AN ACTUARIAL ANALYSIS OF A PROSPECTIVE EXPERIENCE RATING APPROACH FOR GROUP HOSPITAL-SURGICAL-MEDICAL COVERAGE

BY

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INTRODUCTION

In view of the current widespread interest in the field of hospital, surgical, medical coverage and its attendant cost, it seems desirable that there be a free interchange of ideas between the insurance industry and Blue Cross-Blue Shield in order to facilitate expansion of coverage to as large a segment of the United States population as possible.

Because of their early entry into the field and their widespread coverage of the population in concentrated areas, the Blue Cross-Blue Shield Plans have much to offer in the way of statistics and experience in this particular phase of the insurance business. The insurance industry, on the other hand, now provides hospital, surgical, medical coverage for more of the population, nationally, and has the advantage of more familiarity with insurance principles generally. One area of mutual interest should be the proper underwriting and actuarial approach to experience rating of group hospital, surgical, medical business.

In all lines of insurance, historically, those carriers which have sought to maintain rigid rates, regardless of the inherent characteristics of the risk, have found themselves in the unfortunate position of being deserted by risks with better than average experience and being warmly embraced by risks with high losses. Inevitably, this situation has led to very violent readjustments in the fixed rates or an extreme financial loss to the carrier involved.

This presentation will touch on both prospective and retrospective rating, historically and in connection with underwriting regulations, but the principal emphasis of the work will be on prospective rating.

HISTORY OF EXPERIENCE RATING GROUP HOSPITAL, SURGICAL, MEDICAL COVERAGE

Insurance Companies

It is rather difficult to trace the history of experience rating group hospital, surgical, medical coverage, as practiced by the insurance companies, because there seems to be no great uniformity of approach among the various carriers.

The only general pattern which seems to emerge from the industry as a whole is one of making retrospective adjustments with the larger group accounts as an overture to a complete experience rating approach.

Some companies which write a large volume of this group business today have been in the field for twenty to thirty years or more. Others have entered the field within the past ten years although they may write a substantial share

of the business currently. The most rapid growth in this coverage has occurred in the last ten years and, since there is so much diversity of operation among those who wrote this class of business prior to that time, this historical analysis will be confined to the more recent period.

Early in the last decade many companies introduced retrospective or dividend schemes. These provided for return of premium to their group risks based upon the actual experience during a given policy year. The amount of return was modified by a variable retention for expenses and assumption of risk contingent upon the size of the group as determined by premium volume. In some instances companies not only refunded to the larger risks if experience warranted, but, through agreement with the insured, assessed the account for losses in excess of a stipulated amount.

Another method of instituting recovery where excess losses have occurred is to withhold, from indicated refunds in any policy year, amounts sufficient to offset adverse experience in prior years. Of the two approaches this is probably the most common.

In general, prospective rating was introduced into the group hospital, surgical, medical field by an increasingly large number of carriers in the mid-fifties. Again, there seems to be a lack of uniformity in approach although certain similarities exist among most companies in this field. Usually, rating is based upon calendar or policy year experience with some consideration given to the ever-increasing cost of providing services.

A standard assumption is that hospital costs increase at the rate of 5% a year although there is no single figure which can be considered universal in its usage.

The credibility of the group is normally determined by the premium volume with maximum and minimum limits predetermined and ranges established within these limits by use of the formula $\frac{P}{P+K}$. In general, a permissible loss ratio is established for the particular size of risk based on a sliding scale of expense ratios. The actual loss ratio is then compared with the permissible and, depending upon the credibility of the group and the degree to which the particular carrier recognizes the advancing cost of care, a departure from the base rate is determined.

In smaller risks there is usually no attempt to rate the account closely and adjustments in 5% or 10% steps seem to be the order. In the case of groups of one hundred lives or less, rate adjustments are often made where the experience is extremely poor but very little in the way of reduction is normally offered even if the experience has been exceptionally good.

In the final analysis, much individual consideration is employed in determining the renewal rate of any group and no set formula is necessarily applied. Very often, in fact, in lieu of increasing renewal rates efforts are made to analyze the cause of the poor experience and corrective action is suggested.

Blue Cross-Blue Shield

Nationally, Blue Cross-Blue Shield Plans are over one hundred separate entities with a variety of different attitudes and approaches toward experience

rating for their own local accounts. On large national accounts, which have employees in a number of states, the Blue Cross Association and Blue Shield Commission, acting as coordinating agencies and in a sense as national rating bureaus, have evolved an experience rating plan which is applied uniformly in all areas. In tracing the history of experience rating by Blue Cross-Blue Shield, however, an analysis of one large Plan which was among the first to adopt this type of operation seems appropriate, since, to a degree, it represents the situation within the whole Blue Cross movement.

This Blue Cross Plan first departed from pure community rating in 1951 with the introduction of a program of retrospective refunds to groups with low losses. This step was considered necessary at that time to maintain a competitive position in the field of hospital coverage.

Although this mechanism succeeded for a time, it appeared that the community of risks as a whole was being penalized by making refunds to groups with good experience and failing to make some adjustment in the rate for those accounts which were contributing more heavily than others to the utilization of the services provided by Blue Cross contracts. For this reason, on July 1, 1954, the Plan embarked on a program of prospective rating for the larger groups whose experience was somewhat worse than the average.

Briefly, the experience of all accounts representing an average of approximately one hundred (100) or more contracts in force over a two year period was examined and, if their loss ratios were excessive when measured by approved standards, a 10%, 20% or 30% surcharge was imposed.

For a period of three years the combination of this surcharge program, based upon broad 10% groupings and the retrospective refund program, sufficed as a device to insure continued favorable participation in an increasingly competitive market yet, at the same time, avoid any serious effect on the great majority of risks. In 1957, however, as a result of a general rate increase, the Plan was faced with the possibility of losing many large accounts with better than average experience because the refund agreement, of itself, was insufficient inducement to retain these good risks.

The present program is designed so that groups with better than average experience might receive some reflections of this in their rate prospectively rather than waiting until after the close of their policy year. It therefore involves prospective discounts as well as surcharges and retrospective refunds.

GENERAL GROUP UNDERWRITING REGULATIONS

Before presenting an analysis of an actuarial approach to experience rating, it might be well to draw a brief comparison of group underwriting regulations as promulgated by the insurance industry and the service plans.

There are considerable areas of agreement between the insurance industry and Blue Cross-Blue Shield in the matter of general underwriting regulations on hospital, surgical, medical coverage. A detailed analysis of underwriting considerations is not within the scope of this paper but a brief analysis of the essential elements might serve to illustrate that, in spite of similarities, there are some fundamental differences between the industry and Blue Cross-Blue Shield.

In the matter of company contribution, for example, insurance companies generally require it, while Blue Cross-Blue Shield will write "employee contribution only" groups.

The industry generally requires 75% enrollment, while Blue Cross-Blue Shield does not although, normally, they will not grant a retrospective refund to a group which does not meet this requirement.

Both types of carrier will generally write group coverage for five (5) persons not associated solely for the purpose of obtaining insurance.

