

# Does Better Health Pay?

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**I**MPROVED HEALTH is desirable. But so is improved housing, so are improved highways, flood control, recreation facilities, and so on, through an almost interminable list of the things people wish to have. Unfortunately, we cannot have everything we want. We must decide which goods and services to forego as well as which to consume. We must economize—that is, we must get the most from our limited resources. While it is frequently asserted that health and life are moral issues, beyond considerations of cost, it is clear that in our daily behavior we seldom treat them as such. We eat too much, sleep too little, work too hard, and drive too fast. We do so because there are many things we desire, and sometimes, in order to enjoy more of one, we must sacrifice another.

To make choices in a rational manner requires estimation of the relative importance of the various alternatives. If reducing the incidence of disease is more important than building new highways to speed traffic, then, perhaps, a convincing case may be made for increasing health expenditures (and decreasing those on highways). With this general possibility in mind, increasing attention has come to be paid to estimating in money terms the real importance of good health—or, what is the same thing, estimating losses from poor health. (In this paper the terms, “losses from poor health” and “costs of poor health” will be used synonymously.) In many cases, estimates of losses from disease have involved questionable, misleading, or, simply incorrect procedures. It is the objective of this paper to present and analyze exam-

ples of the shortcomings of some attempts to quantify losses attributable to poor health.

## Whose Loss

Studies of economic losses attributable to illness have seldom bothered to answer the question, “losses to whom?” Depending on the answer, losses may vary greatly. To illustrate: according to one recent study, the “total cost of tuberculosis” includes compensation payments to “individuals or to their relatives or dependents because of death or disability caused by tuberculosis” (1). Another study includes pensions to tuberculous veterans as a cost, to the United States, of the diseased (2a). To be sure, such payments are “costs” to the givers, but to the entire society they merely represent transfers of money. As such, compensation payments are not costs to the society as a whole any more than payment of an allowance by a father to his son is a cost to the family, though it is a cost to the father.

What is fundamentally involved here is the distinction between real costs and transfer payments. From the point of view of the entire society, real costs exist to the extent that resources (natural, capital, human) are used up. Of course, we may measure the value of the resources used as X dollars; but while the dollars measure the cost, the real cost is the resource which was used up.

On the other hand, if person A merely makes a payment (be it called gift, subsidy, compensation, or transfer) to B, no resources are used up in the process. Thus, we see that costs, real costs, that is, and money expenditures are not synonymous terms. There may be expenditures without real, or social, costs. And there may be

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social costs without expenditures. This will be discussed below.

Failure to recognize both of these possibilities is a common source of error. Compensation payments are unilateral transfers of funds, and, as such, do not represent resources used. They do represent the value of resources changing hands, but there are no fewer resources available to the society after the payment than there were before. Thus, the payments (expenditures) do not represent real costs to society.

### Costs Without Expenditures

Although it is apparent that all expenditures do not represent real costs for the society as a whole, it is less obvious that there may be costs even though there are no expenditures. Social costs not reflected by expenditures take a number of forms.

#### *Direct Production Loss*

“Tuberculosis: Why Not Get Rid of It?” is the question raised in one study (2a). Statistical evidence was offered to demonstrate the good return which would result were tuberculosis eradicated in the United States. But the case was weakened by the omission of the value of production lost because of morbidity and mortality caused by tuberculosis. This loss is no less real nor less important than the losses which were reflected by payments of money—care of the ill, casefinding, and medical research.

Production lost as a result of disease is almost as difficult to measure as it is important. In particular is this true for housewives' production. While earnings of men may be reasonable estimates of the value of their contributions to output, there is no equally useful measure available of the value of household services performed by housewives. I have recently attempted, in a tentative manner, to place a value on household production by women at various ages (3a). Another author, Fein, recognized his failure to consider the matter, but explained the omission on grounds of the difficulty involved (4).

In rationalizing his exclusion of the value of housewives' services, Fein points out that they are also excluded from our national income and

product accounts. This is correct, though the reason for the exclusion is, again, the practical difficulty of measurement; at the conceptual level it is clear that household production should be counted as part of total national production.

Regardless of whether the production lost is owing to mortality of males or of females, there is further the question of whether the loss should be considered net of consumption, or as gross (total) production lost. There is no correct choice! Using gross production (earnings) lost has the practical advantages of requiring fewer computations and making unnecessary the estimation of “consumption.” On the conceptual level, the issue is, namely, when we measure losses, whose losses are we concerned with? The production lost to the entire population (setting aside other forms of loss) when a person dies is the total of whatever he would have produced; the production lost to the surviving population, rather than the entire population, is the value of whatever he would have produced minus the value of what he would have consumed. It is this difference which is lost to the remainder of society. The latter approach would, of course, show a smaller loss than the former. If a good case can be made for increasing expenditures on control of a disease using net figures, then, a fortiori, a good case for increasing expenditures could be made if the gross production-loss figures were used. Fein (4) used the “gross loss” approach; the “net loss” approach, in different forms, was used by Reynolds (5) and Weisbrod (3).

#### *Indirect Losses*

Disease causes at least several other forms of real social losses which, because they are not reflected by money expenditures, are often overlooked. They are complex, and the absence of money expenditures has made appraisal of their impact difficult. By no means does this imply that they are quantitatively insignificant.

