source: Based on data from the National Health Survey (Health Statistics, Series B-7, December 1958, Table 14).

The actuarial cost estimates for the 1960 legislative proposals in regard to health benefits were modified to reflect the 1959 earnings level, but the hospitalization-benefit costs relative to payroll were left unchanged. Thus, in essence, the assumption was made that, from 1956 to 1959, hospitalization costs increased more rapidly than the change in covered earnings and would shortly "level off" (with equal relative increases thereafter).

The average hospital-per-diem cost of \$21 for 1956, used in the Hospitalization Report, represented .851% of the average annual taxable wage of \$2467 in that year (on a \$4200 base). This ratio is important to consider when analysis is made of the current and projected future relationships.

The current cost estimates for monthly benefits of the OASDI system are based on the 1959 earnings level. The average hospital-per-diem cost for persons aged 65 and over in 1959 was about \$26, which was .932% of the average annual taxable wage of \$2790 in that year (on a \$4800 base). This ratio is 10% higher than the 1956 ratio.

The preceding analysis indicates that during 1956-59, hospital costs rose 10% more than the general wage level. This is almost as much as the 14% "leveling off" factor previously assumed. Since this "leveling off" has not actually been achieved and apparently will not be achieved in the next few years, on the basis of current trends, it seems advisable to begin the cost-projection of hospitalization charges from the 1959 base. Accordingly, the procedure has been adopted in the present estimates for hospitalization benefits of providing for a 14% increase in the current (1959) average hospital-per-diem cost for persons aged 65 and over of \$26--yielding a figure of \$29.60--to allow for future "leveling off" of the ratio of hospitalization costs to the general wage level.

In other words, the adjustment factor used in the previous estimates has been applied to reflect the assumption that the "leveling off" period will be transferred and postponed until some time after the mid-1960's. If this were the only change made, the hospitalization-benefit costs as a percentage of payroll would remain unaffected. However, the costs have been adjusted upward by an additional 10% to reflect the experience during 1956-59, when the expected trend toward a "leveling off" did not occur.

Although the average hospital-per-diem cost for persons aged 65 and over for 1962 is estimated at about \$32, this is not inconsistent with the lower long-range assumption because the per-diem cost figure used in the long-range estimates is relative to a lower general earnings level (1959) than that estimated to prevail in 1962.

An analytical study was made as to the reasonableness of assuming that after this 14% relative increase, there would be a leveling-off as between hospitalization costs and the general wage level. The data seemed

to indicate that in the years since World War II, hospital daily costs have been increasing in a linear manner (at a rate of about \$1.60 per year), and that wage rates have been increasing geometrically. Accordingly, although in the recent past the difference between these two trends series has been about 3-4% per year, this seems to be declining somewhat, and in about 5-10 years (after 1959) there might be a "leveling-off," with the aggregate relative difference being from perhaps 10% to 14%.

Intermediate-Cost Estimates for Hospitalization Benefits

As indicated previously, low-cost and high-cost factors were developed for hospital utilization rates. An intermediate-cost estimate is necessary for purposes of determining the financing basis of this portion of the program. In order to arrive at such an estimate, the low-cost and high-cost factors were averaged and applied to the intermediate estimate of persons aged 65 and over who are entitled (or could become entitled upon application) to monthly cash benefits under the OASDI system. In considering the figures actually presented for the intermediate-cost estimate, it should be kept in mind that a considerable range of variation is possible. The spread from the intermediate-cost estimate to the high-cost estimate (or to the low-cost estimate) is approximately 15% due to the hospitalization element alone, and perhaps another 15% due to the range of variation inherent in the basic OASDI cost estimates.

Cost Estimates for Skilled-Nursing-Home Benefits

It is very difficult to make estimates for skilled-nursing-home benefits because currently such facilities are not uniformly available in adequate amount in all sections of the country, and even more so because there are a number of different concepts under which these benefits might be operative or be utilized by the medical profession. At the one extreme, such a benefit might be utilized almost entirely for very limited convalescent care and be applicable to only a relatively few cases. At the other extreme, the benefit might be utilized so broadly as to provide care that emphasizes the long-term domiciliary element far more than nursing care (naturally, both elements must be present, but much importance hinges on the relative predominance of one feature or the other). In fact, there is the question of whether hospitalization will occur that, under present circumstances, would not be considered necessary and proper, and whether nursing-home benefits will be provided following these hospital stays.

