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PREPAID DENTISTRY;

A CASE
STUDY,

by JOHN H. SIMONS

ONE IN A RESEARCH SERIES OF
THE CENTER FOR LABOR RESEARCH AND EDUCATION
INSTITUTE OF INDUSTRIAL RELATIONS
UNIVERSITY OF CALIFORNIA • BERKELEY

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Foreword

Since the inception of negotiated health and welfare plans, unions have been working to provide a comprehensive package of prepaid health care benefits for members and their families. The struggle has been uphill. Indeed, many labor and management negotiators feel they are riding an escalator that is pushing up costs faster than benefits.

Prepaid dental care is one of the newest additions to the package of negotiated benefits, reflecting the continuing efforts of negotiators to achieve comprehensiveness in health care plans. As of mid-1966, the State Division of Labor Statistics and Research estimated that some 400,000 California union workers and their families had prepaid dental care coverage. The first major dental plan in California dates back to the pioneering ILWA-PMA program for children negotiated in 1954, but much of the expansion in coverage that has taken place is the result of major collective bargaining settlements during the past few years.

Significantly, the growth in dental plans is occurring at a time when union officials are becoming increasingly self-critical and concerned about the short-comings of negotiated health care programs. Union leaders, and many management officials as well, are expressing concern not only about the progress being made in terms of benefit-cost relationships, but also about the impact of negotiated plans on patterns of utilization of medical facilities and services, on related problems of quality of care, and on the prevention of disease and the maintenance of health. In general, the feeling exists that negotiated programs are functioning as collection and disbursement agencies for

the providers of medical care without doing enough to improve quality, advance the efficient organization of medical care services, or encourage the development of preventive health programs. Through a recently-formed California Council for Health Plan Alternatives, union leaders are indicating their determination to help overcome gaps in present programs and to avoid repeating their "mistakes" of the past as programs are expanded to new benefit areas, such as dental care.

It is in connection with these expressed interests that John Simons' study of prepaid dentistry should be of particular interest to labor-management negotiators, and of general interest to medical care experts as well. The study is directed specifically at the effect of prepayment on the utilization of dental services and on the improvement of dental health, and is based on an intensive evaluation of experience with prepayment under the prepaid dental plan of the Milk Drivers and Dairy Employees Union, Local 302, of the Teamsters in Oakland, California. The findings are carefully analyzed and related to the body of available information and published reports and studies on dental care.

Mr. Simons is currently a Consultant to the Assembly Ways and Means Committee of the California Legislature. He conducted the research for this dental care study as a Graduate Research Assistant for the Institute of Industrial Relations, University of California, Berkeley, on assignment to the Center for Labor Research and Education. An accomplished scholar and a recognized expert in the field of health care programs, he is the author of other related articles.

"Extending Mental Health Services to Blue Collar Workers and Low Income Groups in San Francisco," prepared for the Center for Labor Research and Education, July 1965.

"The Union Approach to Health and Welfare," *Industrial Relations*, May 1965.

"Consumer Attitudes Toward Prepaid Dentistry" *Journal of the American Dental Association* (1967).

In this dental care study, Simons' analysis indicates that prepayment has a "distinct, though limited" effect on increasing utilization of services. Noting that dental insurance can be reasonably viewed

as a "mechanism for improving dental health," the author emphasizes, however, that the potential for improving dental health is not being fully realized under the programs examined.

In essence, this is the feeling that exists generally among negotiators regarding the development of health care programs to date. Is the development of prepaid dentistry destined to follow in the same pattern? Can negotiators do anything to achieve a greater impact on the improvement of dental health? If they can, will they? These are the key questions posed for negotiators by Mr. Simons' study.

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Although Edward S. Rogers, M.D., Professor of Public Health and Medical Administration, University of California, Berkeley, was not directly involved in this particular study, the author wishes to acknowledge the interest, encouragement, and assistance so generously provided by Professor Rogers in years past. Any merits of the present study are owing in part to him. The author of course accepts full responsibility for its shortcomings.

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Introduction 1

Analyzing the twentieth century development of fringe benefits in the United States, a recent study concluded that “those who hire the labor of others now have taken on certain social responsibilities pertaining to the needs of the man in his life off the job and in the society of which he is a part.”¹ Certainly the recent growth of prepaid dental plans, stemming in large part from collective bargaining negotiations, illustrates this point. While some 400,000 Americans had dental insurance protection in 1955,² the number had grown to nearly two million ten years later,³ and it is estimated that 15 million will have such protection in 1970.⁴ Although the number covered by a prepaid dental plan is only a small fraction of those with hospital insurance,⁵

¹ Donna Allen, *Fringe Benefits: Wages or Social Obligation?* (Ithaca: Cornell University, 1964), p. 268.

² Case Institute of Technology, *Design of Prepaid Dental Plans* (Cleveland: Operations Research Group, 1964), p. 11.

³ *Dental Health Highlights*, 21 (Chicago: American Dental Association, Council on Dental Health, December 17, 1965), p. 18.

⁴ American Dental Association (reported in Riedel and Lerner below).

⁵ In 1964 about 148 million Americans had hospital insurance protection contrasted with 1.5 million with dental insurance. Health Insurance Institute Press Release, January 3, 1965.

there is a need for evaluation of experience under such plans in view of their rapid expansion.

This study is concerned primarily with one of the most important issues raised by the development of prepaid dentistry, the effect of prepayment on the utilization of dental care services. There are at least two reasons why the utilization issue is important. First, since present dental health levels in the United States are low, many dentists and interested laymen view the growth of prepaid dentistry as an important mechanism for improving the dental health of the public. They reason, with only fragmentary evidence, that the reduction of the economic barrier to care will lead to increased utilization, which in turn will lead to improved dental health.⁶ This paper attempts to discover to what extent prepaid dental care utilization data bear out this hope.

A second reason for the importance of the utilization issue relates to its implications for the supply of and demand for dentists. If the number of people with dental insurance increases dramatically in the next decade, and if dental insurance does in fact increase utilization, the result is likely to be a substantial rise in demand for dental care services, which will necessitate supply and demand adjustments. This possibility is especially significant in view of the fact that a decrease has been predicted in the supply of dentists in relation to population during the next ten years (from 56 dentists per 100,000 population to 53 or 54).⁷

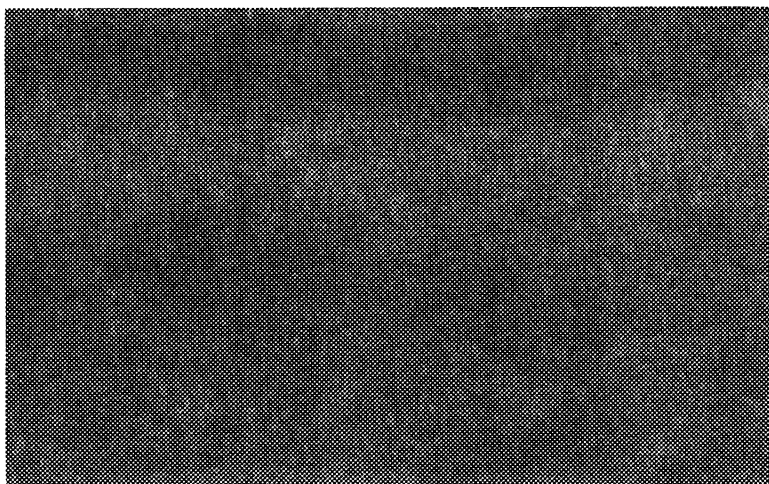
The present study suggests that dental prepayment tends to have a distinct, though limited, effect in increasing the utilization of dental services. Thus it is reasonable to view dental insurance as a mechanism for improving dental health, even though its potential in this regard is not often fully achieved. Three factors that appear to affect utilization are the financial arrangements between the purchasers and

⁶ Reidel and Lerner state: "...persons covered by prepayment are probably likely to receive more dental services than they were receiving before they were covered by prepayment." Donald C. Riedel and Monroe Lerner, "The Impact of Prepayment on the Economics of Dental Care," paper presented before the 16th National Dental Health Conference, sponsored by the Council on Dental Health, American Dental Association, Chicago, April 26-28, 1965, p. 20.

⁷ *Ibid.*, p. 15.

insurers of care, the degree of comprehensiveness of dental plan benefits, and whether or not an effective dental health education program, including patient recall mechanisms, is implemented. The evidence also suggests that some dentists have raised their fees, at least partly because their patients have prepaid dental protection. If dental insurance is extended to new sectors of the population, other demand-supply adjustments may take place.

Throughout this report the terms "prepaid dentistry" and "dental insurance" are used interchangeably because in actual practice the theoretical distinction between "prepayment" and "insurance" in the health field is often blurred. The "prepayment" approach stresses the provision of comprehensive benefits in the form of services that are completely prepaid. The "insurance" approach, on the other hand, customarily emphasizes financial protection against the risk of large and unusual expenditures, with relatively minor costs to be financed out-of-pocket. However, practical men in the health field have employed features of both concepts. A typical contract of the California Dental Service (a dental service corporation similar to Blue Shield) might include a combination of first-dollar, no deductible, benefit coverage (a feature of the "prepayment" approach) and a 70:30 co-payment clause (an "insurance" characteristic). Should we designate such a contract as "prepayment" or "insurance"? The Naismith Dental Group (a dental group practice similar to medical group practices) has several dental plans primarily characterized by "prepayment" features, but also frequently including patient surcharges or co-payments. Moreover, the commercial insurance industry, which has aggressively entered the dental care field, has adopted elements of "prepayment" in many of its contracts, despite a traditional "insurance" orientation, in order to compete with other types of carriers. For these reasons we shall use the two terms interchangeably, without forgetting that some dental plans more closely approximate "insurance" while others resemble "prepayment," and that such differences may have a bearing on the utilization question.



Dental Disease and Dental Care 2

Dental Disease. Dental disease afflicts nearly everyone, and untreated dental conditions are common.⁸ It has been estimated that the average individual in the United States has four unfilled cavities, or four and a half, if only persons with one or more primary or permanent teeth are included in the calculations. Public health experts use two principal indices to measure the dental health of the population: the DEF count for primary teeth (number of decayed, extraction-indicated, or filled teeth) and the DMF count for permanent teeth (number of decayed, missing, or filled teeth).

Primary teeth. From the initial appearance to the eventual loss of primary teeth, DEF counts increase steadily. By age six or seven, when loss of primary teeth begins, average DEF counts range from three to eight teeth (varying in large part with the degree of fluoridation of the water supply). Decayed teeth represent the largest propor-

⁸ The following data are abstracted from a very useful review of the subject: "The Level of Dental Health," *Progress in Health Services*, X, Washington, D.C., Health Information Foundation, September, 1961, 8 pp. Another useful reference is: W. O. Young, "Dental Health," *Survey of Dentistry, Final Report of the Commission on the Survey of Dentistry in the United States* (Washington, D.C.: American Council on Education, 1961).

tion of DEF counts. The failure to treat them may lead to premature primary tooth loss and subsequent shifting and malpositioning of erupting permanent teeth.