The Blue Cross-Blue Shield will ordinarily allow more than one level of benefit in the group so long as 75% of those covered have the higher level contract. Insurance companies, for the most part, are reluctant to allow more than one level of benefits in the group.

DETERMINATION OF ELIGIBILITY FOR PROSPECTIVE RATING

Participation Mandatory or Elective

In the case of insurance companies and most Blue Cross-Blue Shield Plans, participation in the prospective rating program is mandatory. In a few Blue Cross-Blue Shield Plans, groups may elect to come within the rating schedule if credible but this approach is obviously fraught with peril and is clearly disappearing as a method of operation.

Credibility Criteria

In Blue Cross-Blue Shield, as in the insurance industry, participation in the prospective group experience rating plan is contingent upon credibility. The subject of credibility criteria in the field of hospital, surgical, medical insurance is sufficiently complex and controversial that it might well be considered the subject for a separate paper. This presentation, however, will be limited to the explanation of a few of the possible bases and derivation and revision of the credibility tables used by a large Blue Cross-Blue Shield Plan.

The first possible base that comes to mind is volume of losses. This has a logical appeal since we are trying to predict future losses and attendant cost for the group. This serves as a very good base in such coverages as automobile where the occurrence of a loss is dependent on accidents which, though controllable to a degree, are basically subject to pure laws of chance and therefore more likely to fall into a normal distribution pattern. In hospital, surgical, medical coverage, however, the occurrence of a loss is dependent on a number of factors, not the least of which is medical practice in the area. Even within a single state, two groups of equal size, both with a high degree of year to year consistency and predictability in their loss patterns may have a significant difference from one another in the actual number of losses reported. This may be due to the fact that more hospital facilities are available in one area than the other or there may be ethnic characteristics of the population that hold down hospital admissions in a given locale. There are a number of other possible explanations but the fact remains that it would be discriminatory to assign more weight to the experience of the high loss group than to that of the low loss group, particularly if their average case cost is about the same so that the deviation in experience results exclusively from incidence.

Premium volume is another possible measure of credibility. It has the advantage of being readily available; of reflecting the losses incurred to a degree; and also the number of risks covered. It has several fundamental defects, however. First, most carriers provide different levels of benefits. To a degree, more liberal benefits encourage greater utilization but a fundamental difference in rate, and consequently in premium level, is due to higher average claim cost and has nothing whatever to do with the number of claims or number of insureds at risk and, hence, the predictability of experience.

Also, if a company introduces infirmary services, or in some manner manages to reduce its losses, it will receive a reduction in rate under the experience rating plan. This will reduce its credibility and give less credence to its own experience in future ratings so that continued better experience will not be fully credited to the group as it should be.

The average number of contracts in force is a fairly good barometer of the persistency of experience and yet it too has shortcomings. One of the primary objections to this yardstick is that it does not accurately measure the exposure to risk. Two groups having the same average number of contracts in force over a given period of time may be quite different in number of persons covered. One may be composed of 40% individual employee contracts and 60% family contracts. The other may have only 20% individual contracts and 80% family contracts. Since there are, on the average, something over three persons covered on every family contract the second group has many more persons exposed to risk.

One way of circumventing this difficulty is to assign a weight greater than one to the family contract. This weight in turn can be derived in at least two different ways. One very obvious solution is to determine, either from records available or from a sample study, the average number of persons covered per family contract and use this as a factor.

Another approach is to assign a weight to the family contracts based on the relationship of claim incidence on family to claim incidence on individual contracts. This can be accurately measured and modifies the number of contracts in force criterion by reintroducing the concept of volume of losses. It is my opinion that this is the best of the four bases discussed.

As previously mentioned, the basis of credibility used by most insurance companies is based on premium volume graded by the formula $\frac{P}{P+K}$. In the particular Blue Cross Plan chosen for analysis the original credibility criterion was premium volume and the formula for graduation was presented in a paper submitted by Mark Kormes which appears on page 98 of the 1952 Proceedings under "Statistical Notes". In time, management and technicians associated with this Plan came to feel that weighted contracts as previously described would provide a more satisfactory basis of establishing credibility than premium volume.

Family contracts were assigned a weight of 2.5 corresponding roughly to the ratio of Family to Individual pure premium. This ratio represents approximately the relationship of Family to Individual claim incidence and credibility ultimately should reflect frequency of utilization.

At the time of the conversion to weighted contracts from annual income, the most widely held coverage was the $7 Standard Room and Board indemnity contract for which the Family rate was approximately 2.50 times the Individual rate. Because this happened to coincide with the weight assigned to Family contracts, the annual income limits for the credibility ratings were divided by the Individual $7 contract rate to obtain the number of weighted contract months at risk required to produce the various credibility ratings.

The conversion from an income to a contract base occurred in 1952.

With the passage of time the incidence per contract month had increased considerably so that by 1959 a risk with the same number of weighted contracts as in 1952 developed a substantially higher number of claims.

Since it was desired to measure the extent of the change in claim incidence rather than claim cost, the overall in-patient and the overall out-patient incidence was first determined for the fiscal period ended June 30, 1951. By utilizing the experience for the four fiscal periods ended June 30, 1955, 1956, 1957 and 1958, a projection was obtained by the method of least squares to the anticipated average for the fiscal periods ending June 30, 1960 and June 30, 1961. The in-patient incidence was assigned a weight of unity (1.0) and the out-patient incidence a weight of one-half (.5). The comparison of the results produced an incidence increase factor of 1.55 and by dividing the weighted number of contracts in the present table by this factor a new table was derived which was intended to produce the desired results for the next two years. The details of the calculations and the revised table will be seen in Exhibits I to V.

RECORDING AND ACCUMULATING EXPERIENCE DATA

Statistical Plan

Each company and each service plan will evolve a statistical plan for recording premium and loss data which fits the unique requirements of the particular carrier. Most insurance companies, for example, will record not only hospital, surgical and medical premium and loss information on the detail card but, also, basic statistics for other allied lines. Generally, they will require information on the premium card with respect to the branch office or agency which has written the business and the commission to be paid.

Blue Cross Plans on the other hand, since they are monoline insurers operating through salaried sales representatives, will need far less data of the sort already outlined. Because of their contractual arrangements with particular hospitals and physicians, they may need a wealth of detail respecting the breakdown of charges and payments. In order to give this analysis direction, no attempt will be made to describe the great variety of statistical plans in use. Instead, the operation of the one large Blue Cross Plan used as a pilot throughout this study will be analyzed. Exhibit VI contains a sample of the detail cards currently in use together with a brief explanation of the coding employed.