The bill provides that skilled-nursing-home benefits shall be available only upon transfer from a hospital and for further treatment of the condition that resulted in the hospitalization. It is not possible to know from this written definition exactly what the actual admitting and transferring practices may be. In the early years of operation, one limitation on the costs for this benefit will, of course, be the limited availability of qualifying facilities. In the long run, however, this cannot reasonably be regarded as a cost-control factor.

In the Department's 1959 Hospitalization Report, cost estimates were made for a strictly administered "recuperative care only" skilled-nursing-home benefit (and also for much broader provisions)--see pages 83-84. The original cost estimates for this very limited benefit were based on the experience of a few Blue Cross plans having such a benefit. The available data suggested that there might be annual utilization of 10 days of such care per 100 beneficiaries protected by this type of benefit. Since the average daily cost would be about \$10, this would mean an aggregate average cost of \$1 per year per person aged 65 and over entitled to monthly OASDI cash benefits.

Subsequent staff consideration of the skilled-nursing-home benefits under the proposal have led to a reconsideration of the cost of this benefit. Analysis has been made of the various elements involved in the cost of this type of benefit, namely:

- (1) Present number of skilled nursing home beds;
- (2) Number of such beds that are acceptable according to reasonable standards;
- (3) Estimated needed beds;
- (4) Proportion of beds occupied;
- (5) Proportion of occupied beds used by aged persons;
- (6) Proportion of the aged occupants of beds that consists of OASDI beneficiaries;
- (7) Proportion of occupants with duration less than 6 months;
- (8) Proportion of occupants who entered the nursing home by transfer from a hospital; and
- (9) Average daily cost.

Use of the above data and analysis can produce a wide spread in the cost estimates--both short-range and long-range. In the first full year of operation, the cost would be relatively low because of lack of facilities (since many of the existing beds would not be improved sufficiently to meet the standards, and in many cases new facilities would not yet be constructed) and because of lack of knowledge of the benefits available. Accordingly, assuming generally wider coverage, the revised estimate of the cost in the first full year of operation is \$25 million (as compared to the previous estimate of about \$10 million). In the next few years of operation, the cost would rise steadily as existing facilities are improved and as new facilities are built to meet the demand (and in recognition of the money available from the benefits).

The long-range cost of these nursing-home benefits would be higher than the early-year costs for a number of reasons--an increase in the number of available beds to meet the demands, OASDI beneficiaries being a larger proportion of the total population aged 65 and over, and a greater utilization of the benefits available.

Consideration has been given to the various possibilities as to nursing-home benefit costs, and a new intermediate estimate has been developed. In making this higher estimate, it is recognized that part of the cost arising for the skilled-nursing-home benefits, when more widely utilized, will be an offset to the cost for hospitalization benefits. In the present estimates, it is assumed that this offset represents 25% of the cost of the skilled-nursing-home benefits.

Cost Estimates for Home-Health-Service Benefits

The original estimates for home-health-service benefits were based on an assumed annual cost of \$1 per eligible beneficiary. This assumption was based on such limited experience with this benefit as was available, taking into account also the limited general availability of such services at present. For the foregoing reason, it is likely that this is the cost that will develop in the early years of operation of the program. In later years, however, it seems reasonable to assume that this type of service will become generally available throughout the country, since there will be the money to pay for it.

A recent study made by the Kansas Blue Cross and Blue Shield indicates that for persons aged 65 and over, the annual per capita cost was almost \$6. Over the long-range for the country as a whole, it seems that this is a much better figure to use than the previous figure of \$1.

If there are significant expenditures for home-health-service benefits, this should mean somewhat lower hospitalization and skilled-nursing-home benefit costs. In fact, in cases where a person would otherwise be in the hospital but is instead receiving the much less expensive home-health services, there would actually be a net savings in cost to the program, or in other words the program would cost less because of the inclusion of this type of benefit. It is believed, however, that any such savings will be more than offset by the home-health services being made available to people who would not otherwise be in hospitals or skilled nursing homes. Nonetheless, with the availability of these home-health services on an expanded national basis, there should be some offset taken against the hospitalization-benefit costs that would otherwise occur if there were no home-health-service benefits. This adjustment has been taken as 40% of the estimated cost for home-health-service benefits.