Permanent teeth. DMF counts rise markedly during childhood and adolescence, but at a slower pace during the adult years. The number of decayed teeth tends to decrease with advancing age, while the number of filled teeth reaches a maximum at ages 25 to 34 (thereafter declining), and the number of missing teeth increases steadily with age.

Periodontal disease. The prevalence of periodontal disease (which attacks the bone and gums supporting the teeth) is known to be sizeable. Among children, periodontal disease is relatively inconsequential, but among adults, particularly older adults, it is a major cause of tooth loss.

Loss of all permanent teeth. Data from the U. S. National Health Survey, 1960-1962, reveal that 18 per cent of adults have lost all their permanent teeth. The proportion rises steadily with age, is slightly higher for women than for men, for urban residents than the rural population, for lower socio-economic classes than the more well-to-do, and for whites than nonwhites.

Utilization of Dental Services. Although dental disease occurs extensively, the U. S. population receives but a fraction of needed dental care.⁹ Data from the National Health Survey revealed that almost 60 per cent of the population made no dental visits from July 1958 to June 1959. Another 15.8 per cent reported only one visit, while 24 per cent made two or more visits. Moreover, almost one-fifth of the population (18.1 per cent, mostly preschool or school age children) had never seen a dentist; while close to 15 per cent had last visited a dentist at least five years before.

As indicated, these data are aggregated for the entire population. Equally important, there are significant variations in the receipt of dental care by socio-economic status.¹⁰ (See Table 1.) Persons of less

⁹ For a concise review of the problem see: "Dental Expenditures, Utilization and Prepayment," *Blue Cross Reports*, I (September-October, 1963), 6-9. Detailed statistical breakdowns are available in: *Health Statistics from the U. S. National Survey* (Washington, D.C.: U. S. Public Health Service, March and April, 1960).

¹⁰ "Dental Expenditures, Utilization and Prepayment."

TABLE 1

Utilization of Dental Services^a by Residents of Washington Heights Area, New York City, by Parochial-Cosmopolitanism Score and Socio-economic Characteristics

	Parochial		Parochial-Cosmopolitan Score Mixed		Cosmopolitan	
	No.	%	No.	%	No.	%
Socio-economic Status						
Lower.....	147	25.8	103	25.3	24	37.5
Middle-Lower.....	237	38.4	229	34.5	150	40.7
Middle-Upper.....	149	45.0	251	53.0	247	55.5
Upper.....	50	54.0	89	50.6	106	73.6
Ethnic Composition						
Puerto Rican.....	102	33.3	42	45.3	24	54.2
Negro.....	127	30.7	185	28.6	126	33.4
White.....						
Catholic.....	201	35.6	212	41.2	108	58.5
Protestant.....	21	28.6	63	47.6	80	56.2
Jewish.....	120	50.8	184	51.1	182	61.0

SOURCE: Edward A. Suchman and A. Allen Rothman, "The Utilization of Dental Services," *The New York State Dental Journal*, XXXI (April, 1965), 156.

^a Utilization is defined as one or more visits to the dentist during a 12-month period.

wealth and education not only tend to visit a dentist less often than the more affluent, but also when they do go, it is more likely to be for an extraction or treatment of a drastic condition, rather than for preventive treatment. Moreover, women seek dental care more frequently than men, whites more than nonwhites, urban residents more than rural residents, and those between the age of 6 and 40 more than those under age 6 or over 40.

A more recent study by Suchman and Rothman, conducted in the Washington Heights area of New York City, revealed similar socio-economic disparities in the receipt of dental care.¹¹ In addition, they noted the influence of the social environment upon utilization. Constructing a "parochialism-cosmopolitanism" scale to measure the interactions of individuals on community, friendship, and family levels, they found that for each socio-economic ethnic group, "the members of cosmopolitan groups are more likely to make use of dental services than the members of parochial groups."¹² Riedel and Lerner state in summary: "Perhaps the outstanding problem of dental care in this country today is the general under-utilization of dental services by the population considered as a whole, and correspondingly, the differentials in use of services in accordance with the socio-economic and demographic characteristics of the population."¹³

Family Expenditures for Dental Care. Family expenditures for dental care vary with differences in (a) the incidence of dental disease and (b) the extent to which dental services are sought and received. Table 2 suggests that family expenditures are positively correlated with family income. For example, only 2 per cent of families with annual earnings of \$2,000 to \$3,499 spent \$200 to \$499 on dental care in 1957-1958, while the corresponding proportion of families earning \$7,500 and over was 12 per cent. On the other hand, 50 per cent of

¹¹ Edward A. Suchman and A. Allen Rothman, "The Utilization of Dental Services," *The New York State Dental Journal*, XXXI (April, 1965), 151-158. "Individuals were characterized as belonging to parochial groups if they felt strongly identified with their own particular ethnic or social group, if they belonged to a close group of friends, and if their family had a strong adherence to tradition and authority, while cosmopolitan group members had the opposite characteristics." (p. 155).

¹² *Ibid.*

¹³ Riedel and Lerner, *op. cit.*, p. 9.

TABLE 2
Percentage of Families by Level of Gross Annual Dental Expenditures^a
According to Family Income, 1957-1958

Family Income	No. of families ^b	Percentage Reporting Annual Gross Dental Expenditures of These Amounts					
		\$0	\$1-49	\$50-99	\$100-199	\$200-499	\$500-Over
All Families	2,941	42	34	10	8	5	1
Under \$2,000	451	76	18	2	3	1	c
\$2,000-3,499	473	50	36	7	5	2	c
\$3,500-4,999	584	38	41	10	7	4	c
\$5,000-7,499	799	31	39	13	10	6	1
\$7,500 & over	634	24	33	17	12	12	2

SOURCE: Odin W. Anderson et. al., *Family Expenditures Patterns for Personal Health Services 1963 and 1958. Nationwide Surveys* (New York: Health Information Foundation, 1960), Research Series 14, p. 61.

^a Dental charges include charges by the dentist for his service and for those of his auxiliary personnel, and for dental appliances. They include also expenditures to cover charges made by dental laboratories and dental manufacturers for work requested by him.

^b Because of differential sampling procedures, the reader cannot combine subgroups by weighting the relevant distributions by the given "N's" nor should he take the distribution of "N's" among the subgroups as being equivalent to the weighted distribution for the particular variable involved.

^c One-half of 1 per cent or less.

families earning \$3,500 to \$4,999 spent nothing on dental care, contrasted with 24 per cent of families earning \$7,500 or more. More recent data from the National Health Survey reveal that average annual per capita dental care expenditures were \$19, but they were only \$9 for those with incomes under \$2,000, whereas for those earning more than \$7,000 an average of \$29 was spent.¹⁴

Thus the three-pronged problem at which dental insurance is aimed involves the nearly universal prevalence of dental disease, much of which goes untreated; the extremely uneven pattern of receipt of services from professional suppliers of care; and the uneven distribution of family costs for dental services. It is significant that the population sectors which are most likely to obtain dental insurance in the next decade include unionized blue-collar employees and dependents,

¹⁴ *Medical Care, Health Status, and Family Income, United States* (Washington, D.C.: U. S. Public Health Service, National Center for Health Statistics, 1964), p. 44.

many of whom tend to receive less dental care than the more affluent and the better educated. Hence the effect of prepayment on utilization may be more pronounced than if dental insurance were limited to those accustomed to receiving regular dental care.

The Insurability of Dentistry. An affirmative answer to the question "Is dental care insurable?" is evident in the recent growth of prepaid dental programs. The question, however, traditionally has elicited a largely negative response. The current willingness of most dentists, certain consumers, and a variety of insurers to develop prepaid programs is making this question largely academic, yet the issues involved are pertinent to the subsequent analysis and merit discussion.

What arguments are advanced questioning the utility of dental insurance? First, many people place a lower priority on dental health than on medical care (although, in fact, the two are closely related).¹⁵ Second, some people reason that the costs of dental care, for most people, are not prohibitive, are reasonably predictable, and can best be handled voluntarily by individual or family budgeting. Parenthetically, it has been suggested that protection for catastrophic dental expense be included in major medical expense policies.¹⁶ Third, the large role of individual choice in seeking treatment appears to violate traditional insurance theory that insurable losses should be fortuitous and not willful. Fourth, the large backlog of unmet needs suggests that the initiation of a dental insurance plan is likely to result in heavy utilization which may drain the program financially. In this regard, the problem of insurance increasing the provision of costly "elective care," such as gold inlays and orthodontic treatment, is

¹⁵ In economic terms, only \$.09 out of the consumer medical care dollar is spent on dentistry, contrasted with \$.58 spent on hospital and physician care. Since nearly 70 per cent of the total consumer medical care bill is financed on a noninsured, out-of-pocket basis, it is understandable why relatively few prepaid dollars are allocated for dental care which absorbs but 9 per cent of total consumer health spending and which is seen to have a lesser health priority. (The above statistics are for 1964.) See Louis S. Reed and Ruth S. Hanft, "National Health Expenditures, 1950-64," *Social Security Bulletin*, XXIX (January, 1966), 3-19.

¹⁶ J. F. Follmann, Jr., "Current Picture of Insurance Programs for Dental Care," *Journal of the American Dental Association*, LXIV (May, 1962), 92.

sometimes cited. Fifth, the relative paucity of reliable statistics for insuring agencies to calculate premiums and benefits poses an additional problem.¹⁷

In contrast, several considerations support the feasibility—indeed, the desirability—of prepaid dentistry. First, since certain consumer groups have already established fairly comprehensive hospital and medical benefit programs,¹⁸ the development of prepaid dental programs is a next logical step toward comprehensive prepaid health protection, assuming that an important health priority is granted dental care.¹⁹ Second, since dental costs can be quite sizeable (see Table 2), particularly for large families, a prepaid dental plan can be useful economic protection for those with lower or middle income earnings, although it will not necessarily save them money.²⁰ In addition, many families are finding group dental prepayment a convenient budgetary device.²¹ The fact that the costs of a comprehensive family dental policy approximate those for comprehensive major medical insurance protection is relevant in this connection.²² Third, there is growing

¹⁷ See Robert D. Eilers, "Dental Service Corporations: Their Place and Problems," *Journal of the American Society of Chartered Life Underwriters*, XVIII (Summer, 1964), 262–280; and J. F. Follmann, Jr., *Medical Care and Health Insurance, A Study in Social Progress* (Homewood, Ill.: Irwin, 1963), pp. 249–270.

¹⁸ Local 770 of the Retail Clerks, Los Angeles, is a case in point. In addition to a comprehensive prepaid hospital-medical program, this union has negotiated prepaid drug, psychiatric, and dental care programs.

¹⁹ The argument in favor of a high priority for dental health is convincing. Oral cancer, which dentists often detect, affects 27 out of every 100,000 adults. Dental disease may have important psychological ramifications, as well as a significant bearing on total physical health, including heart disease. See Lloyd F. Richards and Elizabeth O'Donnell, "Oral Diseases and Services Reviewed and Projected," *California's Health*, XXIII (August, 1965), 27–34.

