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Measuring the Return on Program Costs: Evaluation of a Multi-Employer Alcoholism Treatment Program

CARL J. SCHRAMM, PHD

Introduction

Because the major goal of social action programs is to change human behavior, a frequently encountered difficulty in measuring return on program costs is the isolation of quantifiable programmatic goals which can be linked to and measured against program outcomes. Deciding what constitutes a desirable change requires value judgments as to definitions of unacceptable behavior, and often only arbitrary measures of success can be assigned because tangible outcomes are difficult to identify.

For industrial alcoholism programs, measuring return on program costs is made easier due to the existence of commonly accepted goals and quantifiable outcomes. The broad aim of all such programs—whether they strive for total abstinence from alcohol or merely "controlled drinking"—is to improve the work force behavior of problem-drinking workers. Furthermore, such behavioral improvement can be measured directly as the value of lost production avoided due to program intervention. The purpose of this paper is to illustrate how cost savings resulting from an industrial alcoholism program can be conservatively estimated by using hourly wages as a direct proxy for the value of production not lost by problem drinking workers.

Data

One of the first comprehensive alcoholism referral and treatment efforts designed to serve multiple employers and unions rather than the work force of a single employer was established in 1972 in Baltimore under the sponsorship of The Johns Hopkins University School of Hygiene and Public Health, and the United States Department of Labor's Office of Research and Development. The project, known as the Employee Health Program (EHP), was initiated to develop basic research on the labor force behavior of identified alcoholic workers and to assess the economic feasibility of an outpatient treatment system in helping to stabilize work behavior through alcoholism rehabilitation. Consistent with the latter goal, a return on investment model was devised to measure cost savings attributable to the program. Simply stated, the model consists of an equation which compares program costs with benefits attributable to treatment.

Costs

Program costs were restricted to the current dollar value of project outlays. In the delivery of the EHP package were four sets of identifiable program costs, each related to a separate aspect of the program: labor-management liaison (efforts to secure referrals to the clinic), administration, medical services, and counseling services. Table 1 shows per capita costs using the 90-day active patient load as the denominator for three periods of program life. While these are "flow" figures, and hence do not reflect precisely the cost of treating any one specific patient, they do allow estimates of the effect of economies of scale on per-patient treatment costs. Thus, in period 1, per-patient costs exceeded $2,400, but declined steadily in periods 2 and 3, yielding an average per-patient cost of $1,300 for the entire treatment regimen.

TABLE 1—Program Cost Per Capita for 90-Day Patient Load

Function	Period 1 N 72	Period 2 90	Period 3 97
		Program Cost	
Liaison	$ 986	$ 265	$ 124
Administration	282	253	178
Medical	238	74	81
Counseling	288	216	345
Overhead	668	491	455
Total	$2,462	$1,299	$1,183

Number of 90-Day Active Cases

Benefits

The model uses a single proxy for measuring program benefits—the current market value of reduced absenteeism, determined from data (attendance records and hourly wages) supplied by the employer for each worker referred to the program. The model is restricted to reductions in absenteeism since this benefit can be expressed in a measureable unit (hours), is susceptible to change, is thus a potential indicator of long-term behavioral improvement, and has a commonly understood and widely agreed upon definition. Moreover, long-term absences probably constitute the single largest cost of on-the-job alcohol abuse.

The costs of lost absenteeism are shown in Table 2, which summarizes the absenteeism experience both for the work force at risk (N = 134,000), and for referred problem drinkers (N = 206) in the year prior to treatment and the year following referral. The experience for three specific employers is presented in addition to the experience for all workers in order to present a range of estimates. As shown in Table 2, absenteeism for the problem-drinking employees in the year prior to referral exceeded the normal rate by as much as eight times, attesting to the magnitude of lost production associated with alcohol abuse.

Returns to Program Costs

Applying a ratio of benefits/costs, a factor representing the sign and the magnitude of program benefits in excess of program costs for various levels of program efforts is developed. Using the estimated cost of treatment of $1,300, and restricting benefits to those observable during the first 12 months after referral (i.e., the treatment period) the model yields negative ratios for all workers treated (−2.20), and for treated workers from employers 1 and 2 (−5.70 and −3.10, respectively). During the first 12 months after referral the ratio is slightly positive for employer 3, due to the much greater reduction in absenteeism among workers referred from this employer. Assuming stable absence effects, we would expect the program to be net positive cost effective for all three employers in the second year after referral.

Conclusion

The estimates derived from the above model indicate that the shared outpatient treatment approach exemplified by EHP is a cost-effective method of treatment for problem-drinking workers. It should be noted, however, that the model presented here probably understates the benefits of treatment, since improved work attendance is only one area of potential cost savings that can be realized through alcoholism rehabilitation programs. Other possible benefits, although not as easy to measure, might include reduced labor turnover costs, fewer on-the-job accidents, improved work-group morale, lower medical care costs, and a reduction in the number of grievance hearings and labor arbitrations. Nevertheless, application of the model outlined here is recommended to decision makers and program evaluators desiring a readily quantifiable technique for producing a conservative estimate of the cost savings realized by an industrial alcoholism program.

TABLE 2—Absenteeism Experience and Its Value for Referred Workers for the Twelve-Month Period Prior to and After Referral to Treatment

	(1) Average Hours Lost by Referred Treatment Population 12 Months Prior to Referral (Hours)	(2) Average Hours Lost by Referred Treatment Population 12-Month Period Commencing With Referral (Hours)	(3) Average Hours Lost by Population at Risk-Year, 1973	(4) Average Hourly Wage, Year 1973	(5) Value of Reduction in Absenteeism [(Col. 1-Col. 2) -Col. 3] × Col. 4
All Workers	445	263	74.4	5.45	$ 586.42
Employer 1	478	357	74.3	4.86	226.96
Employer 2	510	351	90.4	5.99	410.91
Employer 3	535	254	64.0	6.20	1,345.40