Cost Estimates for Outpatient-Hospital-Diagnostic-Services Benefits

The cost estimate for the outpatient-hospital-diagnostic-services benefits was first made on the basis that there would be no deductible.

Relatively little experience is available in regard to the cost of this benefit for a group consisting of persons aged 65 and over. Such Blue Cross and insurance company experience as there is seems to indicate that the annual cost per capita will be about \$7.50 (spread over the total protected population and not merely among those who will use this benefit).

From a cost standpoint, the effect of a \$20 deductible for each diagnostic study (note that it is not an annual deductible) will be significant. This deductible provision will reduce the aggregate cost by an estimated 80%, since most of the charges for these services will be relatively small amounts, such as \$10 for an X-ray. The number of claims will also be reduced by about 80% by the deductible provision, and thus a considerable amount of the administrative costs otherwise involved in paying a large number of small claims will be eliminated. The relative magnitude of the reduction arising from a deductible tends to be verified by a study of the actual charges of hospital outpatients covered under group insurance policies (see "A Reinvestigation of Group Hospital Expense Experience" by S. W. Gingery in Transactions, Society of Actuaries, Vol. XII, 1961, which gives data on such claims by size intervals).

Estimated Administrative Expenses

It is assumed that the administrative expenses that will be chargeable to the Health Insurance Account for processing the health-benefit claims and for a pro-rata share of the cost of maintaining the earnings records and collecting the contributions will represent 5% of the benefit disbursements. This figure is comparable with the relative administrative costs of the most efficiently-run Blue Cross plans. The latter frequently have substantial administrative costs that would not arise in connection with health benefits under OASDI--such as those for selling individual enrollments, collection of health insurance contributions alone, and maintenance of the rolls of insured persons solely for purposes of health insurance. The administrative expenses for the proposed health benefits that are chargeable to the Health Insurance Account do not, of course, include the administrative expenses of the hospitals and other health agencies supplying the benefits, which are included as part of the benefit disbursements. Also not included are the record-keeping and tax-payment expenses incurred by employers in connection with the OASDI program.

C. Results of Cost Estimates

Long-range actuarial cost estimates made at about the time the bill was introduced indicated that the benefits provided (and the accompanying administrative expenses) would be exactly financed, on a long-range basis, by the two sources of revenue to the Health Insurance Account. These two sources are an increase of $\frac{1}{2}\%$ in the combined employer-employee contribution rate (and a corresponding increase of $\frac{3}{8}\%$ for the self-employed), effective in 1963, and the net "gain" to the OASDI system resulting from increasing the maximum annual earnings base from \$4800 to \$5000, effective in 1962. The latter "gain" is estimated to be equivalent, over the long run, to the effect of a rise in the combined employer-employee contribution rate of .1%. The bill provides that the equivalent of this level contribution rate is to be continuously appropriated to the Health Insurance Account.

As indicated in the previous section, the original estimates have been revised somewhat, as a result of the continuous process of study and investigation of all factors involved in the actuarial cost estimates. In particular, this reexamination was focused on the three "subsidiary" benefits (i.e., other than hospitalization benefits), which are less important cost-wise. The revised estimates for these benefits also include certain partially offsetting reductions in hospitalization-benefit costs, as discussed previously.

Furthermore, the estimates presented here take into account the enactment of the Social Security Amendments of 1961 (P.L. 87-64), which affect the health-benefits proposal because of the liberalization in the fully-insured status provisions of the OASDI system. This change makes about 100,000 additional beneficiaries aged 65 and over eligible in the first year of operation, and somewhat larger numbers in the next few years. Ultimately, however, there is no effect (because the maximum requirement of 40 quarters of coverage continues to apply in the same way that it did before the enactment of that legislation). Accordingly, the 1961 Amendments have a slight effect on estimated outgo for health benefits in the early years of operation, but no effect on costs in later years so that the effect on the level-premium cost is negligible.