²⁰ A dental plan provided as a fringe benefit in place of additional wages is a source of tax savings. This savings may be eliminated, however, if additional care is provided, due to the cost of the plan plus the co-payments of the patient.

²¹ A subsequent report will describe the findings of a survey of union member attitudes toward prepaid dental plans. Over 90 per cent of the respondents reported satisfaction with the plan.

²² Eilers, *op. cit.*, pp. 262–263.

acceptance of the view that "...dental insurance can be based on the combined effects of the incidence of dental disease and the habits of people relative to the care of this disease."²³ This belief is superseding the contention that because dental care is "elective" or "willful" in nature, it is noninsurable. Fourth, the employment of several actuarial safeguards by dental insuring agencies suggests that problems of utilization and cost control can be feasibly handled. These safeguards include the use of deductibles, co-insurance, maximum allowances, benefit exclusions (most commonly orthodontic treatment), limitation of eligibility to specified categories of the population, the requirement of group coverage to prevent adverse selection, and limitations on pre-existing conditions. Fifth, the growing body of statistical data (on costs and utilization) is reducing the risks of uncertainty to insuring agencies that underwrite dental care.²⁴ Finally, it is argued

²³ Lee R. Farmer, "The First Year's Experience with Dental Insurance: Dental Care Coverage Administered by an Insurance Company," *Journal of the American Dental Association*, LXII (February, 1961), 200-204. Farmer summarizes his argument: "Dental disease . . . attacks most people and to a degree is predictable for the individual. . . . If everyone were to receive regular and complete dental care, the time of occurrence of dental defects could be predicted with a degree of accuracy even for the individual. All of these factors are contraindications for insurability, especially on the basis of individual enrollment. However, since so few people do receive regular and complete care, their very neglect introduces a measure of insurability into the field of dental care. Neglect of dental health greatly reduces the predictability of the point at which the individual will seek dental care. The accumulation of dental needs culminates for most people in serious and acute conditions that demand the attention of a dentist. Frequently the dental services required to correct such conditions are extensive and consequently costly. The timing of these occurrences is not predictable for the individual, but is predictable, and therefore, insurable for a large group."

²⁴ See, for example, Case Institute of Technology, *op. cit.*; Continental Casualty, *A Statistical Analysis of the Dentists' Supply Company of New York Dental Health Plan* (Chicago: January, 1964), 270 pp.; and a series of reports prepared by the United States Public Health Service: *Comprehensive Dental Care in a Group Practice* (Washington, D.C.: U. S. Public Health Service, 1954); *Dental Care in a Group Purchase Plan*, 1959; *An Experiment in Dental Prepayment: The Naismith Dental Plan*, 1962; *Report on the Dental Program of the ILWU-PMA: The First Three Years*, 1962.

that prepaid dental plans by removing the economic deterrent to treatment can facilitate the provision of needed dental care.²⁵

It is clear that prepaid dental plans can be, and are being, operated. Whether or not consumer groups "should" purchase or dentists "should" participate in a dental plan is another matter, involving subjective judgment on relative health priorities, individual philosophies, economic variables, and so on. The data and analyses that follow may be of help in answering these normative questions.

²⁵ The California Dental Service defines its role as offering prepaid dental plans designed "to provide financial protection to families and thereby remove the economic deterrent to securing adequate dental care at the right time." California Dental Service, *Actuarial and Underwriting Manual* (April 30, 1964, mimeographed) p. 10. See also the subsequent portions of this paper for an analysis of the issue.



Methodology of the Case Study 3

With this background discussion of the nearly universal prevalence of dental disease, the uneven patterns of dental care utilization and family expenditures, and the controversy over dental insurance, we return to the original question: *Does dental insurance increase utilization of dental care?* If our investigation suggests an affirmative answer, we may infer that dental insurance is instrumental in the improvement of dental health levels. If not, we shall conclude that a dental plan serves simply the economic function of risksharing and budgeting.

Deciding to Seek Dental Care. The decision to seek dental care has behavioral and economic aspects. Initially an individual must recognize that he or his family may have dental disease which will have serious health consequences unless professional attention is obtained. Having made this determination, and some may never do so, he must then balance his need for dental treatment against other needs.²⁶ The anticipated cost of dental treatment doubtless is an important consideration in this determination.²⁷ An individual recognizing the

²⁶ S. Stephen Kegeles, "Why People Seek Dental Care: A Review of Present Knowledge," *American Journal of Public Health*, LI (September, 1961), 1307.

²⁷ *Ibid.*, pp. 1308-1309.

advantages of visiting a dentist might still elect to postpone that visit indefinitely, or he might select other options, including treatment of acute conditions only, treatment of one's family before oneself, or various others. The point is that seeking dental care is elective and that cost often is an important factor. Dental insurance, because it offers economic protection, may well affect individual decisions to seek dental care, as well as the amount of treatment received.

As we have seen, there are also other deterrents to receipt of dental care, including psychological²⁸ and social or cultural²⁹ variables. Therefore, the effect of prepayment on dental care utilization might vary with the socio-economic characteristics of different populations.³⁰ Consider two hypothetical groups who have recently obtained a dental plan. Group A consists largely of professional and management employees, the majority with a college degree, and an income range of \$7,000 to \$15,000. Group B, on the other hand consists of industrial workers with an average education of 11.3 years and an income range of \$4,500 to \$7,500. Both groups obtain dental plans identical in benefit structure and administrative organization. Will utilization be the same among Groups A and B? Will prepayment have differential impacts on the two groups? Using the basic information already presented, it is possible to present some tentative answers to these questions. The percentage of Group A that is in the habit of receiving regular dental care is likely to be larger than that of Group B. It follows that Group A probably has a smaller—though not insignificant—backlog of dental needs. Thus the impact of prepayment on utilization and in raising dental health levels is likely to be greater among Group B members because of their greater backlog of dental needs. Note that the utilization analysis presented here involves a group of employees corresponding more closely in income and educational characteristics to Group B than to Group A.

In addition to the patient's willingness to seek and receive dental care, the dentists' role is an important one. Dentists sometimes have to decide whether to perform all of the dental work that is professionally

²⁸ *Ibid.*, p. 1310.

²⁹ Suchman and Rothman, *op. cit.*

³⁰ Riedel and Lerner, *op. cit.*, p. 18.

indicated or to postpone certain services out of consideration for the patients' pocketbook. Dental insurance clearly allows the dentist greater flexibility in deciding upon alternative treatment plans. Interviews with dentists who treated patients protected by an indemnity dental insurance program revealed that:

....few new patients came to their offices as a result of the insurance plan. They did report a considerable increase, however, in the amount of dental care received by their regular patients who are in the program. Interestingly, they reported a greater willingness of the patients to accept higher quality restorations and prosthetic appliances, for example, gold inlays rather than amalgam fillings and fixed bridges rather than partial dentures.²¹

Dental prepayment also increases the opportunity for executing administrative procedures, such as dental health education problems and patient recall systems, the net effect of which is to increase utilization. Dr. Max M. Schoen, whose dental group practice in Los Angeles has several prepaid contracts, contends:

Contrary to generally accepted statements as to the reasons for avoidance of the dentist, I believe utilization for routine maintenance care (after having pretty well cleaned up initial needs) can be brought close to 100% by effective organizational and administrative measures carried out by the *dental office*. This of course must be within the framework of a prepaid program as opposed to normal private practice.

As proof of this we have, in three different programs, achieved rates that appear to far exceed anyone elses. We want to do it philosophically; we design the contracts and financial arrangements to make it possible without going broke; we convince our employees of the need for this; we convince the employer and employee representatives of the same thing and point out its economic feasibility; and above all we make the patients aware of our desire to do this—we want to see them—they are made wel-

²¹ Farmer, *op. cit.*, p. 76.

come—we arrange appointments in advance—we remind them of appointments, etc. We go over files to find “lost” people. If they don’t use the service we try to find out why.”⁸²

A well-organized dental prepayment program may enhance a patient’s sophistication regarding susceptibility to, and consequences of dental disease, as well as regarding the efficacy of dental treatment.

Methods. Our question as to whether dental prepayment increases utilization may be analyzed in several ways. First, one may compare the dental treatment provided a sample population, before the inception of a dental plan and after the establishment of a plan. Because of the difficulties of obtaining data for the preplan period, this procedure was not adopted here. Alternatively, one may analyze the utilization rates in comparable sample and control groups with and without a dental plan. Here too the difficulties of obtaining data are formidable,⁸³ but data are available from the U. S. Public Health Service on dental utilization and expenditure for a national sample. Collected through the National Health Survey from 1957 to 1962, a period in which fewer than a million Americans had a prepaid dental plan, the sample covers essentially persons without dental insurance, and thus may serve as a control population. A test population with a dental plan was needed for purposes of comparison.

The group selected was the Milk Drivers and Dairy Employees Union (I.B.T.), Local 302, Oakland, California. Utilization data were made available through the cooperation of the union and insuring agencies for experience during the first two years of operation of its dental plan. This plan met certain minimal criteria: (1) at least 1,000 individuals protected (in fact, about 1,450 families); and (2) family coverage as opposed to coverage for the employee only, or for children only. This program had the additional advantage of offering a dual choice of dental plans to its members: an open-panel, service corporation (the California Dental Service) and a group practice prepayment dental plan offering services from a panel of dentists who practice at a common facility (the Naismith Dental

⁸² Personal communication, January 27, 1965.

⁸³ One would have to select a comparable control group and obtain access to the scattered dental records for such a group.

Group). Thus comparisons could be made with the control group, and also between the two dental plans within the test group.⁸⁴ Also, since the benefits provided were "comprehensive," even though patient co-payment or surcharges were employed, we might reasonably expect the effects of prepayment on utilization to be more pronounced than if the benefits were "minimal."⁸⁵

The Test Population Sample. A sample of 821, approximately 20 per cent of the total population studied (including family members), was drawn from an alphabetical card listing of the local union members. Each card contained basic demographic and health plan information for one union member and his family. The population for this study was defined as those union members continuously eligible for prepaid dental care, 1963 and 1964.⁸⁶

Table 3 describes the age composition of the sample population, and the choice of a dental plan for each group. An interesting difference is the relatively higher percentage of children, particularly in the 5 to 14 age bracket, enrolled in the Naismith plan. A possible explanation is that the latter plan offered more liberal benefits, a fact that may have led employees with large families to select the Naismith alternative.

⁸⁴ Some of the problems of making these comparisons are discussed in a subsequent section.

⁸⁵ The Public Health Service classifies dental plans as one of three types: minimal—examinations and X-rays, prophylaxis and emergency treatments; basic—minimal services, fillings, extractions; and comprehensive—basic services, dentures, and one or more "other" services. See Case Institute of Technology, *op. cit.*, pp. 22, 51.

