The Process of Choice of Health Care Plan and Provider: Development of an Integrated Analytic Framework

Michael S. Klinkman

During the past ten years, the U.S. health care system has been transformed into the health care marketplace. Increasing health care costs and the presence of alternative methods of organizing care have combined to stimulate intense interest in the organization and delivery of primary health care. This interest has been translated into an expanding literature on the impact of managed health care plans on the delivery of primary care. Many studies have been performed on the level and type of services provided in managed care, on patient satisfaction with managed care, and on factors influencing enrollment in and disenrollment from different types of managed care plans, such as health maintenance organizations (HMOs) and preferred provider organizations (PPOs).

As competition in primary health care intensifies, the need to un-

---

Address correspondence and requests for reprints to Michael S. Klinkman, M.D., M.S., Lecturer, Department of Family Practice, 1018 Fuller Road, The University of Michigan, Ann Arbor, MI 48109-0708. This article, submitted to *Medical Care Review* June 5, 1990, was revised and accepted for publication November 20, 1990.

derstand with accuracy what is needed and desired from a primary health care provider has become crucial for both designers and purchasers of health care plans or systems. The need has become especially acute for groups charged with assessing the strengths and weaknesses of proposed national health insurance plans such as those recently proposed by Enthoven and Kronick (1989a, 1989b) and Himmelstein and Woolhandler (1989). A clear understanding of these issues is also of great importance to primary care–based medical specialties (e.g., general internal medicine, general pediatrics, and family practice) as they seek to establish their respective niches in the changing health care system.

The existing literature offers little reliable guidance for two reasons, one conceptual and the other empirical. On the conceptual level, previous researchers based their work on the assumption that consumers balanced their health care needs, desires, and options in making an informed, rational choice of provider. That assumption, in combination with research methods that included only limited numbers of isolated factors in choice, resulted in an oversimplified modeling of the choice process. On the empirical level, these partial and oversimplified models were tested with retrospective data and a variety of methodologies. The results of these studies are often inconsistent, if not contradictory, and because of differences in methods the inconsistencies are difficult to reconcile.

Consequently, we know little about how or why individuals (now often referred to as "health care consumers") choose their source of primary health care. Since the answers to this question will have a significant effect on the organization of primary health care services, there is a need for creative thought and for a fundamental redesign of research in this area. We begin by reviewing the current state of research in the choice of health care plans; subsequently, we present an expanded analytic framework for the process of choice of both plan and provider that may serve as a guide for further study.

PREVIOUS RESEARCH IN THE CHOICE OF HEALTH CARE PLAN

SUMMARY OF PREVIOUS RESEARCH

Much of the early work in the field of choice of health care plan reflected assumptions that individuals chose their source of care in a rational fashion (the same as with any other consumer good), and that it

was an informed choice that accurately reflected their preferences regarding health care.