The following table shows the original and revised estimates of the level-premium costs ^{2/} of the various types of benefits (plus administrative expenses):

<u>Type of Benefit</u>	<u>Original Estimate</u>	<u>Revised Estimate</u>
Hospitalization	.56%	.52%*
Skilled-Nursing-Home	.01	.08
Home-Health	.01	.05
Outpatient-Hospital-Diagnostic	.02	.01
Total	.60	.66

*After offset for reduced cost because of availability and use of skilled-nursing-home and home-health benefits.

As will be seen from these figures, the income of .60% of payroll on a level-premium basis would be just sufficient to finance the benefits on a long-range basis according to the original intermediate cost estimate, but would fall about 10% short relatively according to the revised figures.

The outgo for benefit payments and accompanying administrative expenses in the first 12 months of operation for each of the four types of benefits, taking into account the actual price and earnings-level situation (rather than the long-range assumptions in these respects), are shown in the following table for the revised cost estimates:

<u>Type of Benefit</u>	<u>Amount (millions)</u>	<u>Percent of Payroll</u>
Hospitalization	\$1,015	.44%
Skilled-Nursing-Home	25	.01
Home-Health	10	.004
Outpatient-Hospital-Diagnostic	10	.004
Total	\$1,060	.46%

^{2/} The level-premium cost is the average long-range cost, based on discounting at 3.02% interest, relative to effective taxable payroll (which is the total earnings of all covered workers reduced to take into account both the maximum taxable earnings base and the lower contribution rate for the self-employed as compared with the combined employer-employee rate so that, in effect, only 3/4 of the earnings of the self-employed within the maximum base are counted). For more details on this concept, see Section E of Actuarial Study No. 49. In this Study, the term "payroll" is used to denote the effective taxable payroll.

Next, there may be considered the additional income and outgo picture, by fiscal years, for the entire OASDI system, including the proposed health-benefits program. The following table gives these data for the next four fiscal years (in millions):

Fiscal Year	Additional Income to System		Additional Outgo of System
	From $\frac{1}{2}\%$ Rise in Tax Rate	From Earnings Base Change*	
1962	--	\$40	--
1963	\$414	325	\$660
1964	1,125	410	1,065
1965	1,156	420	1,100

* Includes additional income from change in earnings base applicable to the $\frac{1}{2}\%$ rise in combined employer-employee rate.

In considering the above figures, it should be noted that the additional income from the earnings-base change is the total of such income and not merely that portion of it which is assigned to the Health Insurance Account as being the equivalent of an increase of .1% in the combined employer-employee contribution rate. Also, it should be noted that the outgo includes the relatively small amount of additional cash benefits that will arise from increasing the earnings base--practically nothing in 1962, about \$2 million in 1963, about \$5 million in 1964, and about \$10 million in 1965 (in the future such amounts will grow steadily).

The estimated income and outgo of the Health Insurance Account for the next four fiscal years is as follows (in millions):

Fiscal Year	Allocation to Health Insurance Account			Outgo from Health Insurance Account
	From $\frac{1}{2}\%$ Rise in Tax Rate	From Earnings Base Change*	Total	
1962	---	\$40	\$40	---
1963	\$414	221	635	\$658
1964	1,125	225	1,350	1,060
1965	1,156	231	1,387	1,090

*Includes additional income from change in earnings base applicable to the $\frac{1}{2}\%$ rise in combined employer-employee rate.

Table 3 presents the estimated progress of the Health Insurance Account by calendar years, according to the intermediate-cost estimate, carried out into the long-range future. The early-year figures (1962-65) represent what is actually anticipated on the basis of expected future earnings levels and medical-care costs; by 1970 these are merged with the long-range cost estimates, which assume 1959 price and wage conditions.

