Heart Disease and Workmen's Compensation

What Are the Costs to the Insurance Carrier?

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"EVERY CARDIAC INJURY CLAIM gets an award, and every award is a sizable one." This generalization concerning the awards under the Workmen's Compensation Act of the State of California stands as an increasingly obstinate barrier to the rehabilitation of cardiac cases in this State. The recognition of this fact was translated into a tangible form of action in 1955 when a team of research workers sponsored by the Cardiac in Industry Committee of the California Heart Association undertook a study of "Heart Disease Claims under the California Workmen's Compensation Act" — in order to substitute some facts for opinions in the crucial area of whether or not a cardiac accident is work connected. The authors concluded that heart disease claims filed in the study period (1948-1951) were not very great in comparison to the size of the State's population and to the number of deaths caused by heart disease; heart claims constituted 1.7 percent of all claims decided by the Industrial Accident Commission during this period. They noticed discrepancies in judgment among physicians and concluded that education of physicians for the part they play in these case proceedings is needed. Their final statement said, "It may also be pointed out that the allegation that 'every heart claim gets an award' has not been substantiated by this study."1

In 1959 the present authors organized a follow-up study, sponsored by the Committee on Rehabilitation of the California Heart Association. This study was designed to attack the area of costs—what the insurance carriers (and, ultimately, the employers) paid to workers or survivors filing cardiac accident claims for the period 1948-1951. The Committee would like to offer these data in a comparative way with figures from other states and with cost data associated with other types of injury. Yet it seems that the information for comparison is not available; this investigation, then, must stand on its own or serve as a basis for later comparison.

The authors also are fully aware that costs for the period 1948-1951 cannot be accepted as directly representative of costs a decade later. The cases from this 4-year span were selected because they were the cases used in the original study and because during this span all cardiac cases went to a referee of the Industrial Accident Commission for disposition. In subsequent years all cases have not gone to referees, which introduces another variable into such a cost investigation. Thus it would seem that the figures for any time span—no matter how recent—would have to be qualified. The results of this investigation are offered as a point of departure and a base for further study.

A total of 523 case-record abstracts (filed in the Northern and the Southern California offices of the IAC) were available for use in the selection of a study sample. In the original study the cases for each district office were numbered consecutively; using a table of random numbers, the investigators selected 100 cases and 14 alternates to be included in the sample.

Out of the total of 114 cases, two were found to be noncardiac injuries and five (4 percent) offered no cost information of any kind, leaving a working sample of 107 cases.

The procedure for gathering the data consisted of tracking each selected case back to

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the insurance carrier and obtaining, either through a mailed form or the investigator's personal visit, all the cost data available. When the company was unable to provide information (due to destruction of records) the investigator went back to the case summary developed and utilized in the original Beard study, which provided the major cost items in most cases.

The information sought was as follows:

1. Amount paid on Temporary Disability (amount per week, number of weeks, and total amount).
2. Amount paid for Permanent Disability (amount per week, number of weeks, and total amount—for both Permanent Total Disability and Life Pension).
3. Amount paid for medical care.
5. Amount paid in Death Benefits, either as direct benefits or as burial expense.
7. Amount of other Direct Costs (investigations, phone charges, medical examinations, etc.).
8. Amount in reserve set aside if the injured is still living.
10. Amount of Indirect Costs.

Sixty of the cases (56 per cent) provided "full information," defined as those cases in which items 1 through 8 in the foregoing list were included or apparently nonexistent. Forty-seven cases (44 per cent) were represented by partially complete figures; in 38 of these (35 per cent of the total) the information came from the abstracted case record previously referred to.

The following profile of the sample can be sketched in from a review of the data*:

* A number of the case reports were much less precise as to the exact breakdown of the award than the categories set up for this study; as a consequence, the investigator had to make a number of judgments—with consistency as one of the major guideposts—as to how particular cases and amounts should be considered.

Out of 107 cases in the sample,

1. Seventy-nine (74 per cent) received awards of some magnitude, while 28 (26 per cent) were denied any compensation.

2. Nine cases (8 per cent) were awarded Temporary Total Disability; six (6 per cent) were awarded Permanent Disability; four (4 per cent) received both, five (5 per cent) were awarded some unknown combination (including death benefits), making a total of 34 (22 per cent) who received awards of disability payments.

3. The most prevalent type of compensation was the Compromise and Release Settlement, which went to 46 of the cases (43 per cent); this form of settlement was at least part of 58 per cent of all awards.

4. Twelve cases were awarded statutory death benefits (12 per cent).

5. Medical payments were awarded in 37 of the cases (35 per cent); in addition, nine (8 per cent) were reimbursed for medical examinations in conjunction with hearing proceedings or death. Of the former group 17 (16 per cent) were compensated for both disability and medical care, 11 (10 per cent) received medical reimbursement plus a compromise and release settlement, four (4 per cent) were awarded a combination of medical care, temporary disability, and compromise and release, three (3 per cent) received medical plus death benefits, and two (2 per cent) medical expenses alone.