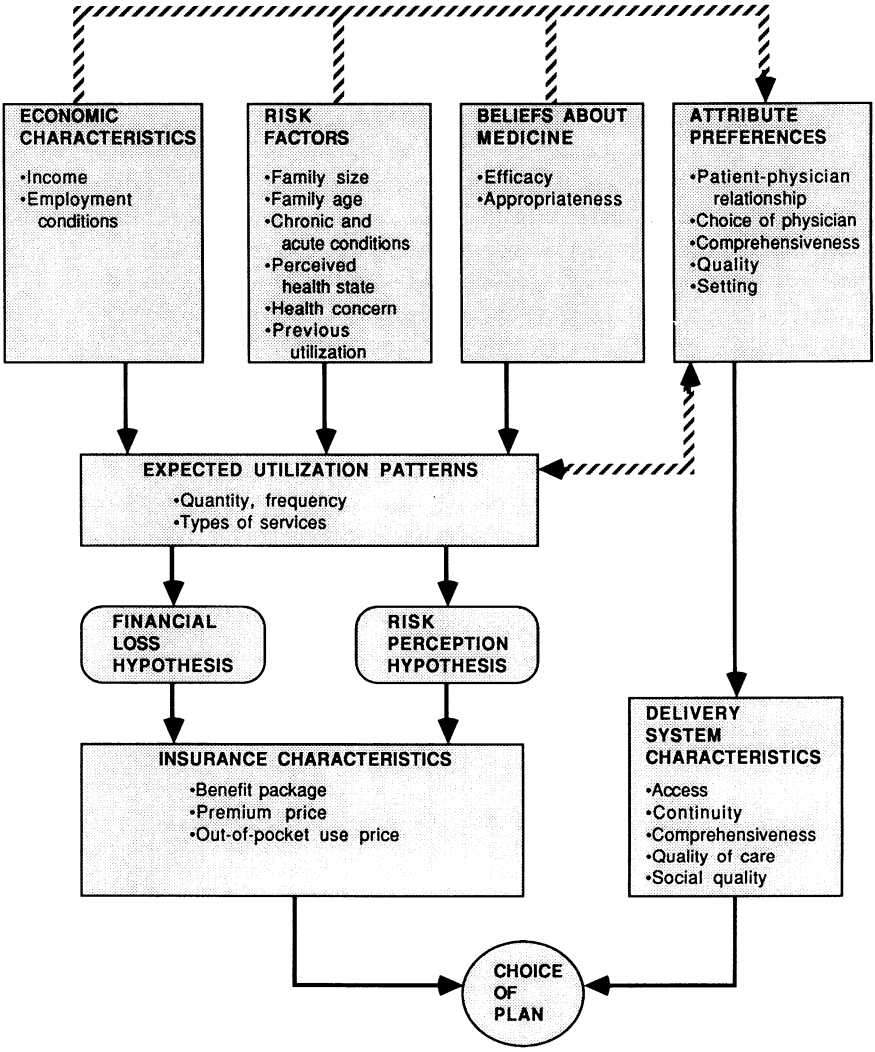
Based in part on these assumptions, progressively more sophisticated models of the process of choice of health care provider or choice of health care plan evolved. Berki and Ashcraft, based on their own previous work (Berki et al. 1977; Berki et al. 1978; Ashcraft, Penchansky, Berki, et al. 1978) and their analysis of the literature published prior to 1980, created an analytic framework for the process of choice (Berki and Ashcraft 1980). They described the choice process as primarily one of plan, with the choice of provider a secondary consideration based upon and limited by the plan chosen. The choice of an HMO incorporated a choice of its delivery characteristics, such as limited freedom of choice of sites of care and some limits to access to the health care system. The choice often could not incorporate a choice of individual provider or of specific provider attributes; thus, "closed-panel" designs precluded the maintenance of existing physician-patient relationships.

Their analytic framework (see Figure 1) contained two key explanatory hypotheses, labeled *financial vulnerability* and *(health) risk perception:* each was defined as a composite of several operational variables.

In brief, financial vulnerability referred to the consumer's greater likelihood of choosing a plan that minimized financial loss when finances were "tighter," such as choosing an HMO with comprehensive first-dollar ambulatory and hospitalization benefits to correspond with lower income. Health risk perception referred to the consumer's choice of a plan based on his or her estimate of personal health risk, with a higher-probability estimate of his or her future health risk leading to the choice of a plan with more comprehensive benefits. Berki and Ashcraft's full model included two groups of factors. The first, which could be considered economic factors based on their perceived economic impact on the consumer, included income, size of household, and several health risk factors. The second could be labeled attribute factors, and included the consumer's beliefs about ideal medical care and quality of care, and their preferences related to provider style and comprehensiveness of care. In theory, consumers filtered these factors or beliefs through the financial loss and risk perception hypotheses, then matched their needs to their perceptions of plan characteristics to arrive at their choice of health care plan.

Only a handful of studies examining enrollment choice have been published since the Berki and Ashcraft review. Most of these have used at least some of the conceptual framework just described (Juba, Lave, and Shaddy 1980; Buchanan and Cretin 1986; Grazier et al. 1986; Lairson and Herd 1987; Wouters and Hester 1988), and some have applied the

FIGURE 1 Framework for Analysis of Enrollment Decisions (Solid lines = Direct Relationships; Barred Lines = Indirect Relationships)



From Berki, S. E., and M. L. F. Ashcraft. "HMO Enrollment: Who Joins What and Why." *Milbank Memorial Fund Quarterly* 58, no. 4 (1980):588–632.

framework to the expanded choices (closed-panel HMOs, independent practice associations, preferred provider organizations) that now face consumers (Grazier et al. 1986; Wouters and Hester 1988). Others have taken an exploratory approach to the question of choice (Welch and Frank 1986). Several have examined in greater depth the potential influence on the choice process of prior relationships with health care provider or plan (Juba, Lave, and Shaddy 1980; Buchanan and Cretin 1986; Lairson and Herd 1987; Wouters and Hester 1988), which has been labeled "integration" by Roghmann (Roghmann, Gavett, Sorenson, et al. 1975). The design features of each of these studies are summarized in Table 1.