Premium Reporting

A monthly premium card (see Exhibit VI) is cut for each subscriber and

these cards summarized by coverage code, within group, for Blue Cross, Blue Shield or Major Medical. This is the so-called "billed premium". Subsequently, when reports are received from the groups themselves, the original billing figures are corrected for adds, drops and changes of coverage. Cards are cut for each item and these constitute the adjustment to group billed premium. The "adjusted billed premiums", on a monthly basis, are then summarized quarterly by billed or incurred quarter and integrated to produce the total for each of the fiscal years of the experience study separately. Upon receipt of this information, the Actuarial Department applies the proper monthly, quarterly, semi-annual or annual factors to determine the actual earned premium for the study period. Adjustments to billings for three months after the close of the two fiscal years are reflected. In the summaries of premium employed by the Actuarial Department, the total Blue Cross or Blue Shield premium for a given group is reported. Another summary is made, however, which reflects the proper totals by coverage code. This latter tabulation is used to produce exposure figures.

Claim Reporting

Detail I.B.M. cards are initiated upon receipt of the admission report and contain, among other information, date liability incurred and group number. Detail cards are also initiated at the time of payment containing, among other information, date liability incurred, amount of payment and group number. These are summarized by group, quarterly, for each incurred quarter. In the interest of brevity, only the card for Blue Cross is shown in Exhibit VI because this is the more complex operation.

Summary claim cards are accumulated by incurred quarter to reflect paid development six months beyond the end of the policy year preceding the rating. For example; for an experience rating to be effective July 1, 1961, each of the incurred quarters, from the third of 1958 through the second of 1960, representing two fiscal years ending June 30, 1960, would be developed on a paid basis through December 31, 1960.

Payment cards are always matched against admission cards so that at the end of the period of paid development the unmatched admission cards for each incurred month, separately, represent the known or incurred and reported outstanding claims. The report of monthly outstanding claims is then integrated by incurred quarters. The incurred and reported count for a group is determined by addition of quarterly accumulated paid plus outstanding as described above.

The estimated ultimate experience of all business combined for the incurred quarter in question, paid through a specific date, is analyzed to produce claim count and average outstanding claim cost development factors. The estimated ultimate claim count, related to claims reported, produces a development factor. This, applied to reportings for the group in question, less the number of paid claims, produces the outstanding count.

For all business combined, the average outstanding claim cost related to paid claim cost, produces the average outstanding claim cost factor. This factor, applied to the average paid claim cost for the group in question, develops the average outstanding claim cost. The product of the outstanding

claim count and average outstanding claim cost is the estimated outstanding amount. This, added to the paid amount, yields the estimated ultimate amount for the particular quarter.

Eight quarters, representing the two policy years of the study, are normally accumulated as the next step with sub-totals for each of the two policy years. This produces the entire claim experience over the incurred period of examination. If, within the two fiscal years, a full eight quarters are not available, the maximum number obtainable is used.

DETERMINATION OF RATING ELEMENTS

Permissible Loss Ratio Criteria

The permissible loss ratio used to establish manual rates is based upon the carrier's needs to provide income for the following items:

1. Claim expenses
2. Acquisition expenses other than commissions
3. Commissions
4. General expenses
5. Taxes, licenses and fees
6. Special contingent reserves
7. Profit

Usually, the ratio of these items to premiums collected for some recent period or periods will establish the normal expense, contingency and profit percentage.

Subtracting this ratio from unity will produce a base permissible loss ratio for experience rating. Some of the above items vary in direct proportion to the premium; others are related to losses or depend on company policy. To the extent that the latter items remain fixed as income increases, advance discounts on new business and higher permissible loss ratios on renewal rating may be used for the larger groups. This approach establishes ranges of permissible loss ratios depending upon size of risk.

To attempt to establish a universal scale of permissible loss ratios in this analysis would be out of the question. There are too many variables, particularly when one considers the basic differences in the manner of operation of stock or mutual companies and non-profit service plans. As a specific example, however, I have set up the following scale of permissible loss ratios for one Blue Cross Plan:

Credibility Range	*Permissible Loss Ratio*
.05- .64	.88
.65- .79	.89
.80- .90	.90
.90- .94	.91
.95-1.00	.92

You will notice that this is a very abbreviated scale in comparison with that used by many insurance carriers but it should be borne in mind, here,

that the non-profit nature of service plans necessarily limits the expense factor and consequently abbreviates the range. The relatively high retention on the largest groups is in large part due to the statutory reserve requirements imposed on the particular Plan by the Insurance Department of the state in which it operates.

Adjustment of Experience to Contract Year Level

Premium Adjustment In determining departure of a group's experience from that established as normal, based on total group business, in addition to establishing a permissible loss ratio, the manual rate to be used as a measure must be decided upon. There are several approaches. One is to use the standard manual rates in effect during the experience period. This avoids the necessity of converting losses to the present or anticipated level in determining the departure from normal or permissible. The allowable loss ratio for the period of the study must be determined, however, from the experience of all groups combined. Furthermore, once the departure is established, trends must be analyzed and projections made to place the results on a current basis.

Another approach contemplates adjusting losses from the period studied to reflect increases in incidence and cost and, as accurately as possible, to place them on the level of the group's next policy year. The rate, then, underlying the premium which should be used to measure the departure from normal should be that which would be charged for exactly the same coverage provided during the period studied at the present manual level.

Whichever system is used, it is necessary to determine the contract exposure by classification (employee or individual, two person, family) and by type of coverage or contract held. Group business can be written on an annual, semi-annual, quarterly or monthly premium basis. The most common, however, is monthly business. For this reason, from this point on in this analysis, contract exposure will be taken to mean the number of contract months exposed.

Extension of the total number of contract months exposed in each of the years studied at current manual rates for the coverage provided, by classification and type of contract held, will produce premium on present rate level. This is to be the standard by which I have proposed that the rating will be determined for the Blue Cross Plan under consideration.

Loss Adjustment There are many difficulties in attempting to determine a proper trend factor to be applied to incurred loss amounts of a particular group in order to raise the loss experience to the cost level of the contract year for which we are trying to set the rate.

Most carriers, including the service plans, write both hospital and surgical-medical coverage for their group insureds. Whether the carrier is an insurance company or a service plan, however, it is general practice to segregate hospital from surgical and medical losses and there is a vast difference in projecting these claim costs to the contract year level. Hospital benefits, though often fixed as to room and board allowance, usually provide liberal if not full coverage of extra services and, therefore, are subject to cost variations beyond the control of the carrier. Surgical-medical benefits are usually fixed by a schedule of fees which may have to be raised from time to time, but which is at least

under the carrier's control. For the reasons cited, separate factors should be developed for hospital and for surgical-medical coverage.

The factor to adjust surgical-medical losses to the anticipated level of payment, in the absence of any contemplated change in the schedule of fees, can be based exclusively upon an analysis of year to year increases in incidence. In the particular Blue Cross-Blue Shield Plan which I am using as an example, the increase in in-patient surgical-medical cases has not been significant. The increase in out-patient surgery and diagnostic x-ray has been rather sharp but, since this constitutes a small portion of the overall cost, I have not recommended the application of any loss adjustment factor for this area of coverage. If and when a new schedule of fees is promulgated, then an analysis will have to be made of the impact upon cost and a proper factor applied to place the experience on current cost levels.

In the case of the year to year increase in Blue Cross loss cost, however, the compounding of a modest increase in incidence and accompanying annual increase in hospital cost produces a significant trend so that I have recommended an annual increase factor of 9% based upon a continuing analysis of the overall group experience as shown in Exhibits VII and VIII.