6. Six cases from the total sample (5 per cent) are still open and being paid (8 to 13 years after injury).

7. Out of the 114 cases initially selected for review, two were noncardiac; of the remaining 112 heart cases, 49 (44 per cent) were dead at the time the Industrial Accident Commission decision was rendered (fig. 1).

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(24 cases)

Figure 1

Major varieties of Workmen's Compensation benefits awarded to a sample of 107 heart disease claimants, California, 1948-1951. (The percentages in this figure total more than 100 per cent due to the fact that five cases (5 per cent) received both temporary disability and a Compromise and Release settlement and thus were counted twice, and the fact that all but two (5 per cent) of those receiving medical treatment costs were awarded some other form of benefit as well.)

those cases with reasonably complete information and those with partial or incomplete information the cost figures must show these two categories. Table 1 presents the mean and median total costs for a cardiac injury (rounded off to the nearest whole dollar).

If one considers total costs from a slightly different viewpoint, it can be shown that among the 60 cases for which data were complete, 20 (33 per cent) cost less than $1,000, while 22 (37 per cent) amounted to $6,000 or more. For 30 cases with incomplete figures on the payments paid, seven (15 per cent) averaged less than $1,000, and three (10 per cent) cost above $6,000 each. Putting all the figures together, 27 (25 per cent) of the cases cost less than $1,000, while 25 (23 per cent) received awards and incurred costs totaling $6,000 or more per case (fig. 2).

There is a temptation to infer that the costs of the cases with "incomplete information" would approach those with "complete information" if all the data concerning them were available. This inference is probably incorrect. The major items of compensation payments and medical benefits were complete in most instances; the information lacking was mainly with respect to investigational costs, medical examinations, and similar relatively inexpensive items. Simply because they were more important, more complete records were kept on the high-cost cases.

The range in costs of the 79 cases receiving awards was from $76.89 to $30,541, with the latter case still "open" and receiving compensation. (Both of these were "complete" information cases.)

If one looks at the total cost picture in still another way, it can be shown that the six cases (6 per cent) with the highest awards (averaging just over $15,000 each) cost the insurance carriers a total of $90,610—or 26 per cent of the total awarded in cardiac cases for the sample in the 4-year period. To approximate this figure from the low compensation award cases would require 59 cases (55 per cent), the total costs from which total $89,974 (26 per cent).

Total awards and costs have thus been presented in a number of ways; it would now seem appropriate to break these down and look at them in terms of the "categories"

Table 1

| Mean and Median Total Costs for a Cardiac Injury, California, 1948-1951 |
|---------------------------------|-----------------|
| Mean total cost per case (full information) | $4,486 |
| Mean total cost per case (incomplete information) | $1,584 |
| Mean total cost per case (both) | $3,211 |
| Median total cost per case (full information) | $3,291 |
| Median total cost per case (incomplete information) | $713 |
| Median total cost per case (both) | $1,663 |
spelled out in the earlier profile. Figures used in the succeeding paragraphs refer, then, only to that portion of the total sum paid which was designated temporary disability, medical, Compromise and Release, etc.

As was indicated earlier Compromise and Release settlements were the most frequent result of a cardiac injury claim. Of the 45 cases so settled the mean cost was $2,427, the median cost was $1,750, and the range was from $9 to $7,500, with 24 per cent of the cases under $1,000 and only 15 per cent above $4,000.

Nine cases from the sample (8 per cent) were awarded Temporary Disability. The mean cost of these awards was $1,051, and the median cost was $876.43. The range of judgments was from $90 to $2,790.

The six cases (6 per cent) receiving Permanent Disability represented a range between $2,179 and $9,496, with a mean cost of $6,701, and a median of $7,335. In these cases the awards tended to cluster in the $6,000 and $7,000 categories, so that disregarding the one low award would raise the mean to $7,065. These figures can be considered indicative only of relative costs for a timespan, inasmuch as four of the six are still “open” cases. Two cases are receiving $18.46 per week, one $6 per week, and the fourth $3.85 per week as a life pension.

A total of 24 cases (22 per cent) received disability awards of some type. The range of awards was from $90 to $30,541; the mean cost was $5,431, and the median was $4,649. As would be expected these disability cases were somewhat more expensive than the average; whereas the number of cases (24) represents only 22 per cent of the total working sample, the total cost of the cases represents 38 per cent of the total cost.

Twelve awards (11 per cent) were death benefits; the mean of these was $5,471 and the median $5,800. (Disregarding one very low award brings the mean figure to $6,010, an even closer approximation to the median.)