Juba, Lave, and Shaddy (1980) examined the choice made by university employees between an established, conventional Blue Cross/Blue Shield insurance plan and two new HMO plans. They tested a model of choice containing many, if not most of the factors described by Berki and Ashcraft using an econometric model of choice. Their data, however, were limited to a retrospective mail survey of all who had chosen HMOs and one-half of those who had chosen the BC/BS plan. Their response rate was only 46 percent (332 of 716), with a disproportionately high rate of HMO choosers in their analysis; they attempted to control for choice-

TABLE 1 Summary of Study Results in Choice of Health Care Plan (Studies Using Multivariate Analyses)

	Findings in Support of:			
Study	*Risk Perception*	*Financial Vulnerability*	*Health Status*	*"Integration"*
Wouters and Hester (1988)	Yes	Yes	Not tested	Yes
Welch and Frank (1986)	Not tested	Yes	No	Not tested
Lairson and Herd (1987)	No	No	No	No
Buchanan and Cretin (1986)	No	Yes	No*	Yes
Grazier et al. (1986)	No	Yes	No	Yes
Juba, Lave, and Shaddy (1980)	Partially	Partially	No*	Yes

*Examined as part of operational definition of "(health) risk perception."

based sampling by subsampling the HMO choosers and repeating their analyses. They found that (1) those with lower incomes and more young children tended to choose HMOs; (2) older persons with lower health status tended to choose BC/BS, but those with chronic illness chose HMOs; (3) higher levels of satisfaction with current health care and increased time living in the area were associated with BC/BS choice; and (4) higher educational levels were associated with HMO choice. No relationship was seen between choice and expected out-of-pocket costs for care. These results were interpreted to suggest strong support for the integration hypothesis but uncertain support for the health risk or financial vulnerability hypotheses.

Grazier et al. (1986) looked at factors associated with choice from among three types of health care insurance plans: established BC/BS, staff model HMO plans, and a new independent practice association (IPA) plan. The subjects were Washington state employees living in a mostly urban county (King County, including Seattle) in which an established, well-subscribed staff model HMO existed. The decision studied was whether established employees chose to remain in either the BC/BS or HMO plans or instead switched to the IPA. New employees' enrollment decisions were not studied, and the BC/BS versus HMO enrollment choice could not be studied. Study data included retrospective household interview and partial medical records (HMO) and claims (BC/BS) information for 1,497 "family units" representing 94 percent of those eligible for study. They examined the same set of factors as those described by Berki and Ashcraft, but operationalized them into "need for care," "access to care," "financial capability," and "experience with plans" variables. They performed standard bivariate and multivariate analyses comparing "switchers" and "stayers," and they found that an existing satisfactory relationship with a provider was significantly related to staying and that those with lower incomes were more likely to switch from BC/BS to the IPA. They also performed discriminant analyses for the BC/BS and HMO switchers, but the discriminant relationships for these two groups were significantly different, suggesting the presence of complex influences on decision making. The authors concluded that (1) the importance of satisfaction (with providers, costs, and administration) was striking, (2) there was some support for the financial risk hypothesis, and (3) there was little support for the health risk hypothesis.

Buchanan and Cretin (1986) examined the choices made by some 30,000 employees of a southwestern aerospace corporation between a self-funded fee-for-service (FFS) plan and various HMO plans with unspecified characteristics. They tested a model including financial vulnerability, health risk, and integration variables with data that included

enrollment choices over a five-year span, insurance claims (for FFS enrollees only, not for HMO enrollees), and demographic information, such as age, income, job tenure, family size, and presence of other insurance. They compared "switchers" (from FFS to HMO) to "stayers" in a number of ways, and employed elegant multivariate techniques, such as correcting for intertemporal correlation, in their analysis. Their results showed that switchers tended to be those who were younger, with lower salaries and less job tenure than the stayers. Their analysis of utilization data suggested that families with fewer claims tended to enter the HMO. This may represent support for the financial vulnerability hypothesis, but these results are difficult to place in context due to missing HMO utilization information. The integration and health risk hypotheses could only be indirectly tested with these data: integration seemed to be associated with staying, but health risk as estimated by family size seemed to have no influence on choice.