In these computations the reason for segregating the experience on room and board charges is basic to the determination of a proper trend factor. Most groups today are under constant pressure to up-grade their coverage and, unless some recognition is taken of this situation in the calculations, the year to year trends will be distorted by reflecting not pure utilization and charge increases but changes to the contracts with less coinsurance. This difficulty may be overcome by calculating a room and board charge per diem for the previous year and extending the number of in-patient days in the current year at that rate.

Special Maternity "A" in Exhibits VII and VIII is a subdivision of in-patient admissions concerned exclusively with miscarriage or natural abortions. Special Maternity "B" is a subdivision of the in-patient admissions covered on a regular basis regardless of the maternity allowance because of complications at time of delivery.

By determining adjustments to the pure premiums as indicated in the exhibits, to remove the effect of up-grading room and board indemnity coverage, it is then possible to make a direct comparison between the pure premiums in adjacent years to determine the overall increase in loss cost per contract month. Further, by using a three year weighted average increase you will note that, for the two years presented, very stable results are obtained. Exhibit VII produces an indicated annual increase factor of 1.093 and Exhibit VIII, a factor of 1.091.

Having arrived at an annual loss adjustment factor, it remains to apply this to the actual experience of the particular group being rated in order to obtain estimated losses on the future policy year level. To accomplish this, I have recommended that the Blue Cross Plan in question apply to the actual loss experience, for any period studied, a factor of $(1.09)^n$ where n is the number of years in decimal fractions which have elapsed from the midpoint of the period studied to the midpoint of the policy year for which the renewal rate is being calculated.

Mechanics of Computing Rating

The key to the whole problem of experience rating is the development of proper trend and cost adjustment factors to be applied to the group losses reported to project them to the forthcoming contract year level. Their application to the experience and the subsequent rating computations are relatively simple.

At the outset, although we may have used four years of experience in established trends, it is not usually practical to use more than the most recent two years of the group's experience in establishing renewal rates. This practice is actuarially defensible in the case of large groups. In fact, in the case of very large risks, sometimes only the most recent year of experience need be used as a base. For smaller accounts, it would be desirable to accumulate more experience as a rating base but, here, we run into a practical public relations problem. If the experience is good in the early years and poor in more recent periods, the group will gladly accept the inclusion of several prior years. If the reverse situation is true, however, all manner of arguments (some valid) will be advanced both by the sales department and the account itself against the inclusion of the earlier experience.

Although a certain amount of abuse from sales, management and the public at large is the natural lot of actuaries, only the heroic type will maintain a purist attitude when confronted with an irate public which has some basis, in fact, for its position. To cite one example, there are certainly underwriting characteristics of groups which may change over a span of years and have a decided bearing on their experience trends.

In view of the foregoing, I have proposed that renewal rating for this Blue Cross Plan be based on only the most recent two years of the group's experience.

Exhibit IX illustrates the method of computing the annual renewal rate for a sample group based upon the credibility criteria, the scale of permissible loss ratios and the adjustment factors previously outlined.

CONCLUSION

It might be well, before closing this presentation, to consider briefly the social implications of experience rating group hospital, surgical, medical coverage.

In Workmen's Compensation the company purchasing coverage on behalf of its employees has direct control over the experience to the extent that proper training and safety devices have an effect on the risk. In non-occupational hospital, surgical, medical coverage, however, we are dealing with a hazard which is not under the direct control of the company purchasing the coverage.

One might suppose that employees, particularly those who are organized, might object to any form of experience rating, since it would seem natural for the employer to use any means at its disposal to discourage the employees from availing themselves of benefits provided by the contract in order to produce a more favorable experience pattern. Precisely because of the fact that most

enterprises today operate either with union contracts or under the threat of union organization, they are in no position to intimidate their employees. As a matter of fact, it has been my observation that in many instances unions or employee organizations have been among the most vocal groups seeking recognition of experience in determining renewal rates.

In the case of the Blue Cross Plan for which I have recommended the procedure outlined in this paper, one of the requirements of the total experience rating operation—both prospective and retrospective—is that there should be a balance within the program itself. This is necessitated because of the fact that Blue Cross cannot indulge in any form of experience rating in which the overall community of risks is asked in any way to subsidize the rated groups. Proof of the validity of this approach is demonstrated in Exhibit X-Section A which tests the operation of the experience rating program for the fiscal year ending June 30, 1958.

A further, very important, consideration respecting the operation of the prospective rating plan itself is that the final results produce loss ratios within tolerable limits of the anticipated ratios. Exhibit X-Section B indicates that we have come reasonably close, in this particular Plan, to meeting this requirement and it also illustrates the violent off-balance which might have occurred in the experience rating program if no cognizance had been taken of the advancing cost of providing hospital coverage.

In conclusion, I would point out that it is highly unlikely that any formula or tabular approach to prospective rating can be implemented 100%. In the case of jumbo risks, or risks with some peculiar underwriting characteristics, it will always be necessary to modify the formulae, particularly as regards the use of trend factors. For the vast majority of risks, however, the uniform application of a well defined method of experience rating has proved eminently satisfactory both to the Blue Cross Plan involved and to their group accounts.

This presentation is not intended to serve as an answer to all of the problems which confront the insurance industry in experience rating hospital, surgical and medical business. It is my hope, however, that some of the concepts which have proved so successful for the specific carrier analyzed may be of some use to the industry or may provoke further experimentation in this field.

EXHIBIT I

Annual Incidence Per 1000 Contracts
Individual & Family Combined—All Group Business
Year Ending June 30, 1951

	Item	*In-Patient*	*Out-Patient*	*Source*
1.	Total Claim Count 1950	163,800	33,075	1950 Annual Statement Group Business Only
2.	Group Contracts in Force @ 12/31/49	575,527	575,527	Same as Item 1.
3.	Group Contracts in Force @ 12/31/50	627,242	627,242	Same as Item 1.
4.	Av. No. Group Contracts in Force Year End 12/31/50	601,385	601,385	[Item 2 + Item 3] ÷ 2
5.	1950 Annual Claim Incidence per 1000 Contracts	272	55	[Item 1 ÷ Item 4] × 1000
6.	Total Claim Count 1951	178,469	42,661	1951 Annual Statement Group Business Only
7.	Group Contracts in Force @ 12/31/50	627,242	627,242	Same as Item 6
8.	Group Contracts in Force @ 12/31/51	660,761	660,761	Same as Item 6
9.	Av. No. Group Contracts in Force Year End 12/31/51	644,002	644,002	[Item 7 + Item 8] ÷ 2
10.	1951 Annual Claim Incidence per 1000 Contracts	277	66	[Item 6 ÷ Item 9] × 1000
11.	Estimated Av. Annual Claim Incidence per 1000 Contracts Year End 6/30/51	275	61	[Item 5 + Item 10] ÷ 2

EXHIBIT II-A

Total Group Business
Annual Incidence Per 1000 Contracts — In-Patient Only
Diagnostic In-Patient Excluded
Projected to June 30, 1961