One is the indirect effect of sickness on the productivity of the healthy. Temporary absence from work (much of which results from illness) necessitates certain adjustments of the production process which make the total cost of illness greater than the cost to the ailing worker. In an economy of widespread special-

ization and division of labor, the absence of one worker may drastically reduce the productivity of others. Further, uncertainty regarding the daily volume of absences creates for many firms the necessity of employing extra, standby workers who, on days when the rate of absenteeism is low, will not be needed, and will contribute little to output.

Another commonly overlooked form of loss from disease is what we may term "avoidance costs." Even were there no cases of some disease, it would not necessarily be a valid inference that the social losses from that disease were zero. It might be that the incidence was being held down by the taking of costly steps to avoid it.

Where environmental conditions contribute to a disease such as malaria, avoidance costs may go undetected. On the island of Sardinia, where malaria had been endemic until the recent mosquito-eradication program, many farmers adjusted to the threat of malaria by living as much as an hour's walk from their farms. The fertile farmlands were located near swampy, mosquito-breeding areas; the mosquitoes were not troublesome during the day, when the fields were being worked, but the mosquitoes rose at dusk, and so it was not healthful to live near the fields. In this example, the avoidance cost attributable to malaria was the unproductive time and effort devoted to commuting (3*b*).

#### *Demographic Factors*

Disease affects the size and composition of the population with respect to age, sex, and location through effects on mortality. Economic effects of a children's disease may differ substantially from those of a disease which primarily affects persons of middle and old age. Such matters as the consequences for living standards of (a) variation in proportion of the population in the labor force, and (b) change in the absolute size of the labor force (relative to the supply of land and capital resources) are relevant to a complete identification of the social consequences of disease.

The difficulties of dealing with many of these factors are substantial. But, while one may be forgiven for not delving deeply into the quantitative aspects of population change,

avoidance costs, and absenteeism, he cannot be excused for failing to recognize their relevance in any estimate of the magnitude of social losses from illness.

An additional real cost component which ought not be overlooked, although we can do little more than mention it, is an affliction's intangible, emotional effect on friends and family as well as on the patient himself. It is a mistake, however, to conclude, as a number of writers have, that these effects take the matter of determining the appropriate level of health expenditures out of the realm of economic analysis. It is easy to say: "We have the knowledge and the necessary resources for the control of disease. Obviously, we must put our knowledge to work" (6). We also have the knowledge and resources to eliminate malnutrition, to abolish slums, to greatly improve education—but we do not have the resources to do everything we like. Thus a choice becomes unavoidable: we choose which things we will accomplish (and which we will not). Calling health a moral issue does not alter this necessity of an economic choice.

#### **Measuring Direct Expenditures**

Even if one identifies those losses (costs) attributable to disease which do not involve direct expenditures of money, and even after it is clear what forms the real costs of illness may take, there remain thorny tasks of measurement. Discussing the cost of a mass X-ray program of disease detection, one study reported, in 1947, an estimated ". . . cost of 25 cents a film for each person X-rayed . . ." (2*b*). This figure appeared to represent the out-of-pocket (marginal) cost of X-raying a person, once the equipment and personnel were available. However, the large increase in the X-ray program proposed in the study would require considerable additional equipment and workers; hence, the cost of X-raying would include a portion of the cost of securing the necessary extra machinery and labor, as well as the cost of the film and its processing. If the 25-cent figure did represent only the out-of-pocket cost of the film, its processing and handling, it seriously understated the extra costs which would be incurred were the tuberculosis eradication

campaign, with its 20 million X-rays per year, to be carried out.

### Conclusion

In this paper I have attempted to catalog factors to consider in discussions of losses from illness and costs of improving health. Three general points are stated.

- Expenditures do not always represent real costs to society.

- Even where there are no expenditures, there may be real costs to society.

- Expanding health and medical facilities may frequently increase unit costs.

To increase expenditures for public health may well be good business, but the economics employed in arguing the case can be strengthened. Sound economic analysis will have a greater cogency in the original statement, and the subsequent experience will be more likely

to earn respect for the acumen of the health official, as predictions prove accurate.

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## Status of Fluoridation in Community Water Supplies

At the close of 1959, some 1,878 communities, supplied by 1,048 water systems, had adopted fluoridation to help reduce the heavy national burden of dental decay. In these communities, there are 36,199,047 people receiving the benefits of this health measure.

During 1959, 77 communities with a total population of 806,880 adopted fluoridation. The majority of this number was made up of small cities and towns scattered throughout the country. However, considering that 93 percent of all communities are 10,000 or less in population size, a great many small cities and towns do not have fluoridation. By the end of 1959, the percentage of all communities that had adopted fluoridation was as follows: population over 500,000, 61 percent; 500,000-100,000, 35 percent; 100,000-10,000, 34 percent; and under 10,000, 8 percent.

Of the estimated 118 million people in the United States provided water from community supplies, 43 million drink water containing at least 0.7 parts per million of fluoride. Of these 43 million persons, 36,199,047 are supplied water containing fluoride concentrations adjusted for optimum dental benefits; and 7 million people use water naturally containing 0.7 parts per million or more fluoride.