Welch and Frank (1986) used data from the 1980 National Medical Care Utilization and Expenditure Survey (NMCUES) in an exploratory study of predictors of HMO enrollment. The NMCUES data consisted of comprehensive demographic and health information obtained by multiple mail surveys over the course of one year. It was supplemented by prepaid group practice (PGP) market share information for the metropolitan areas surveyed; this served as a crude method for excluding households in areas that offered no opportunity to choose a PGP. Other adjustments were made to improve the quality of the data: efforts were made to exclude those enrolled in independent practice associations (IPAs), and only one observation was allowed for each family. Unfortunately, the presence of separate insurance coverage within households was not well addressed. The result of these efforts was an improved sample of individuals who had for the most part chosen either PGP or FFS insurance plans. Using probit analysis, Welch and Frank found that income was a negative predictor for PGP enrollment and that the income elasticity of choice of PGP was $-.64$. No significant relationship was found between choice of plan and education, race, number of young children in the family, number of adults, age of head of household, health status, or number of medical conditions present.

Lairson and Herd (1987) retrospectively studied the enrollment decisions of 997 employees of a southwestern utility company to look for the presence of HMO selection bias. Their conceptual framework contained elements of the integration, health risk, financial vulnerability, and health status hypotheses. Insurance claims and personnel records for all individuals, and health belief and health status information from 617 volunteers, provided the data. Difference in cost between options

was thought to be one predictor of choice but could not be examined with the available data. Bivariate comparisons between those choosing HMO and FFS showed several differences, but most vanished on repeat analysis using multiple regression. The only significant differences seen in multivariate analysis were that the HMO attracted younger and female employees, and that those who chose the HMO had had higher dependents' utilization in the year prior to choice. However, because neither the effects of separate insurance coverage in the household nor the utilization of primary care services could be examined, these results were difficult to interpret.

Wouters and Hester (1988) analyzed the decisions made by employees of a single firm in California regarding the use of either a preferred provider organization (PPO) provider or a traditional FFS provider. With this employer, the choice of provider could be made at each visit, as employees were offered the option of using the PPO without being "locked in" to use it exclusively. There were slight financial incentives favoring the use of PPO providers for both ambulatory and inpatient care, but the authors considered the inpatient incentives to be insignificant in influencing choice. The authors included variables representing integration, health risk, financial vulnerability, and sociodemographic factors as predictors of choice. They found that the probability of using the PPO was higher for those with better geographic access, those who were "better health risks," those with minor problems, those with fewer prior visits to non-PPO providers, and those with lower income. These results were thought to support the integration, financial vulnerability, and risk perception hypotheses.

These are the most nearly complete examinations of the process of choice available, but they offer inconsistent results (see Table 2). The results of some studies support the health risk hypothesis, but other results show no such support. There is some support for the financial vulnerability hypothesis, with data from a few studies showing larger or younger families preferentially choosing prepaid care (Buchanan and Cretin 1986; Lairson and Herd 1987) but other data showing no such relationship (Grazier et al. 1986; Welch and Frank 1986; Wouters and Hester 1988). There has been little evidence that health status or health practices have had any influence on choice in studies that have addressed that issue (Grazier et al. 1986; Welch and Frank 1986; Lairson and Herd 1987). The finding most consistent across studies has been that the existence of a prior relationship with a health care provider decreases the likelihood that a plan disrupting that relationship will be chosen: this highlights the importance of integration in the process of choice.

The confusing picture painted by this inconsistency does not mean

that the process of choice itself is chaotic. As already mentioned, inconsistency may be due to the problems of *oversimplification of models of choice* and *the use of variable methods.* The key to reconciling conflicting study results lies in understanding these two problems.

REVIEW OF PREVIOUS METHODOLOGY

Most of the early studies reviewed by Berki and Ashcraft were retrospective mail surveys, with wide variations in response rate, using bivariate statistical techniques to find significant differences between HMO and "traditional" enrollees. As shown in later studies combining bivariate and multivariate analyses on the same data (Grazier et al. 1986; Lairson and Herd 1987), many of the differences seen using bivariate analyses disappeared when controlling for covariance through any of several methods. This problem of unrecognized covariance means that much of the early evidence about choice of caregiver must be viewed with caution.