INDIVIDUAL

Rate Study Year End 6/30	X	Y	XY	X^2
1955	0	105	0	0
1956	1	106	106	1
1957	2	109	218	4
1958	3	111	333	9
Σ	6	431	657	14

$$4a + 6b = 431$$
$$6a + 14b = 657$$
$$24a + 36b = 2586$$
$$24a + 56b = 2628$$
$$20b = 42$$
$$b = 2.1$$
$$a = 104.6$$
$$Ye = a + b\ (\times)$$

Notation:
Ye = Year End 6/30

1959 Ye = 104.6 + 2.1(4)
1959 Ye = 113.0
1960 Ye = 115.1
1961 Ye = 117.2
Average 1960-1961 = 116.2

FAMILY

1955	0	416	0	0
1956	1	433	433	1
1957	2	438	876	4
1958	3	442	1326	9
Σ	6	1729	2635	14

$$4a + 6b = 1{,}729$$
$$6a + 14b = 2{,}635$$
$$24a + 36b = 10{,}374$$
$$24a + 56b = 10{,}540$$
$$20b = 166$$
$$b = 8.3$$
$$a = 419.8$$

Notation:
Ye = Year End 6/30

$$Ye = a + b\,(X)$$
$$1959\ Ye = 419.8 + 8.3(4)$$
$$1959\ Ye = 453$$
$$1960\ Ye = 461.3$$
$$1961\ Ye = 469.6$$
$$\text{Average } 1960\text{-}61 = 465.5$$

Average 1960-1961 Composite Annual Incidence per 1000 Contracts (Excluding Diagnostic) Based on Estimated Group Contracts in Force @ 6/30/60
(See Exhibit III for example of method) 345.8

EXHIBIT II-B

Total Group Business
Annual Incidence Per 1000 Contracts — Out-Patient Only
Diagnostic Out-Patient Excluded
Projected to June 30, 1961

INDIVIDUAL

Rate Study Year End 6/30	X	Y	XY	X^2
1955	0	29	0	0
1956	1	32	32	1
1957	2	34	68	4
1958	3	47	141	9
Σ	6	142	241	14

$$4a + 6b = 142$$
$$6a + 14b = 241$$
$$24a + 36b = 852$$
$$24a + 56b = 964$$
$$20b = 112$$
$$b = 5.6$$
$$a = 27.1$$

Notation:
Ye = Year End 6/30

Ye = a + b (×)
1959 Ye = 27.1 + 5.6(4)
1959 Ye = 49.5
1960 Ye = 55.1
1961 Ye = 60.7
Average 1960-1961 = 57.9

FAMILY

1955	0	152	0	0
1956	1	168	168	1
1957	2	187	374	4
1958	3	228	684	9
Σ	6	735	1226	14

$$4a + 6b = 735$$
$$6a + 14b = 1226$$
$$24a + 36b = 4410$$
$$24a + 56b = 4904$$
$$20b = 494$$
$$b = 24.7$$
$$a = 146.7$$

Notation:
Ye = Year End 6/30

$$Ye = a + b\ (\times)$$
$$1959\ Ye = 146.7 + 24.7(4)$$
$$1959\ Ye = 245.5$$
$$1960\ Ye = 270.2$$
$$1961\ Ye = 294.9$$
$$\text{Average } 1960\text{-}61 = 282.6$$

Average 1960-1961 Composite Annual Incidence per 1000 Contracts (Excluding Diagnostic) Based on Estimated Group Contracts in Force @ 6/30/60 (See Exhibit III for example of method) 205.6

EXHIBIT III

Total Group Business
Incidence Per 1000 Contracts — In-Patient and Out-Patient
Diagnostic Only
Projected to 1960-1961

Item	*Annual Incidence Per 1000 Contracts* Individual	Family	Source
1. Total Excluding Diagnostic Year End 6/30/58	158.0	670.0	Exhibits II-A and II-B In- and Out-Patient Combined
2. Total Excluding Diagnostic average 1960-61	174.1	748.1	Exhibits II-A and II-B In- and Out-Patient Combined
3. Ratio — Average 1960-61 to Year End 6/30/58	1.102	1.117	Item 2 ÷ Item 1
4. Total Diagnostic Year End 6/30/58	14	42	Blue Cross Rate Analysis Year End 6/30/58
5. Estimated Diagnostic Incidence 1960-1961	15.4	46.9	Item 3 × Item 4*
6. Composite Diagnostic Indence	36.1		**

*Prior to the year ending June 30, 1958, no diagnostic coverage was provided; therefore, it was necessary to apply a projection factor to this incidence based on trends for other services. Since diagnostic coverage was provided on both an in-patient and out-patient basis it was considered reasonable to use total in-patient and out-patient incidence combined for all other services as a base for the factor.

**Since 265,500 Individual and 509,000 Family contracts, estimated to be in force at June 30, 1960, represent the situation at midpoint of the period July 1, 1959 through June 30, 1961, Item 5 was composited as follows:

$$\frac{265{,}500 \times 15.4 + 509{,}000 \times 46.9}{265{,}500 + 509{,}000} = 36.1$$

EXHIBIT IV

Comparison of Annual Incidence Per 1000 Contracts
All Group Business
Fiscal Years Ending 6/30/61 and 1951

Item	*Amount*	*Weight*	*Source*
1. Composite Annual Claim Incidence per 1000 Contracts Average 7/1/59-6/30/61			
A—In-Patient	346	1.00	Amount—Exhibit II-A Weight—See Note
B—Out-Patient	206	.50	Amount—Exhibit II-B Weight—See Note
C—Diagnostic	36	.50	Amount—Exhibit III Weight—See Note
D—Weighted Total	467	—	Weighted Totals of Items 1A, 1B and 1C
2. Composite Annual Claim Incidence per 1000 Contracts Year End 6/30/51			
A—In-Patient	275	1.00	Amount—Exhibit I Weight—See Note
B—Out-Patient	61	.50	Amount—Exhibit I Weight—See Note
C—Weighted Total	306	—	Weighted Totals of Items 2A and 2B
3. Increased Incidence Factor	1.526		Item 1D ÷ 2C
4. Proposed Credibility Adjustment Factor	1.55		Item 3 Rounded

Note — In view of the sharp increase in out-patient incidence and its attendant effect on the credibility adjustment factor, and, considering the relatively low average case value for this type of claim, it would seem desirable to limit the effect of the increase in utilization of out-patient services. A weight of 50%, based on judgement, was considered reasonable.