Table 3

ESTIMATED PROGRESS OF HEALTH INSURANCE ACCOUNT UNDER H.R. 4222,
 INTERMEDIATE-COST ESTIMATE
 (in millions)

<u>Calendar Year</u>	<u>Contributions Allocated</u>	<u>Benefit Payments and Administrative Expenses</u>	<u>Interest on Account^{a/}</u>	<u>Account at End of Year</u>
1962	\$180	\$152	--	\$28
1963	1,150	1,062	\$2	118
1964	1,365	1,098	8	393
1965	1,395	1,134	17	671
1970	1,548	1,361	61	1,974
1975	1,677	1,557	89	3,102
1980	1,805	1,803	113	3,872
1990	2,096	2,308	117	3,898
2000	2,436	2,640	77	2,515 ^{b/}

a/ Based on varying interest rate estimated to be earned by OASDI Trust Funds, ultimately leveling off at 3.02% on total assets (3.10% on invested assets).

b/ Fund exhausted in year 2017.

The benefit cost in the early years (including also administrative expenses) is significantly lower than the level-premium cost and, conversely, higher eventually. This is the result of the relatively more rapid rise in the number of persons aged 65 and over entitled to monthly cash benefits than is the case for the covered-worker population. In the first full calendar year of operations, 1963, the cost is estimated at .46% of payroll, and by 1970 it is .53%. The average cost for the first 10 full calendar years of operation, 1963-72, is .50% of payroll. The cost as a percentage of payroll gradually rises after 1970; by 1980 it is .60%, and ultimately it rises to somewhat more than 3/4%.

The Account builds up slowly in the first few years because the benefits are made effective so rapidly and because the income has a certain lag due to the delay in collecting tax payments resulting from general legislative provisions. Thus, in both 1962 and 1963, income and outgo are virtually in balance--in fact, the former exceeds the latter by only about 10% relatively.

In the next few years after 1963, however, income to the Account is some 25% in excess of outgo so that a moderate fund builds up, and by 1965 it is almost \$700 million. Income continues to exceed outgo in the following years since the covered population increases almost as rapidly as the beneficiary roll. In fact, it is not until about 20 years from now that outgo for benefits and administrative expenses is estimated to exceed the contributions allocated to this Account. It will, of course, be remembered that this is the intermediate-cost estimate and, accordingly, that high-cost experience would not show such favorable developments, while low-cost experience would show more favorable developments.

The Account is estimated to reach \$2.0 billion by the end of 1970 and \$3.9 billion in 1980. Thereafter, interest earnings continue to augment the growth of the Account so that it reaches a level of about \$4.1 billion in 1985, but declines slowly thereafter (because the beneficiary roll eventually grows more rapidly than the covered population).

D. Problems Involved in Cost Estimates for Health Benefits

Long-range actuarial cost estimates, by their very nature, can present the general range of costs but cannot be a precise forecast of future experience. This fact has been taken into consideration in the cost estimates for the Old-Age, Survivors, and Disability Insurance program over the quarter century of its operation. From time to time the assumptions underlying the actuarial cost estimates have been revised to take into account later available data and indications of trends. The cost estimates for the proposed health benefits program are subject to similar revisions.

There is a somewhat greater relative range of probable costs for the proposed health benefits than for the OASDI monthly cash benefits portion of the program, which has been functioning for more than 20 years. Not only is there incomplete data available on some of the various cost aspects and factors underlying the proposed health benefits as they would be provided under a social insurance system, but also service benefits quite obviously do not have costs as readily determinable as cash benefits that are directly related to covered earnings. But it should be recognized that, similarly, when the present OASDI cash benefits program was inaugurated in 1935, little was known about many of the factors entering into the actuarial cost estimates. Then, as now, assumptions had to be made on the basis of the data available, using the best possible actuarial judgment.

From a cost standpoint, the major benefit in the bill is the provision of hospital care. A great amount of data is available in regard to hospitalization experience of aged persons. Principal sources include the 1957 Beneficiary Survey made by the Bureau of Old-Age and Survivors Insurance, the continuing investigations made by the National Health Survey of the Public Health Service, and the experience of various insuring organizations such as the Blue Cross and private insurance companies. Much of this information has previously been summarized in "Hospitalization Insurance for OASDI Beneficiaries," a Report Submitted to the Committee on Ways and Means of the House of Representatives by the Secretary of Health, Education, and Welfare on April 3, 1959. Nonetheless, precise estimates are not possible because of such unknowns as the extent of hospital utilization by persons who have not had insurance in the past, but who would have benefit coverage under the provisions of the bill.