Mean medical costs for the 37 cases in which this form of compensation was given were $1,111, but this figure was greatly influ-

Figure 2
Total costs per case of 90 cases of heart injury, California, 1948-1951. The 90 cases include the 79 that received awards plus 11 that received no award but cost the insurance carrier an identifiable sum of money. The 17 cases that cost nothing are not included. In these 11 cases, then, “received no award” is not synonymous with “cost nothing.”

enced by a few large awards. Specifically, it can be shown that the five cases receiving awards of more than $2,000 (averaging just over $4,000), while representing only 14 per cent of the total number, cost their carriers an amount equal to 52 per cent of the total cost of medical care. Without these five cases the mean cost is slightly more than half its original size ($622) and more closely approximates the median expense figure of $467. Four cases are still “open,” the carrier being responsible for all further medical bills related to the cardiac condition.

The category “Other Direct Costs” contained a figure in 50 of the cases (47 per cent); the range of costs was $2.50 to $627.12, the mean cost $142 and the median $50. Again a rather large gap is noted between the mean and median, which is partially explained by the revelation that 50 per cent of the costs were under $50 and a total of 64 per cent were under $100, with 18 per cent between $100 and $200, 10 per cent between $250 and $350, and the final 8 per cent costing over $350.

Another interesting group of figures available to the investigator involved time rather than money—and may be helpful in answering questions such as “how long does it take to complete a case?” or “How long is it, typically, between a cardiac injury and set-
tlement of the claim" It was found that a mean period of 6.1 months passed between the day of injury and the day of filing the first claim with the Industrial Accident Commission (median—5 months). Nearly 50 per cent filed within 5 months, but 5.5 per cent took more than 2 years to take this action.

It also was found that the total mean time span from first Industrial Accident Commission entry until the last closing item was 11.4 months. If the three cases with long settlement periods (50 to 84 months) were left out, the mean dropped to 9.8 months, and if the mean were calculated without the top 10 per cent of cases it amounted to 7.5 months.

In answer to the question as to whether the two offices (Los Angeles and San Francisco) processed cases alike it was found that while the mean for San Francisco was 10.58 months and that for Los Angeles 12.83, the "t" test for the significance of difference between means showed a "t" value of 1.22, indicating that this difference readily could have occurred by chance.

In 40 cases the insurance carriers provided their closing dates, and for this group the mean time elapsing between injury and claim settlement was 39 months (median—32.5 months). About one third of the cases were settled in 20 months or less, and 12 1/2 per cent took over 70 months; more than half fell into the category 10 to 50 months, or 1 to 4 years. (This does not include the six cases still open and being paid, where the mean time elapse since Industrial Accident Commission closure has been 9 years, 3 1/2 months.)

In discussing the procedure utilized in this investigation the authors have concluded that whereas in some cases rather complete information finally was available from the insurance carriers, the number of these cases and the extent of the completeness did not justify such a time-consuming method. The investigator soon learned that private insurance companies make it a policy to destroy case records 5 to 10 years after the closure date. Undoubtedly the most efficient and uniform procedure would be to use the total Industrial Accident Commission file as the source, compiling figures on awards only. (One of the results of this study, which showed that "Other Direct Costs" are reported as representing only 2 to 3 per cent of the total mean cost, would seem to justify this slightly more gross but greatly more efficient procedure.) Use of a common source, such as the Industrial Accident Commission file, would eliminate the variable of greatly varying precision in data reporting which must be admitted in preface to the conclusions of this study.

If one looks at the information presented as a basis for comment, it is interesting to note that most claims are settled rather quickly, with only 6 per cent still open (8 to 13 years after injury). (Two of these cases are receiving a life pension, two life pension and medical expenses, and two medical expenses only.) The majority of cases, then, are settled in less than 4 years.

Though this study does show again that every heart case does not get an award, it also discloses that slightly less than three-quarters of the claimants do get an award of some amount. In this regard, the fact that the insured died before settlement seems to be pertinent to the decision; 27 per cent of all cases in the sample received no award; 17 per cent of the deceased received no award, while 35 per cent of those surviving received nothing. (The treatment of these figures by the Chi square procedure shows the difference significant at the .03 level.) This would indicate that the survivors of deceased claimants were more likely to receive an award than would be the case if death had not occurred, chance being a very slight factor.