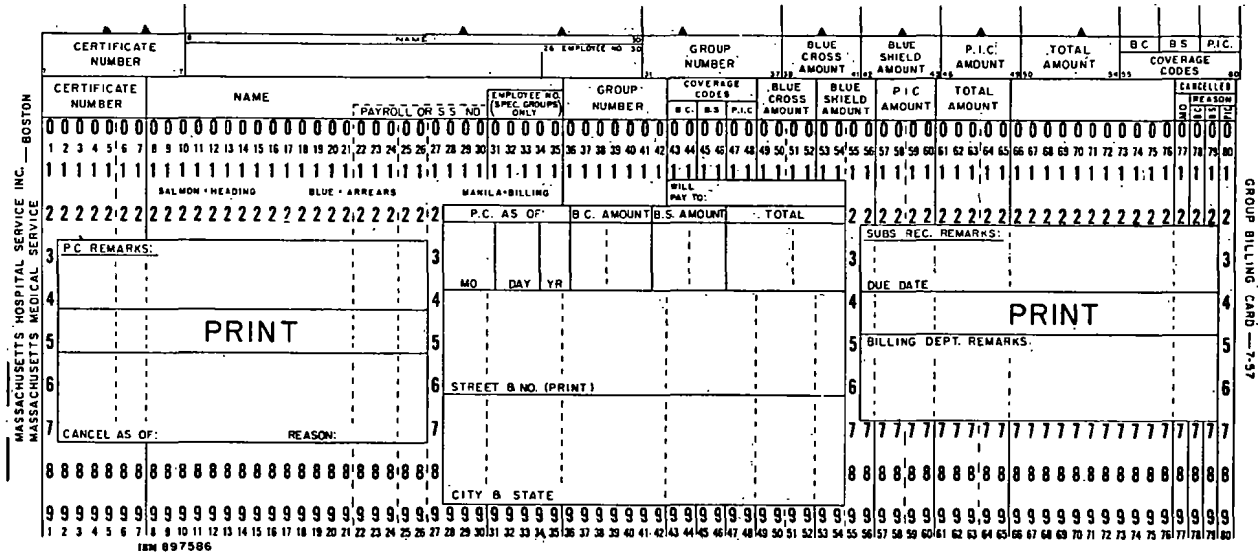
EXHIBIT V

1959 Revision of Basic Credibility Table Effective 7/1/59-6/30/61

(1)	(2)	(3)*	(4)**	(1)	(2)	(3)*	(4)**
	No. of Weighted Contract Months				No. of Weighted Contract Months		
Cred.	Pres. Table Lower Limit	1959-1961 Level Lower Limit	Proposed Table Upper Limit	Cred.	Pres. Table Lower Limit	1959-1961 Level Lower Limit	Proposed Table Upper Limit
.05	1,728	1,115	1,393	.53	24,516	15,817	16,025
.06	2,160	1,394	1,664	.54	24,840	16,026	16,218
.07	2,580	1,665	1,942	.55	25,140	16,219	16,412
.08	3,012	1,943	2,221	.56	25,440	16,413	16,605
.09	3,444	2,222	2,507	.57	25,740	16,606	16,799
.10	3,888	2,508	2,802	.58	26,040	16,800	16,993
.11	4,344	2,803	3,104	.59	26,340	16,994	17,178
.12	4,812	3,105	3,413	.60	26,628	17,179	17,364
.13	5,292	3,414	3,723	.61	26,916	17,365	17,550
.14	5,772	3,724	4,040	.62	27,204	17,551	17,728
.15	6,264	4,041	4,365	.63	27,480	17,729	17,906
.16	6,768	4,366	4,691	.64	27,756	17,907	18,084
.17	7,272	4,692	5,024	.65	28,032	18,085	18,262
.18	7,788	5,025	5,364	.66	28,308	18,263	18,440
.19	8,316	5,365	5,705	.67	28,584	18,441	18,618
.20	8,844	5,706	6,053	.68	28,860	18,619	18,796
.21	9,384	6,054	6,409	.69	29,136	18,797	18,974
.22	9,936	6,410	6,765	.70	29,412	18,975	19,153
.23	10,488	6,766	7,122	.71	29,688	19,154	19,323
.24	11,040	7,123	7,485	.72	29,952	19,324	19,501
.25	11,604	7,486	7,849	.73	30,228	19,502	19,687
.26	12,168	7,850	8,213	.74	30,516	19,688	19,873
.27	12,732	8,214	8,585	.75	30,804	19,874	20,058
.28	13,308	8,586	8,949	.76	31,092	20,059	20,252
.29	13,872	8,950	9,313	.77	31,392	20,253	20,445
.30	14,436	9,314	9,669	.78	31,692	20,446	20,647
.31	14,988	9,670	10,025	.79	32,004	20,648	20,848
.32	15,540	10,026	10,373	.80	32,316	20,849	21,049
.33	16,080	10,374	10,722	.81	32,628	21,050	21,266
.34	16,620	10,723	11,062	.82	32,964	21,267	21,491
.35	17,148	11,063	11,387	.83	33,312	21,492	21,723
.36	17,652	11,388	11,713	.84	33,672	21,724	21,963
.37	18,156	11,714	12,022	.85	34,044	21,964	22,203
.38	18,636	12,023	12,332	.86	34,416	22,204	22,458
.39	19,116	12,333	12,634	.87	34,812	22,459	22,722
.40	19,584	12,635	12,920	.88	35,220	22,723	23,016
.41	20,028	12,921	13,199	.89	35,676	23,017	23,318
.42	20,460	13,200	13,470	.90	36,144	23,319	23,643
.43	20,880	13,471	13,733	.91	36,648	23,644	24,014
.44	21,288	13,734	13,989	.92	37,224	24,015	24,433
.45	21,684	13,990	14,244	.93	37,872	24,434	24,905
.46	22,080	14,245	14,484	.94	38,604	24,906	25,416
.47	22,452	14,485	14,716	.95	39,396	25,417	26,213
.48	22,812	14,717	14,949	.96	40,632	26,214	27,537
.49	23,172	14,950	15,173	.97	42,684	27,538	29,380
.50	23,520	15,174	15,390	.98	45,540	29,381	31,741
.51	23,856	15,391	15,607	.99	49,200	31,742	34,621
.52	24,192	15,608	15,816	1.00	53,664	34,622 & Over	