Another major difficulty in making cost estimates for hospitalization benefits is the extent to which hospital costs will rise in the future. The long-range actuarial cost estimates for the OASDI system have always assumed that earnings would be level in the future--for reasons that are described in detail elsewhere (see Actuarial Study No. 49, page 8, and the Report of the Committee on Ways and Means of the House of Representatives on the Social Security Amendments of 1961, H.Rept. No. 216, 87th Cong., April 7, 1961, pp. 14-16). This assumption

means that benefit costs relative to payroll will not be affected by any rising-earnings trend that may develop, because the benefit structure (including the maximum earnings base that is creditable toward benefits and that is subject to contributions) is assumed to be adjusted to keep pace with the rising earnings.

When earnings levels have increased in the past (increasing both benefit outgo and tax income--the latter more than the former, because of the weighted benefit formula), this factor has been recognized in subsequent cost estimates. Any resulting net reduction in cost has been made available for the financing of the program, including proposed benefit liberalizations. Liberalizations financed entirely in this manner merely keep the system up to date.

In considering the hospitalization-benefit costs in conjunction with a level-earnings assumption for the future, it is sufficient for the purposes of long-range cost estimates merely to analyze possible future trends in hospitalization costs relative to earnings. Accordingly, any study of past experience of hospitalization costs should be made on this relative basis. The actual experience in recent years has indicated, in general, that hospitalization costs have risen much more rapidly than earnings, with the differential being in the neighborhood of 3% or 4% per year.

One of the uncertainties in cost estimates for hospitalization benefits, then, is how long and to what extent this tendency will continue in the future. Some factors to consider are the relatively low wages of hospital employees (which have been rapidly "catching up" with the general level of wages and obviously may be expected to "catch up" at some future date, rather than to increase indefinitely at a more rapid rate than wages generally) and the development of new medical techniques and procedures, with resultant increased expense. In connection with the latter factor, there are possible counterbalancing items in that the higher costs involved for more refined and extensive treatments may be offset by better general health conditions, the development of out-of-hospital facilities, shorter durations of hospitalization, and less expense for subsequent curative treatments as a result of preventive measures.

The other three benefits provided by the bill would have a far lower relative cost than the hospitalization benefit (assuming that the types of services provided by the different facilities remain approximately the same as at present). Accordingly, even relatively large variations in the cost estimates for these benefits would have much less effect on the overall costs of the proposal. Although these services (skilled-nursing-home care following hospitalization, outpatient-hospital-diagnosis, and home-health-visits) are now being extensively provided in a number of areas, comparatively little data is available in regard to their cost for aged persons, when provided in the manner set out by the bill.

In many instances, these three types of benefits are not currently available because of lack of facilities (or inadequate or insufficient facilities). This is especially true in regard to home-health services and outpatient-hospital-diagnostic services, and is to some extent the case as to skilled-nursing-home benefits. Accordingly, the early-year costs for these benefits will be relatively low. The long-range costs, however, are determined on the assumption that sufficient, adequate facilities will be available to supply the benefits provided.

Another important factor in connection with the actuarial analysis of proposals for various types of health benefits is their cost-inter-relationship. For example, if hospitalization benefits were provided, but skilled-nursing-home care were not, there would tend to be more utilization of the hospitalization benefits because an individual would be more likely to stay longer in a hospital (at little or no cost to him) rather than to enter a skilled-nursing home operating at lower cost, but with the full amount to be paid by him. Similarly, if there were no outpatient-hospital-diagnostic benefits provided in the bill, and if there were no deductible in the hospitalization benefits, there would be a financial incentive for an individual to enter a hospital (with resulting higher cost) to obtain these services without cost to him.

Likewise, the availability of home-health services can reduce hospitalization-benefit costs in certain cases. Otherwise, an individual might enter a hospital or stay in it longer if in doing so there were less cost to him personally than in obtaining home-health services. On the other hand, the home-health services when available will also undoubtedly be utilized by many persons who would not otherwise have been in hospitals. In the same way, the presence (or absence) of a deductible provision for one benefit can influence not only total cost, but also the costs of other types of benefit.