⁸⁶ The sample of 821 was obtained by selecting every fifth card that met the prescribed criteria (224 in total). The first selection was made with the aid of a table of random numbers. Since each of the approximately 1,450 cards had to be examined to determine if it met our criteria, it was deemed impractical to continue selecting the sample by means of the random numbers table. Thus, upon the advice of a statistician consultant, every fifth card meeting our criteria was selected thereafter. One test showed that the 20 per cent sample was highly representative: the health and welfare trust fund administrator estimated that 85 per cent of the union members were enrolled in the California Dental Service, while 15 per cent belonged to the Naismith Dental Plan. The corresponding percentages from our sample were 84.82 and 15.18 per cent.

TABLE 3
Composition of Sample by Age and Dental Plan
(Per Cent)

Age	C.D.S. Plan (N = 678)	Nalsmith Plan (N = 143)	Total (N = 821)
0-4.....	6.5	7.7	6.7
5-14.....	29.9	40.6	31.8
15-24.....	11.7	9.1	11.2
25-44.....	29.4	26.6	28.9
45-64.....	22.6	16.1	21.4
Total.....	100.1	100.1	100.0

Some Methodological Considerations. A number of methodological points should be noted. First, the sources of data for the control and test populations differ. Collected by household survey, the control data from the National Health Survey are based upon respondent statements and therefore are undoubtedly less precise than the test data gathered from the dental records of two insuring agencies. Data for a second control group, the population of California, are based upon income tax returns of dentists. As will be seen, an important age-adjustment will be necessary. The test data exclude any dental care provided Milk Drivers outside the dental plan, either because certain dentists did not participate or because the patient failed to take advantage of the dental benefits for which he was eligible, but this bias is probably insignificant.

The main problem concerns the Survey data and the test data. The National Health Survey data contain income and educational classifications that are frequently too broad for our purposes. For example, the control data on frequency of dental visits are broken down into four income-educational categories: (1) those earning less than \$4,000 annually with (a) less than nine years of education or with (b) more than nine years of education; and (2) those earning more than \$4,000 annually with (a) less than nine years of education or with (b) more than nine years of education. The Milk Drivers earn about \$7,400 annually (although some families may have additional sources of earnings), and almost all have more than nine years but no college

education. Clearly the test group fits into control group 2b (over \$4,000/9+ years of education), yet there is an important difference between the two. Control group 2b is more heterogeneous. It includes well-paid executives with college and graduate level educations, as well as many with occupational, income, and educational characteristics that are comparable to the Milk Drivers. The test group is more homogeneous. Since dental care utilization and expenditures tend to rise as income and educational levels increase, control group 2b may be skewed in the direction of higher utilization than we might expect from a more comparable control group (for example, another group of Milk Drivers lacking a dental plan).

Similar problems appear when we use some of the National Health Survey data on dental care expenditures. The data are adjusted for income, but, in one case, the two most relevant income categories do not directly correspond to the Milk Drivers. The first, \$4,000 to \$6,999, is probably too low; the second, \$7,000+, contains too many people with higher incomes. For lack of a better solution, we shall use both figures.

Differences Between Dental Plans. Since the test population can be divided into two sub-populations by choice of dental plan (roughly 85 per cent were enrolled in C.D.S., 15 per cent in Naismith), we have also made comparisons *within* the test population to see whether any utilization differences occur *between* dental plans. The question is significant because the two dental plans are structured quite differently. Sponsored by the California dental profession,⁸⁷ C.D.S. represents the open-panel, service approach to prepaid dentistry (similar to the Blue Shield approach to prepaid physician care). All licensed dentists in California may participate (over 90 per cent do); the fee-for-service system of dentist remuneration is employed; and subscribers receive benefits in the form of services, almost always on a co-payment basis from the dentist of their choice. C.D.S. negotiates contracts with employer-employee groups, and these contracts specify such items as benefits, exclusions, monthly cost to the purchaser, and

⁸⁷ Note that in California there are two state dental societies, one in northern and one in southern California. C.D.S. was established by the dentists in northern California in 1955, and the Southern California State Dental Association joined in 1960.

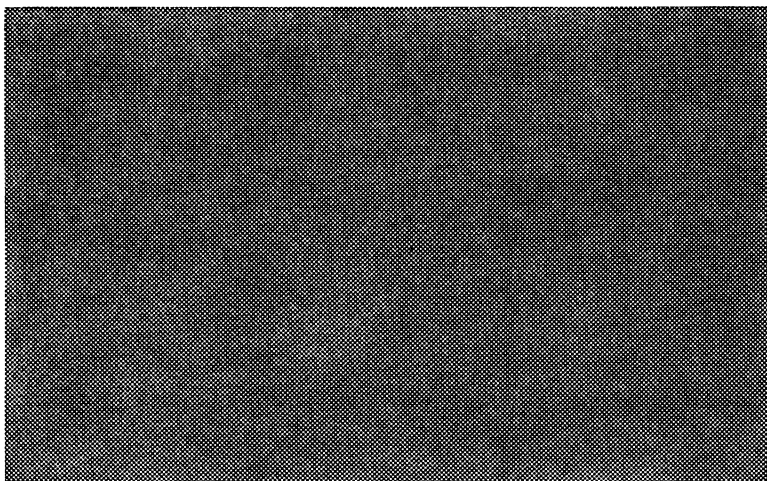
method of payment of the dentist. On the other hand, the Naismith Group Dental Plan, a dental group practice (similar to medical group practices), consists of dentists in two locations, who share the same facilities, auxiliary personnel, income, and costs. The dental group enters into prepaid agreements for services with consumer groups. It also maintains a sizeable nonprepaid practice. Naismith's prepaid subscribers, in contrast to C.D.S. subscribers, must receive their dental care from one of the group dentists in order to be eligible for prepaid benefits. Some dental services are provided on a completely prepaid basis, while for others, a patient co-payment exists (see Appendix A).

Aside from these differences in structure, the two Milk Driver dental plans had certain common and dissimilar features. The health and welfare fund reimbursed both plans in the same manner: for every union member enrolled, each dental plan was reimbursed a monthly sum for which it assumed the responsibility and risk to provide certain services. Thus neither plan included a financial incentive to maintain a high utilization rate (as would be the case if union payment to the dental plans was based on the number of persons actually treated). Also, neither plan engaged in dental health education procedures to encourage utilization. The Naismith plan was substantially more liberal in its benefit allowances, a fact rather clearly brought out in the enrollment brochure distributed to each union member.⁸⁸ This fact may have led some Milk Drivers with large families or with an anticipated need for extensive dental treatment to enroll in Naismith, a possibility that would lead us to expect greater utilization under the Naismith plan. Thus, for the average Milk Driver family, the Naismith plan completely removed the economic deterrent to care for preventive treatment, fillings, and extractions whereas C.D.S. did so only partially. In any case, these

⁸⁸ For example, C.D.S. charged a 30 per cent co-payment by the patient, whereas Naismith made no charge for "general dental care examination, prophylaxis, x-rays, fillings, inlays, extractions, preparation for dentures, etc." For most other items, C.D.S. used a 70:30 co-insurance formula while Naismith levied a fixed charge varying with the service performed. For details see Appendix A. Note that at the start of the third year of the program Naismith's liberal benefits were tightened up considerably.

differences in structure and administrative procedure bear consideration when the interplan utilization comparisons are made.

Units of Comparison. Three comparative indices of utilization will be employed: (1) the per capital dollar values of dental care provided the respective populations; (2) the percentage of the respective populations visiting a dentist one or more times per year (age-adjusted); and (3) the percentage of the respective populations visiting a dentist one or more times over a two-year period (again, age-adjusted). These will be supplemented by findings from a union member attitude survey also conducted.



The Findings 4

Dental Care Expenditures. The data in Tables 4 to 6 indicate that dental expenditures were substantially higher for the test population covered by a dental prepayment plan than for the various control groups. In Table 4 the mean dollar (per capita) dental care expenditure for the control groups without a dental plan ranged from \$15 to \$28,^{30, 40} while the comparable figures for the test population ranged

³⁰ The per capita dental care expenditure data for control population A (California) have been calculated from "published data made available by the Internal Revenue Service on the gross receipts of dentists in sole proprietorship by Internal Revenue Service regions and districts." Louis S. Reed, *Per Capita Expenditures for Hospital Care and for the Services of Physicians and Dentists, by Region and State* (Washington, D.C.: U. S. Social Security Administration Research and Statistics Note No. 18, 1964.), 10 pp. Note that the control figure cited (A) includes the institutionalized sector of the population in the denominator but the numerator excludes, for the most part, any dental care provided them (a very small amount in any case); the resulting per capita figure is undoubtedly low (although the over-65 age adjustment partially corrects for this). Also, whereas the Milk Driver population is a homogeneous group—at least by occupation and income—the (A) controls are extremely heterogeneous, encompassing the least and most educated, the least and most affluent. The reader may find helpful the following income and educational level com-

TABLE 4
Mean Dollar Value of Dental Care Rendered,
Control and Test Populations, Ages 1 to 64

Control Population A ^a State of Calif. Population (largely with no dental plan)	Control Population B ^b U. S. Population (largely with no dental plan)		Test Population ^c (with dental plan) N = 819	
	July-Dec., 1962 (data for 1 year)		1963	1964
	\$4,000-6,999	\$7,000+		
1960				
\$18.23	\$15.47	\$28.01	\$43.72	\$50.03 ^d

SOURCES: Louis S. Reed, *Per Capita Expenditures for Hospital Care and for the Services of Physicians and Dentists, by Region and State*, (Washington, D.C.: U. S. Social Security Administration Research and Statistics Note No. 18, December, 1964), 10 pp.; *Medical Care, Health Status, and Family Income United States*, (Washington, D.C.: U. S. Public Health Service, National Center for Health Statistics, 1964), pp. 3, 48.

^a Control population A is the State of California population; see footnote 39. Reed's per capita dental care expenditures are for the entire population. In using these data, we have age-adjusted them to eliminate the over-65 sector (which is 8.62 per cent of California's population). From a 1957-1958 study, the over-65 sample's per capita dental care expenditure was 71.42 per cent of the total sample's per capita dental care expenditure. In age-adjusting the California data, we have used this ratio. See Odin W. Anderson, Patricia Collette, Jacob J. Feldman, *Family Expenditure Patterns for Personal Health Services, 1963 and 1968: Nationwide Survey* (New York: Health Information Foundation Research Series 14, 1960).

^b Control population B was drawn from the U. S. population; see footnote 40. The two figures cited are age-adjusted to exclude the over-65 population. It is significant that the per capita expenditures for the over-65 group varied markedly between the \$4,000-6,999 and the \$7,000+ sub-populations (\$18 and \$31). The over-65 group constituted 4.8 and 4.1 per cent respectively of the two sub-populations for which dental expenditure data are given.

^c The test population is a sample of Milk Drivers and Dairy Employees, Local 302, Oakland, California. There were two rejects in this compilation.