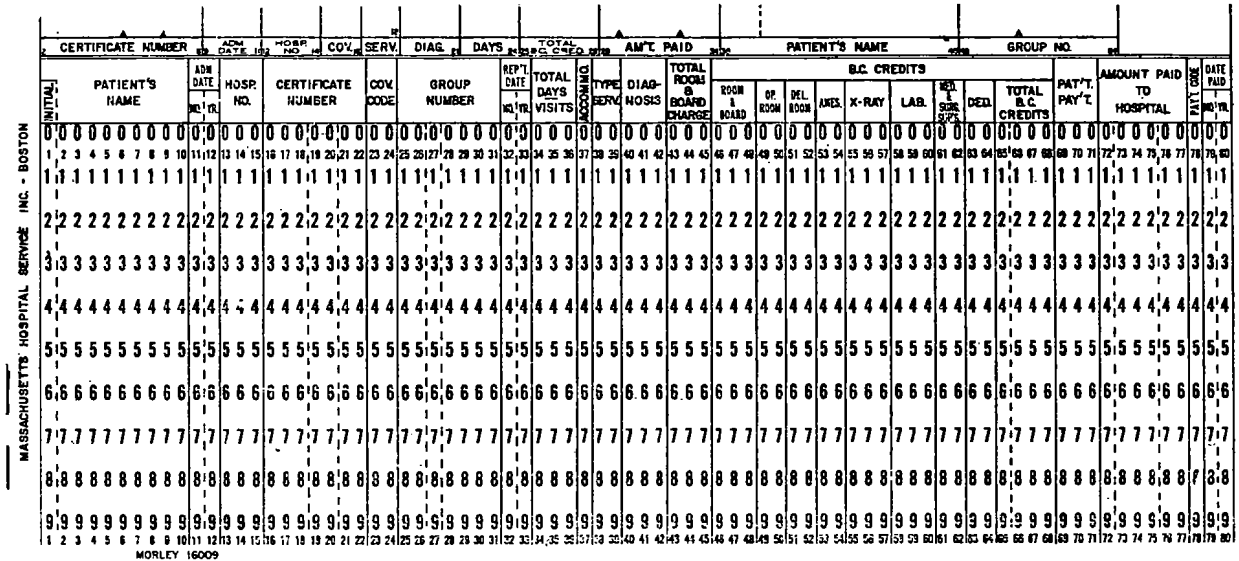
* Column 2 ÷ 1.55 (See Exhibit IV) — ** Next Higher Class Lower Limit — 1

HOSPITAL, SURGICAL, MEDICAL DETAIL PREMIUM CARD



Most of the fields in the above card require no detailed explanation with the possible exception of Columns 43 through 48 and Columns 78 through 80. This particular Blue Cross Plan has a great many difierent types of contracts in force with varying amounts of deductible or coinsurance. The coverage codes identify the particular type of contract and further distinguish between employee or individual and family coverage. The cancellation codes are set up to identify the specific reason for the individual cancellation as an aid in analyzing terminations for management and sales.

HOSPITAL CLAIMS PAYMENT AND STATISTICAL CARD



Column 37 refers to the particular type of accommodation occupied. That is, private room, semi-private room, ward or out-patient department. Columns 38 and 39 identify the type of service such as medical, mental, surgical, maternity, out-patient surgery, etc. Columns 40 through 42 identify specific diagnoses based on the International Classification of Diseases. Columns 63 through 64 will show the exact amount of deductible paid by the patient on limited contracts.

Calculation of Annual Increase in Loss Cost
For Use in Adjusting Group Experience
Source: Fiscal Year Rate Analyses—All Group Business Combined

Item	Year Ending 6/30 1955	1956	1957	1958
1—Total Individual and Family Contract Month Exposure	8,382,191	8,724,964	8,915,956	8,584,151
2—Non-Maternity In-Patient Room and Board Amount	$14,810,432.00	$16,943,902.63	$17,891,475.01	$19,766,956.34
3—Non-Maternity In-Patient Room and Board Days	1,446,729	1,562,881	1,551,334	1,540,987
4—Non-Maternity In-Patient Room and Board Per Diem [(2)÷(3)]	$10.24	$10.84	$11.53	
5—Non-Maternity In-Patient Room and Board Per Diem Previous Year		$10.24	$10.84	$11.53
6—Non-Maternity In-Patient Room and Board Adjusted Amount [(3)×(5)]		$16,003,901.44	$16,816,460.56	$17,767,580.11
7—Non-Maternity In-Patient Adjustment to Pure Premium [(6)÷(1)—(2)÷(1)]		—$.108	—$.121	—$.233
8—Special Maternity 'A' Room and Board Amount	$280,338.26	$300,101.01	$329,872.78	$330,913.42
9—Special Maternity 'A' Room and Board Days	26,605	26,903	27,906	25,290
10—Special Maternity 'A' Room and Board Per Diem [(8)÷(9)]	$10.54	$11.15	$11.82	
11—Special Maternity 'A' Room and Board Per Diem Previous Year		$10.54	$11.15	$11.82
12—Special Maternity 'A' Room and Board Adjusted Amount [(9)×(11)]		$283,557.62	$311,151.90	$298,927.80
13—Special Maternity 'A' Adjustment to Pure Premium [(12)÷(1)—(8)÷(1)]		—$.002	—$.002	—$.004
14—Special Maternity 'B' Room and Board Amount	$279,099.76	$320,780.66	$335,891.19	$342,932.00
15—Special Maternity 'B' Room and Board Days	26,366	28,229	28,195	26,085
16—Special Maternity 'B' Room and Board Per Diem [(14)÷(15)]	$10.59	$11.36	$11.91	
17—Special Maternity 'B' Room and Board Per Diem Previous Year		$10.59	$11.36	$11.91
18—Special Maternity 'B' Room and Board Adjusted Amount [(15)×(17)]		$298,945.11	$320,295.20	$310,672.35
19—Special Maternity 'B' Adjustment to Pure Premium [(18)÷(1)—(14)÷(1)]		—$.003	—$.002	—$.004
20—Total Adjustment to Pure Premium [(7)+(13)+(19)]		—$.113	—$.125	—$.241
21—Grand Total Claim Amount Incurred	$27,586,722.61	$32,492,184.74	$34,048,009.64	$40,067,314.49
22—Total Unadjusted Composite Pure Premium [(21)÷(1)]	$3.291	$3.724	$3.819	$4.668
23—Total Adjusted Composite Pure Premium [(22)—(20)]		$3.611	$3.694	$4.427
24—% Annual Increase in Blue Cross Cost (ratio present year adjusted pure premium to previous year unadj. pure premium — 1.00)		9.7%	—.8%	15.9%
25—3 Year Weighted % Annual Increase in Blue Cross Cost (weights; 1958 — 3; 1957 — 2; 1956 — 1)	9.3%			

EXHIBIT VIII

Calculation of Annual Increase in Loss Cost
For Use in Adjusting Group Experience
Source: Fiscal Year Rate Analyses—All Group Business Combined