Berki et al. (1978) were the first to employ multivariate statistical techniques in analyzing choice of health care plan. The studies reviewed in the previous section all employ multivariate techniques to control for the problem of unrecognized covariance (see Table 2). However, these more sophisticated studies still contain several design problems.

First, all are retrospective in their design. This can create two types of problems. Asking individuals to reconstruct decision frameworks from a complex decision made up to six months earlier (which some studies have done) raises the likelihood of selective recall bias, particularly when the examiners are supplying some potential answers in the form of a survey instrument with prepared choices. The more difficult problem comes from trying to fit research hypotheses to previously gathered data. Many studies' data sets contain only certain bits of demographic or health risk perceptions information and, by omitting unavailable items, must compromise the operational definition of factors influencing choice.

Second, most studies' independent variables have been differentially operationalized. Each study contains a set of independent variables that represents a subset of all the factors theoretically related to choice of plan, expressed in operational terms specific to that study. While some studies include the same basic set of variables, the way in which the variables are operationalized differs. In addition, studies often include unique independent variables. This phenomenon is not unusual in a field of study in its "pre-paradigmatic" stage. However, the result is that

TABLE 2 Selected Design Features, Studies on Choice of Provider

Study (Data)	*Locus of Study*	*Prospective?*	*Choice Between*	*Describe Plan Characteristics*	*Test Model of Choice?**
Wouters and Hester (1988) (1984 data)	Local	No	PPO vs. FFS	Yes, briefly	Yes; HR, FV, INT, Sociodemo
Welch and Frank (1986) (1980 NMCUES data)	National	No	PGP vs. FFS	No	No; multiple factors examined
Lairson and Herd (1987) (1984 data)	Local	No	HMO vs. FFS	Yes	Yes; HR, FV, HS, INT, Choice
Buchanan and Cretin (1986) (1977–82 data)	Regional	No	HMO vs. FFS	No	Yes; HR, FV, INT
Grazier et al. (1986) (1978 data)	Local	No	HMO vs. IPA vs. FFS	Yes	Yes; HR, FV, HS, INT, Satisfaction
Juba, Lave, and Shaddy (1980) (1976 data)	Local	No	HMO vs. FFS	No	Yes, econometric; HR, FV, HS, INT, Costs, Innov

	Include Provider Attributes?	*Include Comparison of Costs?*	*Include Prior Utilization?*	*Statistical Analysis*
Wouters and Hester (1988)	No	No**	Yes	Multivariate, probit
Welch and Frank (1986)	No	No	No	Multivariate, probit
Lairson and Herd (1987)	No	No	Yes	Bivariate and multivariate, regression
Buchanan and Cretin (1986)	No	No**	Yes	Multivariate, OLS, ANCOVA
Grazier et al. (1986)	Yes	No	Yes	Bivariate and multivariate, linear regression/ discriminant analysis
Juba, Lave, and Shaddy (1980)	No	No	Yes	Multivariate, logit

*Abbreviations for factors incoporated into models:

HR = health risk hypothesis;
FV = financial vulnerability hypothesis;
HS = measure(s) of health status;
INT = integration into health plan/system, presence of regular health provider;
Sociodemo = the consumer's sociodemographic characteristics;
Choice = consumer's perception of freedom of choice of provider;
Satisfaction = consumer satisfaction with care;
Costs = costs of use of plan in time and out-of-pocket expense;
Innov = consumer's attitude toward innovation in technological innovation.

Note that each factor may have incorporated a different package of operational variables in different studies: this is especially true for integration and health risk.

**These authors described differences in premium and expected out-of-pocket costs for options, but did not attempt to analyze the effects of those differences.

each study tests a slightly different model of the choice process. As an example, the operational definition of "financial vulnerability" has not been consistent across studies. Wouters and Hester (1988) include income, family size, and the presence of other health insurance, while Buchanan and Cretin (1986) include only income and other insurance, putting family composition into their operational definition of health risk; both studies show support for the financial risk hypothesis. Lairson and Herd (1987) include only income and position within the company, and find no support for the financial risk hypothesis. Reconciling these results may hinge on speculation about unavailable information (family size) in the Lairson and Herd study.

This differential operationalization raises questions about the content validity and generalizability of these studies. Can the validity of the financial vulnerability hypothesis be adequately tested if subsequent designers include different packages of operational variables in its definition?