^d Note that in 1964 the C.D.S. prosthetics benefit became effective, which accounts in large part for the increased per capita figure.

parisons: Milk Driver officials estimate that the average union member income was \$7,400 in 1965 and that the range of educational levels is 9 to 12 years. The median 1959 income and the median 1960 years of school completed by males 14 years and over were \$4,968 and 11.7 years (California), \$5,097 and 11.9 years (Alameda County), and \$5,864 and 12.0 years (Contra Costa County). Practically all the Milk Drivers resided in Alameda or Contra Costa County. U. S. Bureau of the Census, *United States Census of Population: 1960, Detailed Characteristics, California* (Final Report PC (1) - 6D), Tables 103 and 134.

^e The data for control population B are taken from the U. S. National Health Survey. Relative to the Milk Driver population, the \$4,000 to \$6,999 income figure is probably too low, while the \$7,000+ figure is probably too high, and, therefore, the range is given. The sample consisted of approximately 42,000 households comprising 134,000 people. *Medical Care, Health Status, and Family Income, United States* (Washington, D.C.: U. S. Public Health Service, National Center for Health Statistics, 1964), pp. 48-49.

from \$44 to \$50 or roughly twice as great as the controls. When the data are adjusted for age, as in Table 5, these findings continue to hold true, with the differences in expenditure accentuated in the older age groups during the second year when the C.D.S. prosthetics benefit became effective. For example, the age 45 to 64 test group in 1964 received nearly \$76 worth of dental care, contrasted with the cor-

TABLE 5
Mean Dollar Value of Dental Care Rendered,
Control and Test Populations by Age Groups

Age	Control Population B ^a U. S. Population (largely with no dental plan) July-Dec., 1962		Test Population ^b (with dental plan) N = 819		
	\$4,000- 6,999	\$7,000+	No.	1963	1964
Under 15.....	\$ 8	\$18	315	\$43.94	\$26.90
15-44.....	21	33	328	47.69	58.42 ^c
45-64.....	22	38	176	35.94	75.84 ^c

SOURCE: *Medical Care, Health Status, and Family Income, United States* (Washington, D.C.: U. S. Public Health Service, National Center for Health Statistics, 1964), pp. 3, 48.

^a See Table 4 and footnote 40.

^b See Table 4.

^c Note that in 1964, the C.D.S. prosthetics benefit became effective, which accounts in large part for the increased per capita figures in the older age groups.

responding control figures of \$22 and \$38. During 1963, the initial year of the Milk Driver dental plan, those in the test group under age 15 received nearly \$44 worth of dental care, compared to the control figures of \$8 and \$18. Table 6 which uses a more comparable control group (income range: \$7,000 to \$9,999, educational level: 9 to 12 years), indicates that 30.2 and 25.5 per cent of the test population had annual dental expenses of \$50 or more compared to 11.9 per cent for the control group.

Number of Dental Visits. The data in Tables 7 and 8 generally show no difference in the percentages of test and control populations visiting a dentist one or more times over a one- or two-year period, with the possible exception of age group 0 to 4. It is likely, however,

TABLE 6
Percentage Distributions of Annual Dental Expenses,
Control and Test Populations, All Ages^a

Expenditure (in \$)	Control Population ^b U. S. Population (largely with no dental plan) \$7,000-\$9,999 (inc.) 9-12 years (educ.)	Test Population ^c (with Dental plan)	
	July-Dec., 1962	1963	1964
	N = 16,870	N = 819	
0	53.7	48.4	47.5
Under 50	34.4	20.9	28.6
50- 99	6.2	13.8	12.9
100-249	4.1	14.3	7.2
250-499	1.1	1.8	4.0
500+	0.5	0.2	1.4
Rejects	0.0	0.5	0.5

SOURCE: *Personal Health Expenses, Distribution of Persons by Amount and Type of Expense, United States: July-December, 1962* (Washington, D.C.: U. S. Public Health Service, National Center for Health Statistics, 1965), pp. 28, 31.

^a The test population consists of ages 1-64. The control population includes individuals over 65. However, since the over-65 population is less than 3 per cent of this income and educational group, its inclusion is not likely to be significant.

^b The data for the control population are from the U. S. National Health Survey.

^c See Table 4.

that the control data from the National Health Survey (for those with incomes over \$4,000 and more than nine years of education) conceal the differences in utilization, because of the inclusion of those with incomes and educational levels considerably higher than the test group. Table 6 lends support to this interpretation, because it indicates that 48 per cent of the insured population compared to 54 per cent of the control group had no annual dental expense. Data from a questionnaire survey of union members, discussed below, are consistent with this interpretation.

Questionnaire Results. A questionnaire was mailed to every member of Milk Drivers Local 302 principally to measure union member satisfaction with prepaid dentistry as a fringe benefit,⁴¹ but members

⁴¹ The results of this survey will be presented in a later report.

TABLE 7
Percentage of Control^a and Test^b Populations
Visiting a Dentist One or More Times a Year, by Age Group

Age	Control (No dental plan)	Control (No dental plan)	Control (No dental plan)	Test (dental plan) N = 814	Test (dental plan) N = 818
	1957-1958	1958-1959	1963-1964	1963	1964
0- 4.....	12.4	13.1	12.0	14.6	38.5
5-14.....	63.7	67.7	61.6	64.7	61.5
15-24.....	61.8	64.5	60.4	61.5	63.7
25-44.....	53.2	57.7	49.7	47.2	44.7
45-64.....	47.8	50.4	44.2	35.4	49.1
Total.....	50.0	53.5	47.8	49.6	52.0

SOURCE: Health Statistics from the U. S. National Health Survey July, 1967-July, 1969 (Washington, D.C.: U. S. Public Health Service, 1960), pp. 22, 23, 35, 36; Dental Visits Time Interval Since Last Visit, United States, July, 1963-June, 1964 (Washington, D.C.: U. S. Public Health Service, 1965).

^a The control population is from the U. S. National Health Survey. It includes only those earning more than \$4,000 a year with nine or more years of education (1957-1959). The 1963-1964 controls include those with 9 to 12 years of education earning more than \$4,000 a year.

^b The test population is a sample of Milk Drivers and Dairy Employees, Local 302, Oakland California. The 1963 data contain seven rejects; the 1964 data contain three rejects.

TABLE 8
Percentage of Control and Test Populations Visiting a Dentist
One or More Times Over a Two-Year Period by Age Group

Age Group	Control Population ^a (no dental plan)		Test Population ^b (dental plan) N = 818
	1957-1958	1963-1964	1963-1964
0- 4.....	14.5	13.8	36.4
5-14.....	78.2	75.1	79.2
15-24.....	79.7	78.1	79.1
25-44.....	72.7	68.1	62.9
45-64.....	62.3	58.8	56.6
Total.....	64.8	62.0	66.8

SOURCE: See Table 7.

^a The control population is from the U. S. National Health Survey. It includes only those earning more than \$4,000 a year with nine or more years of education (1957-1959). The 1963-1964 controls include those with 9 to 12 years of education earning more than \$4,000 a year.

^b See Table 7. There were seven rejects in 1963, and three rejects in 1964.

were also asked whether they and their families had received more "check-ups" and/or more overall dental treatment in the two and a half years since the plan had been in operation.⁴⁸ Over 51 per cent of the population responded, but only the responses of those eligible for benefits at least one year are reported. It is important to stress that nothing was learned about the attitudes of the 49 per cent nonrespondents; however, the age distribution of respondents is essentially similar to the age distribution of the more systematically selected sample used in the utilization analysis.⁴⁹ Nevertheless, questionnaire respondents may have included a disproportionate share of utilizers of the dental plan, a possibility that suggests the need for caution when analyzing the data below.

Table 9 reveals that roughly one-quarter of the respondents considered that they and/or their spouses "go to the dentist for 'check-ups' more often" and that they have "received more dental treatment than (they) would have received without the plan," since the plan's inception. The table also reveals essentially the same finding for children of respondents (as reported by the latter). These data support the earlier conclusion that a greater amount of dental care was provided the test population and are an additional reason for believing that the National Health Survey control data used in Tables 7 and 8 may be skewed to the right (thus concealing a possible impact of prepayment on utilization).

Interplan Comparisons. When utilization data for the test population are broken down by dental plan, we find that, with one important exception, a greater amount of dental *care* was provided under the Naismith plan with the more liberal prepaid benefits, but that, with

⁴⁸ This technique has limitations because the data are based on the respondent's reporting on his and his family's dental treatment over a considerable length of time. The most accurate way to collect such data would be to analyze dentists' records of the various individuals before and after the inception of the dental plan. While we have made a sample analysis of utilization after the inception of the plan (from data supplied by the dental insuring agencies), it was not feasible to make a similar analysis for the earlier period. In addition, the measures used are highly qualitative; e.g., "more," "less," "about the same." Nevertheless, they do shed some light upon the problem.

⁴⁹ See Appendix B.

TABLE 9
Frequency of Dental Visits for "Check-ups" and Total Amount of Dental Treatment Received Since Inception of Dental Plan* (Per Cent)

Respondent Alone and/or Spouse	N = 688			N = 685		
Age Groups	Frequency of Check-ups			Amount of Dental Treatment		
	More	Less	Same	More	Less	Same
15-24.....	30.8	0.0	69.2	20.0	0.0	80.0
25-44.....	34.0	0.6	65.4	35.9	1.5	62.6
45-64.....	15.0	0.9	84.1	17.8	1.3	80.9
65 & over.....	33.3	0.0	66.7	0.0	0.0	100.0
Total.....	25.0	0.7	74.3	26.7	1.3	72.0
Children of Respondents	N = 475			N = 467		
	25.1	0.6	74.3	24.8	1.1	74.1

* Only the responses of those persons who were eligible for prepaid dental benefits for over one year are included. Some respondents failed to answer both questions, accounting for the difference in the totals reported.

certain exceptions, relatively more *individuals* utilized the open panel, solo-practice, C.D.S. plan.

Table 10 indicates that Naismith members received more dental care. For example, in 1963, the mean dollar value of dental care provided Naismith members was nearly \$62 compared to approximately \$40 for C.D.S. members. The major exception, however, was for females in 1964.^a However, Table 11 indicates that the percentage of

TABLE 10
Mean Dollar Value of Dental Care Rendered, by Dental Plan and Sex^a

Sex	1963		1964	
	C.D.S. N = 676	Naismith N = 143	C.D.S. N = 676	Naismith N = 143
Male.....	\$31.61	\$62.07	\$49.67	\$57.70
Female.....	48.80	61.33	54.82	23.38
Total.....	39.92	61.69	52.11	40.18

^a There were two rejects in 1963 and in 1964.

C.D.S. utiliziers was either greater than or equivalent to Naismith utiliziers, except for the younger age groups during 1963 and for age group 15 to 24 during the two-year period.