Item	Year Ending 6/30 1956	1957	1958	1959
1—Total Individual and Family Contract Month Exposure	8,724,964	8,915,956	8,584,151	8,629,886
2—Non-Maternity In-Patient Room and Board Amount	$16,943,902.63	$17,891,475.01	$19,766,956.34	$22,604,071.98
3—Non-Maternity In-Patient Room and Board Days	1,562,881	1,551,334	1,540,987	1,614,760
4—Non-Maternity In-Patient Room and Board Per Diem [(2)÷(3)]	$10.84	$11.53	$12.83	
5—Non-Maternity In-Patient Room and Board Per Diem Previous Year		$10.84	$11.53	$12.83
6—Non-Maternity In-Patient Room and Board Adjusted Amount [(3)×(5)]		$16,816,460.56	$17,767,580.11	$20,717,370.80
7—Non-Maternity In-Patient Adjustment to Pure Premium [(6)÷(1)—(2)÷(1)]		—$.121	—$.233	—$.218
8—Special Maternity 'A' Room and Board Amount	$300,101.01	$329,872.78	$330,913.42	$352,918.74
9—Special Maternity 'A' Room and Board Days	26,903	27,906	25,290	24,930
10—Special Maternity 'A' Room and Board Per Diem [(8)÷(9)]	$11.82	$11.82	$13.08	
11—Special Maternity 'A' Room and Board Per Diem Previous Year		$11.15	$11.82	$13.08
12—Special Maternity 'A' Room and Board Adjusted Amount [(9)×(11)]		$311,151.90	$298,927.80	$326,084.40
13—Special Maternity 'A' Adjustment to Pure Premium [(12)÷(1)—(8)÷(1)]		—$.002	—$.004	—$.003
14—Special Maternity 'B' Room and Board Amount	$320,780.66	$335,891.19	$342,932.00	$375,148.32
15—Special Maternity 'B' Room and Board Days	28,229	28,195	26,085	26,547
16—Special Maternity 'B' Room and Board Per Diem [(14)÷(15)]	$11.36	$11.91	$13.15	
17—Special Maternity 'B' Room and Board Per Diem Previous Year		$11.36	$11.91	$13.15
18—Special Maternity 'B' Room and Board Adjusted Amount [(15)×(17)]		$320,295.20	$310,672.35	$349,093.05
19—Special Maternity 'B' Adjustment to Pure Premium [(18)÷(1)—(14)÷(1)]		—$.002	—$.004	—$.003
20—Total Adjustment to Pure Premium [(7)+(13)+(19)]		—$.125	—$.241	—$.224
21—Grand Total Claim Amount Incurred	$32,492,184.74	$34,048,009.64	$40,067,314.49	$45,365,247.38
22—Total Unadjusted Composite Pure Premium [(21)÷(1)]	$3.724	$3.819	$4.668	$5.257
23—Total Adjusted Composite Pure Premium [(22)—(20)]		$3.694	$4.427	$5.033
24—% Annual Increase in Blue Cross Cost (ratio present year adjusted pure premium to previous year unadj. pure premium — 1.00)		—.8%	15.9%	7.8%
25—3 Year Weighted Average % Annual Increase in Blue Cross Cost (weights; 1959 — 3; 1958 — 2; 1957 — 1)	9.1%			

EXHIBIT IX

Sample Computation of Renewal Rating to be Effective 10/1/60 Based on Incurred Period 10/1/57-9/30/59, Paid through 3/31/60

Item	— Loss Experience — No. of Claims	Amount	Premium	Loss Ratio
First Incurred Year — October 1, 1957-September 30, 1958				
1—Actual Paid Basis	296	$25,183.19	$28,449.00	.89
2—Estimated Outstanding	—	—	—	—
3—Estimated Ult. Incurred	296	25,183.19	28,449.00	.89
4—Adj. to Anticipated Level		32,486.32(A)	31,854.00(B)	1.02
Second Incurred Year — October 1, 1958-September 30, 1959				
5—Actual Paid Basis	321	$29,423.06	$33,682.80	.87
6—Estimated Outstanding	5	750.00(C)	—	—
7—Estimated Ult. Incurred	326	30,173.06	33,682.80	.90
8—Adj. to Anticipated Level		35,905.94(D)	32,064.00(E)	1.12
Two Years Combined				
9—Item 4 + Item 8	622	$68,392.26	$63,918.00	1.07

Rating Procedure

$$\left[\frac{(\text{Loss Ratio} - \text{Permissible Loss Ratio})}{(\quad \text{Permissible Loss Ratio} \quad)} \times \text{Credibility}\right] \text{Rounded to nearest 5\%} = \text{Rating}$$

Loss Ratio = 1.07
Credibility = .80*
Permissible Loss Ratio = .90

$$\left[\frac{(1.07 - .90)}{(\quad .90 \quad)} \times .80 = +.151\right] \text{Rounded to nearest 5\%} = +15\%$$

* Credibility—Contract Months Exposed: Individual 2400; Family 7440
Computation: 2400 + (2.5) 7440 = 21,000
Based on revised credibility table 21,000 weighted contract months = .80 Cred.

NOTES: (A)—The estimated annual increase in cost is 9% based on statewide Blue Cross experience for the four most recent fiscal years. This increase is attributed to two factors; higher hospital costs and increased utilization. In order to reflect anticipated costs during the forthcoming policy year a factor of $(1.09)^n$ is applied to the actual incurred loss amount. The exponent "n" is the number of years in decimal fractions which will have elapsed from the midpoint of the experience period to the midpoint of the forthcoming policy year. In this case, the respective midpoints are 3/31/58 and 3/31/61 for a difference of 3.0 years which, when translated into the formula as an exponent, develops an adjustment factor of $(1.09)^{3.0}$ or 1.29. The computation, therefore, is: $1.29 \times \$25,183.19 = \$32,486.32$.

(B)—At 4/1/58 a new manual rate went into effect for the coverage held during the policy year of this study. These same standard rates are in effect today. A premium credit was obtained for the group based on the number of Individual and Family contracts in force during the experience period multiplied by this standard manual rate. Thus we can

measure the anticipated loss experience against the standard premium which would be charged currently for the coverage provided and thereby determine what, if any, deviation from the manual rate is indicated in this case.

(C)—Through 6/30/60 we had already paid out $525.00 against the $750.00 which was set up as an outstanding liability so this figure appears altogether reasonable.

(D)—See (A) for general explanation. In this case respective dates are 3/31/59 and 3/31/61, a difference of 2.0 years. The adjustment factor is, therefore, $(1.09)^{2.0}$ or 1.19. Following is the computation: $1.19 \times \$30,173.06 = \$35,905.94$.

(E)—During this experience period (10/1/58-9/30/59) the present standard rates plus 5% were charged as a result of the rate adjustment effective 10/1/58. Since a premium was collected which was higher than the standard level, a downward adjustment was necessary to reduce the premium to the anticipated standard collectible level. This accounts for the slight reduction in premium from the actual level for this experience period.

EXHIBIT X

SECTION A

Analysis of Group Experience-Fiscal Year Ending June 30, 1958

	*Net Earned Premium**	*Incurred Loss*	*Loss Ratio*
All Group Business Rated & Non-Rated	$46,079,519	$40,067,314	87.0
Sample of Experience Rated Gp. Business	13,711,425	11,886,444	86.7

* Gross earned premium less retrospective refunds.

SECTION B

Analysis of Group Experience
Sample of 100 Rated Groups-Fiscal Year Ending June 30, 1959

	Gross Earned Premium(A)	*Incurred Loss*	*Loss Ratio*
Actual Experience	$2,872,111	$2,512,917	87.5
Indicated Experience(B)	2,443,180	2,512,917	102.9

NOTES: (A)—Gross earned premiums are used in this section of Exhibit X because it is desired to illustrate how closely the prospective rating program comes to producing the desired or mean permissible loss ratio of 90.0 without the adjusting effect of retrospective refunds.

(B)—The gross earned premium for each account was reconstituted by extension of the total contract months exposed during the year ending 6/30/59 at rates which would have been charged had no loss projection factor been used in determining the experience rating at 7/1/58. The reason for this maneuver is to demonstrate the need for a factor to reflect the rising cost of hospital care.