Third, only one study has included an independent variable representing provider attributes as a factor in determining choice (Grazier et al. 1986). Most studies examine a unique setting and choice situation in which consumer knowledge of the attributes of individual providers may influence their choice behavior, but the studies do not include this potential influence in their analyses. As a result, the potential influence of provider characteristics or attributes on choice has not been studied directly.

Fourth, there has been no standardization of the respondent providing data on choice. Most studies have surveyed employees about their choice, on the assumption that their responses accurately capture the decision-making process for themselves and their families. However, if the decision was made by a different family member, the employee's response may be inaccurate, biasing results. There is in fact some evidence that the female head of household most influences the choice of plan and provider (Stewart, Hickson, Pechmann, et al. 1989). In addition, the presence or absence of working spouses with separate insurance coverage has not been consistently addressed, and the presence of other insurance may have a major effect on choice through the financial vulnerability hypothesis.

This difficulty leads to a related problem in dealing with information processing in the choice process. In addition to difficulty in determining *who* makes the decision, we have a great problem in trying to identify *what* information is used in the decision: the quantity, accuracy, and type of information gathered and used in the process. The Berki and Ashcraft model of choice assumes that the information needed to com-

pare options and match them to personal needs is available, sought out, and understood by the individual, but no experimental evidence exists to suggest that this actually occurs. Scant information is available about consumers' decision making in the choice of individual health care providers. What is available implies that consumers perform an extremely limited search for information before they choose: they consult only one or two sources of information, primarily the opinion of family or friends (Glassman and Glassman 1981; Stewart et al. 1987; Hickson et al. 1988; Stewart, Hickson, Pechmann, et al. 1989). An earlier model of the choice process described by Acito (1978) incorporates information-seeking in a limited fashion but has not been tested. None of the studies described earlier addresses the issue of individuals' access to and use of information at the time of choice.

The fifth problem is perhaps the most difficult to deal with. None of the enrollment choice studies cited up to now has incorporated the relative cost of options to individuals as a factor in choice. Some authors refer to minor differences between options in premium cost, copayment, or out-of-pocket costs (Wouters and Hester 1988) but fail to analyze the effects of these differences, while others expressly state that issues of relative cost are not addressed (Juba, Lave, and Shaddy 1980; Grazier et al. 1986; Lairson and Herd 1987). Only two studies address the effect of relative premium cost on enrollment in various plans, and both show cost to have a major influence (Piontkowski and Butler 1980; McGuire 1981). Much of the information available on the effect of the relative cost of options comes from studies examining disenrollment from health care plans: there is strong evidence that increased premium cost is of major importance in the decision to disenroll (Sorenson and Wersinger 1982; Lewis 1984; Long, Settle, and Wrightson 1988; Travis, Russell, and Cronin 1989). With consumers paying an increasing share of the cost of their health insurance (Herzlinger 1985; Herzlinger and Schwartz 1985; Herzlinger and Calkins 1985; Short 1988; Gray 1989), the influence of costs on choice will only increase. The failure to examine relative cost as a predictor of enrollment choice is a major problem in published work in this area.

The sixth problem is a conceptual one. Previous analytic frameworks for the choice of provider have begun at the level of the individual's choice between options. These frameworks ignore the primary choice of provider that has already occurred—through employers' selection of the options to be offered to employees. This interaction between employers and guarantors (suppliers of insurance plans) establishes the options from which individuals choose. Omission of this step results in a study of only the constrained choices facing the consumer, which may

be heavily influenced by that unseen primary choice. If employers' criteria for selecting plans differ significantly from employees' criteria, the list of options offered to the employee may not contain any "satisfactory" choices. In this circumstance, the choice made may not accurately reflect the consumer's desire, but rather his or her best option under these constraints.

Two examples may make this point clearer. First, many of the studies discussed so far were carried out in a setting in which employees were required to choose between two or three options previously selected by their employers. In these studies, employees might have preferred options that employers had discarded, adversely influencing their satisfaction with the remaining choices and contributing to disenrollment. Second, in situations in which none of the options offered to employees allows for free choice of provider, the relative importance of free choice cannot be assessed. In addition, the influence of desired provider attributes or style on choice cannot be tested, as that testing would depend on the consumer's free choice of provider.