The report indicated earlier that the Compromise and Release settlement was the most common result of a case judgment. The reasons behind such an observed reality may be inferred from observations that follow: 1. Individual physicians may dispute one another's judgment in case testimonies. The Industrial Accident Commission considers
the judgment of any licensed physician to be as competent as any other. Where testimony is in conflict, the result is usually a Compromise and Release settlement. In general among the sampled cases, the indefinite statement of a single physician that the alleged injury "might have been work-connected" would change a "no award" case to a Compromise and Release settlement. However, in one instance a case in which all the facts seemed to point to a generous award was finally settled by Compromise and Release when one physician strongly averred that "there was no unusual strain to which this attack can be attributed . . ." 2. Claimants may be so bothersome that a carrier may compromise just to be rid of them. In one such case an award was denied 5 months after the claim was filed; 3 months later this denial was reaffirmed. One year later a case reopening plea was denied. Upon the injured's death (1 year later) the case was finally reopened, and a Compromise and Release figure of $3,400 was agreed upon. The record states, "However, the defendants are willing to pay said sum to end litigation and buy their peace." 3. Some physicians may word their statements with sympathy for the patient as a guide. Douglass A. Campbell, J.D., the "dean" of the California Industrial Accident referees, stated, in an address to the California Heart Association "... that the accused event might have caused the heart attack is not scientifically sufficient for an opinion of causation . . . for every 'sympathy decision' . . . literally hundreds, if not thousands, of cardiac cripples will be denied the chance to work." 2 The Compromise and Release settlement, then, may symbolize both a lack of accurate, agreed-upon medical knowledge regarding heart disease and a social and economic value situation in which the desire that people should not have to be in need as a result of an injury is not yet matched by the proper structures to provide such funds.

If one assumes that the vast majority of cardiac accidents would require some amount of medical care, it is interesting to note that only 35 per cent received such an award. Costs for this form of award seemed reasonable; the difference between mean and median figures is explained by the top four cases (11 per cent), whose awards averaged over $4,500—including one case that accounted for 24 per cent of the total medical care awards. Thus, while the chance of high medical bills is present, it seems to be just about 1 in 10.

The total cost of a case can be expected to fall within the range of $2,000 to $4,500. The $1,500 discrepancy between the mean and median figures emphasizes the importance of those who receive sizable awards (the 7 per cent of the claimants with the highest awards received monies equal to those received by 67 per cent who rated small awards). The same generalization would hold for Compromise and Release settlements, though the discrepancy here is less than $700.

As expected, disability awards amounted to more than Compromise and Release settlements; roughly two-and-a-half times more.

In summary and conclusion, this report has provided some definite cost figures taken from a randomly selected sample of cardiac cases whose claims were heard by a referee of the California Industrial Accident Commission during the 1948-1951 period.

It shows that Workmen's Compensation benefits cost, on the average, about $3,000 per case. Disability and death benefit awards accounted for 34 per cent of the awards and averaged just under $5,500 each. Medical awards were made in 35 per cent of the cases and averaged $1,111, though this figure was greatly influenced by a few large payments. The Compromise and Release settlement was the form of compensation in 43 per cent of the cases—and was at least a part of 59 per cent of the awards; mean cost of these cases was $2,427. Only 6 per cent of the total sample were "open" cases (still being paid).

It further shows that about 6 months, on the average, elapsed before a worker filed a claim, and that the disposition required just less than 1 year. The mean time for completion of an award case with the insurance carrier was just over 3 years.
While reliable, comparable figures on the costs of Workmen’s Compensation benefits for other disease or injury categories or for other States have not been available, we have the impression that the average in other cases in California is considerably lower, probably less than $1,000. Thus, the occurrence of a compensable heart injury in a small business could lead to a perceptible increase in insurance premiums. However, as was previously shown, the probability of such happening is not great, due, largely, to the general policy of basing rate changes upon a much broader category of business than the unfortunate experience of a single small firm. Also, the majority of such cases occur as a result of arteriosclerotic heart disease, and most of them are in persons without previous knowledge of heart disease. Arbitrary exclusion from employment on the basis of having had “a heart attack” or “high blood pressure” or an abnormal electrocardiogram will not effectively conserve the employer’s Workmen’s Compensation insurance premiums, while it does unnecessarily blight the lives of many able people whose coronary artery disease has become evident. The answer to the problem of Workmen’s Compensation costs lies in the appropriate work assignment of workers with heart disease (and all other workers) and the development of other forms of sickness and disability insurance which will make it less necessary to look to Workmen’s Compensation as a source of support for the disabled, widowed, and orphaned.

References
2. CAMPBELL, D. A.: Heart Disease and Compensability under Workmen’s Compensation. Address before the California Heart Association, Long Beach, California, May 23, 1959, mimeographed copy, p. 4.

Religio Medici

Certainly that man were greedy of Life, who should desire to live when all the world were at an end; and he must needs be very impatient, who would repine at death in the society of all things that suffer under it.—SIR THOMAS BROWNE. Religio Medici, 1642 Edited by W. A. Greenhill, M.D., Oxon., London, MacMillan and Co., Limited, 1950, p. 3.
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