The finding that more dental care was provided Naismith members may be related to the more comprehensive prepaid benefits offered by that dental plan. It is possible that the Naismith plan, by alleviating the cost to the patient, allowed Naismith dentists greater freedom to treat patients according to professional evaluation of dental needs; or it may have increased the willingness of patients to receive considerably more dental care. It also may have led patients

“On closer examination, the data revealed that the decreased female expenditures in 1964 involved women who had used the plan in 1963, but did not use their dental plan in 1964. No comparable drop-off in the male rates occurred. While several possible reasons can be advanced to explain why utilization might drop during the second year, the author is at a loss to explain why the drop occurred for females and not for males.

TABLE 11
Number and Percentage of Eligible Milk Drivers Who Visited the Dentist One or More Times, by Age Group and Dental Plan^a (Per Cent)

Both Sexes Age Group	One-Year Period			Two-Year Period		
	1963		1964	1963-1964		
	C.D.S. ^b N = 671	Nalsmith N = 143	C.D.S. ^b N = 675	Nalsmith N = 143	C.D.S. ^b N = 675	Nalsmith N = 143
0-4.....	13.6	18.2	31.8	9.1	40.9	18.2
5-14.....	62.6	74.1	63.4	55.2	79.2	79.3
15-24.....	59.0	76.9	66.4	53.9	78.2	84.6
25-44.....	48.2	42.1	46.7	34.2	65.3	50.0
45-64.....	37.5	21.7	50.7	39.1	58.6	43.5
Total.....	48.9	53.2	53.8	43.4	67.9	61.5

^a When the data are sex-adjusted, the conclusions noted above still apply, except in the following cases: in 1963, 55 per cent of Nalsmith females age 25-44 saw a dentist one or more times, contrasted with 49.5 per cent of C.D.S. females; the 1964 conclusions showing a consistently higher utilization rate for C.D.S. (both sexes) hold true for females, but for males age 5-14 and 54-64 there are no appreciable interplan utilization differences (e.g., 64.0 vs. 65.4 per cent and 45.4 vs. 46.7 per cent). For the two-year period, exceptions are: males age 15-24 (no difference between plans); females age 5-14 (the Nalsmith rate was higher, 78.1 to 68.5 per cent); and females age 25-44 the C.D.S. rate was only slightly higher, 63.2 to 60.0 per cent.

^b Seven rejects appeared in the 1963 data; three rejects appeared in 1964.

with greater dental needs to select the plan because of its more liberal benefits. Any one or all three explanations may account for the data in Table 10. But despite the comparative economic advantage of the Naismith plan, the union member population selected the C.D.S. solo-practice program by a ratio of 85:15 and a greater percentage of eligible individuals actually used C.D.S. Further, at the end of the initial two-year period, the interdental plan movement of families was entirely toward C.D.S.⁴⁵ These facts attest to the important role of noneconomic factors in seeking dental treatment.⁴⁶

⁴⁵ Effective January 1, 1965, patients were allowed to change dental plans. Of the 24 that did so, 23 switched from Naismith to C.D.S. Dr. Naismith, whose candid opinions were always a source of stimulation during this study, suggested three possible reasons for this "selection-out" phenomenon. First, the Naismith facility in Oakland was rather "barn-like." (It has since been replaced with a modern dental center.) Second, the central facility in downtown Oakland may have been inconvenient for residents in outlying areas. Third, there was some dentist "turn-over" within the group, making continuity of care more difficult. An important qualification should be made. The Naismith plan offered only one location where dental care might be received (central Oakland). Were other group facilities available in the outlying suburban areas, the dental plan selection might have been different. Also, many Milk Driver families probably had "family dentists" when the dental plan began, and the C.D.S. plan allowed them to continue receiving care from them.

⁴⁶ See footnotes 25 and 45.



Dental Prepayment Issues 5

The prepaid dental plan utilization data presented here suggest that the insured population received perhaps twice as much dental care as the noninsured population,⁴⁷ but the plan's benefits were limited to utilizers of the program. Taking C.D.S. data only,⁴⁸ the per capita dental care expenditures of \$39.92 and \$52.11 (1963 and 1964) are average figures for the total C.D.S. Milk Driver membership. When calculated as per capita expenditures for the utilizers only, they amount to \$81.67 and \$97.04. Consider what these figures mean. In 1963, 65 per cent (\$53.09) of the \$81.67 was allocated for restorative dentistry (excluding strictly preventive or diagnostic treatment). In 1964, 46.5 per cent (\$45.12) of the \$97.04 was spent for the same purpose.⁴⁹ It is estimated that the \$53.09 and \$45.12 spent on restorative dentistry represents approximately four or more caries per utilizer that were treated in 1963 and 1964,⁵⁰ not to mention the provision of

⁴⁷ See Tables 4 to 6.

⁴⁸ Comparable Naismith data were not collected.

⁴⁹ See Appendix B for the complete breakdowns.

⁵⁰ C.D.S. allowances ranged from \$6 to \$15 for amalgam restorations. In general, restorations of primary teeth cost less than those of secondary

various other services (including 53 sample cases of prosthetics in 1964, each averaging \$181.74).⁶¹ Lower per capita dental care expenditures would have been anticipated if the utilizers of care had been receiving regular care before 1963.

While it cannot be demonstrated conclusively that the dental plan was largely or wholly responsible for the sizeable amount of care provided, it may be inferred that the economic protection it offered played two important roles: (1) it made it more likely that patients would seek and receive needed dental treatment⁶² and (2) it allowed the dentist greater freedom to perform needed dental care.⁶³ Based on this case study, then, it appears that prepayment serves as a mechanism for improving dental health of those utilizing their dental plan. On the other hand, prepayment clearly had no positive effects on the dental health of eligible nonutilizers—a sizeable group of 50 per cent one year and 48 per cent the next, or 33 per cent who failed to use the plan during either year. Given professional norms that stress the need for dental treatment on a semi-annual basis, this is a disturbing finding, although one not totally unexpected in light of the low dental care utilization generally found among the public. The conclusion is that a sharp gap exists between the *actual* and *potential* impact on dental health of a prepaid dental plan.

Healthy Teeth Vs. More Dollars. From the public health viewpoint, the failure of most prepaid dental plans to realize their utilization

teeth; single surface fillings were cheaper than double surfaces. My estimate of four caries is based on an assumed average charge of \$11. Since the data include occasional gold restorations and crowns (bridges in 1964 only), which are more costly, the number of caries per utilizer may be slightly overestimated.

⁶¹ See Appendix B for the complete breakdowns.

⁶² See Tables 4, 5, 6, and 9.

⁶³ To the author's knowledge, there unfortunately have been no systematic studies of the impact of prepaid dentistry on the dentist (with particular reference to organization of practice, fees, and patient treatment). For an interesting discussion of dentists' attitudes toward prepayment, however, see Arlene K. Daniels, "Findings from the Survey of Dentists," *Journal of American College of Dentists*, XXV (September, 1958), 202-237.

potential is disappointing;⁵⁴ but to the dental insurer, as well as to the purchaser of care, higher utilization means either deficits or higher premiums or both. The Milk Driver plan, for example, resulted in substantial deficits for the insurers of care during the first two-year contractual period, even though annual utilization was "only" about 50 per cent. Imagine the losses if utilization had risen to 60 or 70 per cent. Even with the 50 per cent utilization rate, premiums were raised by about 20 per cent at the end of the first two years of the program.⁵⁵ It is this utilization-cost dilemma that causes prepaid dental plan officials to admit, off-the-record, that they fear the consequences of increased utilization. "I wear two hats . . . as a dentist interested in the dental health of the public, I want to see 100 per cent utilization. As a dentist in business, I don my Republican hat and worry that increased utilization will cause even worse financial problems."⁵⁶

There is evidence, however, that greater prepaid dental care utilization is a realistic goal. The ILWU-PMA dental plan for children under 15,⁵⁷ a pioneering program dating from 1954, is illustrative. The plan is administered by several dental insurers along the West Coast: state dental service corporations (Washington, Oregon, Cali-

⁵⁴ Data on utilization are often not available. The following reports some figures which the author was able to collect. At the St. Louis Labor Health Institute dental clinic, a utilization rate of 27 per cent was reported for 1955-1956. *Dental Care* . . . , p. 5. At the Los Angeles Restaurant and Hotel Employees Union dental clinic, a 35 per cent utilization rate was reported for 1963-1964 (personal correspondence with Donald G. MacQueen, D.D.S., November 27, 1964). At the Retail Clerks Local 770 dental clinic in Los Angeles, an annual utilization rate of approximately 30 per cent for adults and 40 per cent for children is reported (personal correspondence with Mr. Harold Klein, November 17, 1964). An indemnity insurance program for employees of the American Dental Association had utilization rates of 60.7 and 55.4 per cent in 1963 and 1964. Bureau of Economic Research and Statistics, "The American Dental Association Dental Health Care Plan," *Journal of the American Dental Association* LXVIII (June, 1964), 881. Another indemnity program for employees of the Dentists' Supply of New York had utilization rates of 46.9, 48.6, and 54.9 per cent during 1959, 1960, and 1961. During the three-year period, 70.9 per cent used the plan. Continental Casualty Company, *op. cit.*,

fornia) and two dental group practices (in northern and southern California). Benefits in the different areas and plans are uniform, and, except for the exclusion of orthodontics, benefit coverage is complete with no patient co-payment. The health and welfare fund and the local unions have initiated dental health education programs; and the dental insurers have set up patient recall systems at the request of the trust fund. Payment to the different dental plans is uniquely designed to encourage high utilization. Each dental insurer currently receives up to \$65 a year for each child *utilizing* the program. Clearly this arrangement gives the insurer a financial interest in high utilization, a sharp contrast to most prepaid programs, such as the Milk Driver plan, where payment to the insurer is a flat monthly sum per eligible subscriber. The financial structure of the ILWU-PMA dental plan, coupled with the dental health education efforts including patient recall systems on the part of both the insurers and the health and welfare fund, probably account for the high ILWU-PMA utilization rates. For example, 56 per cent of the Milk Driver children (ages 0 to 14) used their dental plan during 1963 and during 1964, compared with 68 to 73 per cent of the ILWU-PMA children in each year since

p. 43. See also the higher rates reported for the ILWU-PMA children (Table 12). Note that the 80 per cent utilization figures reported under the Naismith open-enrollment plan are probably atypical because of the likelihood of adverse selection. See, *An Experiment*...

⁶⁶ Monthly employer contributions on behalf of eligible employees for the family dental plan were \$8.65 during 1963 and 1964; they were increased to \$10.30 in 1965. C.D.S. collected approximately 15.8 per cent more in premiums than they paid out in benefits during 1963; when the prosthetics benefit became effective in 1964, C.D.S. paid out approximately 26.6 per cent more in benefits than they received in premiums. Naismith incurred losses of over 100 per cent in both 1963 and 1964. The latter's benefits were restricted in 1965. (Personal communication with Mr. Guy Chetelat and Richard Naismith, D.D.S., December, 1965).

⁶⁷ Essentially the same point was made by several respondents from different organizations.

⁶⁸ The International Longshoremen's and Warehousemen's Union-Pacific Maritime Association.

1957. The dollar value of dental care provided the two groups of children was roughly comparable.⁶⁸

Utilization comparisons between the different ILWU-PMA dental insurers also suggest some interesting interpretations of the factors which affect prepaid care utilization. Table 12 shows that recent utilization was higher among (a) the group practice plans and (b) the smaller dental service corporations (Oregon, Washington). These dental plans have few prepaid dental contracts; their incentive for higher utilization may have been greater because the ILWU-PMA patients were financially more important to them than to a large dental service corporation like C.D.S. with over 90 prepaid contracts. With greater incentive to encourage utilization, these plans probably did precisely that. Their aggressive administering of patient recall systems and their attempts to reach the "nonutilizers" probably account for the higher utilization rates. Group practices and the smaller dental service corporations also serve a more concentrated clientele—a factor which may facilitate a dental health education program. While C.D.S. also has a recall system its patient population is much more scattered geographically, and the stronger financial incentive for greater utilization is lacking.⁶⁹

⁶⁸ Under the ILWU-PMA program, an average of \$72 worth of dental care was provided each child *treated* during the first year of the program and from \$42 to \$56 thereafter. (See footnote 65.) In the Milk Driver program, an average of \$78 was provided each child (under 15) *treated* during the first year and approximately \$48 during the second year. (See Tables 5 and 7 for the data from which the \$78 and \$48 figures were calculated.)

⁶⁹ These interpretations are based upon discussions between the author and several dental care administration specialists who are knowledgeable about the ILWU-PMA dental program. The administrator of the ILWU-PMA health and welfare fund stated: "...as to the consistently lower utilization rate in C.D.S. than under all of the other plans: we can't give you any objectively-established data on this, because there has been no study to analyze what factors are at work in this situation. They could relate to the operations of the plan itself, the activities of the Fund staff, the composition of the families in the different ports, etc., or a combination of all of these and more. It is my judgment, however, that the *organizational factors* are probably predominant." (Personal letter from Miss Anne Waybur, January 24, 1966; italics added.)

TABLE 12
Utilization of Dental Plans by Children under ILWU-PMA Program, 1964-1965^a

	Nalsmith Dental Group Service Plan (No. Calif.)	Dra. Schoen, Sakal, Simms and Eisman Dental Group Service Plan (So. Calif.)	Calif. Dental Service Plan (No. Calif.)	Calif. Dental Service Plan (So. Calif.)	Oregon Dental Health Foundation	Wash. Dental Service	Total
No. of Children Enrolled.....	1,770	2,659	2,515	2,353	2,474	3,270	15,041
No. of Children Treated.....	1,200	2,159	1,426	1,277	1,801	2,228	10,091
% of Utilization.....	68 ^b	81	57	54	73	68	67 ^b

SOURCE: ILWU-PMA Welfare Fund Records (courtesy of Miss Anne Waybur).

^a Children are covered up to age 15. The enrollment figures include all children from birth, i.e., include babies too young to use dental care. All children are counted as enrolled even if covered during only a portion of the contract year.

^b The annual utilization rate has ranged from 67 to 73 per cent since 1957.

Nevertheless, the ILWU-PMA plan is not immune to the utilization-cost dilemma discussed earlier. Trust fund officials have agreed to pay the costs of a comprehensive, well-utilized dental plan for children, but at the same time they have excluded all employees and dependents age 15 and over. In contrast, the Milk Driver plan is a family program, but utilization is not encouraged by the two dental insurers or by the health and welfare trust fund. One consequence is that prepayment is having a distinct, but limited, effect on improving the dental health levels of the Milk Drivers and their families.⁸⁰ The comparison with the ILWU-PMA program suggests that prepaid dental plans can best improve the dental health of their members when they and the purchaser of care (1) engage in serious dental health education activities including patient recall efforts and (2) devise prepaid contracts that give the insurer of dental care a financial incentive to realize high utilization. The utilization-cost dilemma is undoubtedly an important reason why most dental plans do not incorporate these provisions.

The Importance of Benefit Structure. We saw in the Milk Driver interplan utilization comparisons (Tables 10 and 11) that while there generally was not a greater percentage of *utilizers* in the more liberal Naismith plan, the average *cost* of dental care provided was greater (except for females in 1964). It is possible, indeed likely, that the amount of prepaid benefits allowed affects the amount of dental care provided. Prepaid dental plans with many exclusions, sizeable deductibles and co-insurance features are apt to result in the provision of less dental care than plans with more liberal benefits. Thus, dental plans with maximum benefit coverage will be likely to have a greater positive impact upon dental health levels.⁸¹ Schoen makes the im-

⁸⁰ Since 1965 the Milk Driver dental program has been financed by employer payments of \$10.30 a month per employee. A rough estimate of the comparable ILWU-PMA employer contribution is \$8.25. (Personal communication with Mr. Charles Weidner and Miss Anne Waybur, February, 1966).

⁸¹ Admittedly, there are other variables in operation that affect utilization. Yet a recent analysis of 102 dental plans concluded: "Of all the variables tested in this study, only the level of benefits offered by the plan and the degree of concentration of plan members appeared to have a significant effect on plan utilization." Nine dental plan variables were analyzed:

portant additional point that the benefit structure can also have an important bearing on the type of dental service rendered. Benefit exclusions "tend to channel care into those phases of dentistry which (are) covered, whether or not this (is) the best treatment. For instance, if a plan includes some prosthetic benefit, but none for periodontics or endodontics there is a very good likelihood that teeth which can and should be saved will be extracted."⁸²

Initial Vs. Maintenance Costs. Previous studies have shown that during the first year of a prepaid program, costs for "initial" treatment are greater than in subsequent years. This is attributable to the sizeable backlog of dental needs. Once a significant portion of needs have been met, however, cost for "maintenance" care during the subsequent years tend to be somewhat less.⁸³ The average cost per child treated under the ILWU-PMA program, for example, was nearly \$72 during the first year and has ranged from \$42 to \$56 thereafter.⁸⁴ Data from the Group Health Association (Washington, D.C.) reveal that an average of 5.2 hours of chair time was required to provide "initial" care to plan utilizers, while 2.8 hours of chair time was needed to provide "annual maintenance" care.⁸⁵ The C.D.S. Milk Driver plan data reveal much less of a difference between total expenditures during 1963 and 1964. Since prosthetics were not covered during the first year, it is necessary to exclude expenditures for prosthetics and to adjust the oral surgery figures to make this comparison.

premiums, fees, benefits, methods of operations, methods of payment, age, size, sponsor, and concentration (work and residence). Utilization was defined as "the percentage of plan members utilizing any plan benefits during a recent 12-month period." See Case Institute of Technology, *op. cit.*, pp. 48-53 and Appendix C.

⁸² Max H. Schoen, D.D.S., "Types of Dental Care Which Can Be Offered in Prepaid Programs," *Conference on Administration of Prepaid Dental Care Programs*, Seattle, Washington, September 24-26, 1962 (reprinted by the U. S. Public Health Service), p. 48.

⁸³ This assumes that turnover of eligible patients is relatively low. Also, since not all eligible members seek care during the first year, some "initial" treatment is provided in succeeding years. New entrants into the plan are included in this category.

⁸⁴ *Report on the Dental Program of the ILWU-PMA*, p. 40 and data supplied by the ILWU-PMA health and welfare fund.

⁸⁵ *Comprehensive Dental Care in a Group Practice*, p. 16.

When this is done, the dollar amount of dental care provided was approximately 7 per cent less in 1964.⁶⁶ Another positive indication that the costs of maintenance care are less can be inferred from the experiences of the group 15 years of age and under. The per capita value of dental care provided dropped from approximately \$44 to \$27 during the second year (Table 5). It will be interesting to learn about utilization during the third and subsequent years of the program to see whether less total care will be provided, particularly in the older age groups, now that the prosthetics benefit has been in effect for one year.

Prepaid Dentistry and Dental Inflation. Since the evidence suggests that prepaid dentistry increases the demand for dental care and since in the short run the supply of dentists is expected to remain constant, one effect of dental insurance is likely to be an increase in dental fees.⁶⁷ In dental service corporations, the dentist may be reimbursed by one of three methods: fixed fee schedule, table of allowances, or usual and customary fee. The inflationary aspects of each method may be summarized as follows.

⁶⁶ Approximately twice as much oral surgery was performed in 1964 as in 1963, undoubtedly due to the prosthetics coverage. Appendix B contains the gross data. To obtain the 7 per cent figure all prosthetics benefits are excluded from the calculations in both years. Also, a rough estimate (\$1,130.15) of the increased amount of oral surgery provided in 1964 due to the prosthetics benefit was subtracted from the 1964 data. The latter figure is the difference between the value of oral surgery rendered in 1963 and in 1964.

<i>1963 Adjustments</i>		<i>1964 Adjustments</i>	
\$27,298.69	(Gross)	\$35,593.00	
<u>-498.98</u>	(Prosthetics)	<u>-9,632.22</u>	
(Net) \$26,799.71		\$25,960.78	
	(Oral Surgery)	<u>-1,130.15</u>	
		\$24,830.63 (Net)	

The difference between \$26,799.71 and \$24,830.63 amounts to \$1,969.08 or approximately 7 per cent less care in 1964. (Keep in mind that these data are based upon a 20 per cent sample.)

⁶⁷ Eilers, *op. cit.*, pp. 276-278, and *Dental Management*, V (October, 1965), 40-42, 47, 48, 51.

Under a *fixed fee schedule* contract, the dentist is paid "x" dollars for "y" item(s) of service; the level of fees is specified beforehand in the dental service corporation-purchaser contract. C.D.S. officials presently oppose the fixed fee concept, largely because of the opposition of some dentists, particularly in Southern California. One problem of the fixed fee schedule is that participating dentists charge the full fee schedule amount, which is their contractual right, even though their normal fees charged to noninsured patients may be less. Aggravating this problem is a closely related one: since dental fees increase along with the overall rise in the cost of living, the fixed fee schedule must be periodically adjusted upwards in order to avoid the ire of dentists generally, and particularly those who oppose a fixed fee schedule. Here, again, the first problem is confronted—the tendency of dentists to charge the full fee allowed by the contract. Some dental inflation is the inevitable result.

The *table of allowances* method of dentist compensation was developed, in part, to ameliorate the problems raised by the fixed fee concept.⁶⁸ This type of schedule allows the dentist to charge any fee up to, but not more than, a schedule of maximum fees. Based on a survey of dentists' fees, the table of allowances was set originally about 10 per cent above the median fee level, partly to anticipate future increases in dental fees and partly to attract and maintain participation of dentists in C.D.S., which is still a relatively young organization.⁶⁹ By 1965 the table of allowances was estimated to be about 5 per cent below the median level of dentists' fees, due to rising costs of dentistry. C.D.S. plans to keep unchanged the present table of allowances for several more years until it drops to about the 35th or 40th percentile. It will then be revised upwards.⁷⁰

⁶⁸ Note that the American Dental Association's House of Delegates advised state dental societies that "in future negotiations with public or private agencies in relation to dental care programs, reimbursement for professional services on the basis of usual and customary fees or tables of allowances should be given priority consideration." See *Dental Health Highlights*, December 17, 1965, p. 15.

⁶⁹ The California Dental Association elected to sponsor C.D.S. in May, 1955. C.D.S. began its first prepaid program in July, 1957.

⁷⁰ Conversation with F. Gene Dixon, D.D.S., September 16, 1965.

However, an original premise of this approach has not been fulfilled, because most dentists using the table of allowances have charged the maximum fee allowed, so that in effect another fixed fee schedule has been created. This may be due to some extent to an honest misunderstanding or confusion on the part of the dentist regarding the two programs, one of which (fixed fee) practically instructs the dentist to charge the maximum amount, the second of which (table of allowances) permits it, but suggests charging one's normal fees up to the maximum allowed. It may also be true that certain dentists are taking advantage of an insurance program. Dentists charged the maximum allowable fees under a table of allowances program in 85 and 90 per cent of the Milk Driver C.D.S. cases studied during 1963 and 1964 respectively (Table 13). If C.D.S. estimates of the table of allowance fee levels are correct, we would have expected comparable rates of 50 to 60 per cent. Additional evidence on this point was collected from a mail survey of the Milk Driver and Dairy Employees Union membership. A relatively small number of respondents voluntarily offered the information that dentists had raised their fees after the plan went into effect based on the higher C.D.S.

TABLE 13
C.D.S. Dental Cases^a in which Fees Charged Were Less Than/Equal
to the C.D.S. Table of Allowances, 1963 and 1964

	1963		1964	
	No.	%	No.	%
Cases of Fees^b Less Than Table of Maximum Allowances	55	15.9	37	10.1
Cases of Fees Equal to Table of Maximum Allowances	292	84.2	330	89.9
Total	347	100.0	367	100.0

^a A dental case is defined as a \$1 or more dental charge per patient per year.

^b Fees less than the table of maximum allowances are defined as cases in which one or more dental charges per patient were less than the maximum fee allowed. Often these observations included some fees less than the maximum allowed and some fees equal to the maximum allowed.

fee allowance.⁷¹ Indicative of this criticism is the following comment:

Under this plan I find the dentists are charging more because the dental plan allows large fees. I feel if we paid our own bill, then got reimbursed, the dentist would have one fee. I think the dentist is getting the benefit. I find they have two prices—one if you have a plan and less if you don't. In fact the first question asked now is if you have a dental plan.

It is important to note that the fees of that sector of the dental community whose normal charges are more than the allowable C.D.S. rates have probably been lowered under both the fixed fee schedule and the table of allowances.

Use of the *usual and customary* fee concept is becoming more frequent in recent C.D.S. contracts (including the renegotiated Milk Driver plan). Under this program, the dentist periodically submits his usual and customary fees to C.D.S. Upon filing a claim, he is reimbursed at these rates. Usual and customary fees higher than the C.D.S. table of allowances are permitted, but C.D.S. maintains a ceiling to prevent unusually high charges. The apparent purpose of this program is to allow dentists whose normal fees are higher than the C.D.S. table of allowances to charge their usual rates and to encourage dentists whose normal fees are less to charge lower rates. While the usual and customary fee concept may prove to be less inflationary than a very high fixed fee schedule, its actual effect upon dental fees may or may not be less inflationary than a table of allowances.⁷²

Other Adjustments. Aside from raising fees, dentists may accommodate themselves to the increased demand for care in other ways: by working longer hours, by purchasing more efficient equipment, by hiring more dental hygienists or nonprofessional personnel, or,

⁷¹ A response rate of 51 per cent was attained (757 of 1,477 questionnaires returned). Respondents were not asked about the fee-charging practices of their dentists but 31 respondents (4 per cent) were critical of dentists in this regard, as evidenced by comments written in at the end of the questionnaire.

⁷² This is a question worthy of future research, and of mutual concern to both the purchaser and insurer of dental services. Blue Shield plans face a similar problem regarding physicians' fees. See, for example, "Blue Shield Test," *Wall Street Journal*, January 18, 1966.

possibly they may be content with rising incomes without attempting to increase productivity. Extra hours of leisure might even be valued more than additional income. On the patients' side, it is possible that an insured group may receive more dental services than a noninsured group. In particular, those without insurance may receive relatively less care if dental fees increase. The fact that a drop in the dentist-population ratio is forecasted may aggravate the problem. In the long run, however, a rise in dental income may have the result of attracting more individuals into the profession.⁷⁸

⁷⁸ Riedel and Lerner, *op. cit.*, pp. 19-21.



Conclusions 6

This study of prepaid dentistry suggests that dental insurance serves the dual purpose of providing consumers economic protection against the costs of dentistry (e.g., risk-sharing and budgeting) and of improving dental health levels to an extent. The health improvement potential of dental insurance is usually not fully realized, however, because dental health education efforts and contractual provisions giving the insurer of care a financial incentive to achieve high utilization rates are seldom implemented. Confronting both dental insurers and consumers is the utilization-cost dilemma: high utilization requires more money, a resource that is seldom available in unlimited amounts. Moreover, the development of prepaid dental plans appears to have the consequence of increasing dental fees. The extent to which dental insurance will have the dual effect of improving dental health and of creating inflationary pressures on dental prices is likely to depend upon: (1) the rate of growth of prepaid dentistry to new sectors of the population; (2) the type of benefit structures employed (with the more liberal benefits probably having greater effects in both directions); (3) the implementation (or absence) of dental health education activities including patient recall mechanisms as part of the administration of prepaid dental plans; and (4) the types

of contractual reimbursement schemes between consumers and insurers of dental care. Consumers, the dental profession, insurers, and dental public health experts might profitably consider these issues when designing and evaluating prepaid dental programs in the future.

Appendices

APPENDIX A

Choice of Dental Plan

You are offered a choice between two types of plans. You must choose one of these plans for you and your family (if covered). *Once you have made a choice you may not change plans until the next time the choice is offered.* (Approximately once a year.)

The California Dental Service Plan (C.D.S.) is a plan which offers you a free choice of any licensed dentist. Generally the plan will pay 70 per cent of the cost of dental service with the remaining 30 per cent paid directly by you.

The other plan is a group service plan which is offered by the Naismith Dental Group. The group service plan provides dental care with most procedures offered at no cost to the patient but there will be specific charges for certain kinds of service (see below). If you choose the group service plan, you must go to the office of the Naismith Dental Group to obtain service. Members who live outside the Oakland and San Francisco area who choose the Naismith Dental Group must be cautioned that services are available only at the group offices.

APPENDIX A (cont.)

Comparison of Plan Benefits

Item Compared	California Dental Service	Nasmith Dental Group
Where service available	Any licensed dentist	Office of the group chosen
General dental care examination, prophylaxis, x-rays, fillings, inlays, extractions, preparation for dentures, etc.	Plan pays 70% You pay 30%	You pay nothing
Gold inlay for bridge abutment	Plan pays 70% You pay 30%	You pay \$20
Gold inlay or filling	If necessary, you pay 30%; if optional, you pay 30% plus the difference between amalgam and gold	You pay \$5-\$10
Crowns	Plan pays 70% You pay 30%	You pay \$10. If you elect a baked porcelain crown you pay \$25.
Bridges	Plan pays 70% You pay 30% after 12 months membership	You pay \$20 for each bridge unit.
Partial dentures	Plan pays 70% You pay 30% after 12 months membership	You pay from \$20 to \$50 depending on type.
Full dentures (upper or lower)	Plan pays 70% You pay 30% after 12 months membership	You pay \$50 for each full denture.
Orthodontia (straightening teeth)	Not covered	You pay up to \$500 maximum.
Periodontia (treatment of diseased gums)	Plan pays 70% You pay 30%	You pay nothing for minor care. For major care and surgical treatment you pay from \$50 to \$150 depending on the area involved. The fee is payable only once while you remain a member of the Plan. You pay \$10 for surgical curettage.
Exclusions	Services covered by workmen's compensation, other insurance or government agency, cosmetic surgery, congenital malformation. Orthodontia.	Services covered by workmen's compensation, other insurance or government agency. Major surgery for malignancy, cleft plate, fractured jaw.

SOURCE: Courtesy of Mr. Charles Weidner.

APPENDIX A (cont.) **Here Are Examples of How the Plans Work:**

Service	If the Dental Charge Is	YOU PAY	
		California Dental Service	Naismith Group
Initial Examination	\$ 6.00	\$ 1.80	0
Full mouth x-rays	13.00	3.90	0
Prophylaxis (scaling and polishing)	7.00	2.10	0
Two extractions	11.00	3.30	0
Four single surface fillings	28.00	8.40	0
Gold inlay for bridge abutment	35.00	10.50	20.00
Three surface gold inlay	45.00	13.50 to 30.00	10.00
Bridge	45.00 Unit	13.50 Unit	20.00 Unit
Gold crown	52.00	16.60	20.00
Dentures—full upper or lower	145.00	43.50	50.00
Both upper and lower	290.00	87.00	100.00
Repairs	11.00	3.30	0
Reline	35.00	10.50	0

APPENDIX B **Comparison of Two Milk Driver and Dairy Employee (Local 302) Union Populations: from the Utilization Analysis and from the Mail Survey Analysis**

Age	Utilization Sample Population ^a N = 224	Mail Survey Respondent Population ^b N = 730 ^c
	%	%
15-24	0.89	5.21
25-44	53.58	48.08
45-64	45.53	46.16
65+	0.00	0.55
Total	100.00	100.00

^a Employees only; see text for method of selecting sample.

^b A response rate of 51.3 per cent was obtained (757 questionnaires returned).

^c Twenty seven respondents failed to specify their age and are not included.

APPENDIX C

Dollar Value of Care Rendered to C.D.S. Patients, 1963 and 1964, by Type of Service, All Ages

Type of Service						
1963				1964		
x (no.)	y (mean \$ value)	xy (\$)	xy (as % of total)	S.D. ^a	x (no.)	y (mean \$ value)
307	\$14.02	\$4,304.14	15.8	6.0	290	\$12.27
288	7.40	2,131.20	7.8	4.6	278	6.72
64	20.16	1,290.24	4.7	29.8	71	34.09
3	4.67	14.01	0.5	3.1	2	7.60
11	16.18	177.98	0.7	7.0	10	13.40
10	48.10	481.00	1.8	77.2	9	49.78
24	17.08	409.92	1.5	14.2	25	24.12
280	63.29	17,721.20	64.9	58.9	253	66.47
9 ^c	54.22	489.98	1.8	58.6	53	181.74
7	39.86	279.02	1.0	17.8	8	43.76
0	0	0	0.0	0	0	0
Totals		\$27,298.69	100.5 ^b			\$35,593.00
						100.1 ^b

^a S. D. = Standard Deviation.

^b Due to rounding off, the percentages do not add up precisely to 100 per cent.

^c Prosthetics coverage was excluded in 1963. Figures cited refer to "repairs" only.