If the purpose of this type of study is to find the consumer's ideal choice of plan or provider, as would be the case for health policy research trying to determine the optimal design for primary care services, then this omission is a critical flaw. This is discussed in more detail further on. Even if the purpose is strictly to understand choice from among available options, it remains a problem: consumers who sense a dissonance between their ideal health plan and what is available may be more likely to disenroll or to jump from plan to plan at subsequent enrollment periods, showing inconsistent behavior that does not accurately capture their preferences.

The final problem concerns statistical methods. Although the use of multivariate statistical analysis techniques, such as regression or analysis of variance (ANOVA), avoids the problem of unrecognized covariance mentioned above, a more subtle problem is inherent in the use of these methods. The standard approach to analysis, used in almost all of the studies discussed to this point, has been to include all independent variables simultaneously in regression or MANOVA (multivariate analysis of variance) analyses. In this approach all variables are considered "equal" or simultaneous in their effects on the dependent variable(s) of interest, and the presence or absence of indirect or sequential effects cannot be examined. This can be pictured as a "multivariate soup" from which the strongest directly associated variables or "ingredients" can be strained and examined, but in which the richness of the interactions among ingredients is lost.

If the process of choice is at all analogous to other consumer deci-

sion processes, some influences will be endogenous (e.g., demographic characteristics), leading to indirect effects, while others will have more direct effects. In this sense, choice can be seen as a sequential process. Some of the independent variables with direct effects may be appropriately linked to dependent variables in single-equation models such as MANOVA, but those with indirect effects will be incorrectly concluded to have no influence because their influence is traced through their linkages to other independent variables. *Single-equation models cannot examine the complex or indirect relationships seen in a sequential process.* Two ways to solve this problem are potentially acceptable. The first solution might be the use of stepwise regression, in which variables of interest are added in a sequence determined by the analytic model chosen. A more elegant solution would be the use of structural equations systems such as LISREL or path analysis, which can more closely model the multiple relationships seen in a complex decision pathway.

Some of the inconsistencies seen in the literature may be due to the use of simultaneous, single-equation regression techniques. The inclusion of different independent variables in different studies may have altered indirect or sequential relationships, an alteration that single-equation models could show only as the absence of a relationship that was present in another study.

SUMMARY

To summarize briefly, the results of studies of the choice of health care plan have been inconsistent for several reasons: (1) the inclusion of different operational variables in different studies; (2) the lack of inclusion of potentially important variables, such as provider attributes or relative cost of options; (3) a failure to assess the effect of other insurance coverage or to specify the family decision maker; (4) a general lack of understanding of the information used by decision makers in making a choice; (5) a lack of consideration of the primary choice of health care options made by the employer; (6) inadequate control of covariance with the use of bivariate statistical techniques; and (7) the inability of single-equation multivariate statistical methods to address indirect or sequential influences in a process such as consumer choice.

These limitations, coupled with the lack of research examining the choice of individual provider, highlight the need to reorganize our approach to the study of the choice of caregiver. It might be best for that approach to begin with an updated model of the process of choice of health care plan and provider.

THE PROCESS OF CHOICE OF HEALTH CARE PLAN AND PROVIDER

Four distinct groups of "health care consumers" are part of the current health care delivery system, each receiving health services in a different way. The first group consists of employees and individuals with some form of health insurance; the second, those whose care is subsidized by the state (Medicaid recipients); the third, those whose care is at least partially supported by the federal government (the elderly and disabled); and the fourth, those who have no health insurance (such as the working poor).

Because this area of research has focused on those in the first group, our description and model of the process of choice will specifically address those consumers with health insurance benefits. A full consideration of the other groups in the system is beyond the scope of this article, but many of the concepts discussed here should apply to those under federal sponsorship, since the government, through selective contracting with health insurers, is increasingly acting in a fashion analogous to that of an employer.

RATIONALE FOR AN INCLUSIVE MODEL OF CHOICE

Because of the potential influences of the employer on an employee's choice of health care, a full conceptual framework must include the choices made by employer and employee both. An employer chooses plans to offer employees, and an employee chooses a plan and provider from the options presented.

Why is it necessary for a model of choice to include anything that occurs before the health care consumer becomes directly involved? As mentioned earlier, the results of previous studies may have been affected by the omission of employer choice information. However, the more important reason is that an accurate model of choice is critically important if research results are to be used in health policy decision making. If one goal of this type of study is to determine which features of primary health care are valued by individuals, then the "ideal choice" of consumers, not their constrained choice, must be studied. If another goal is to understand the implications of the "health care marketplace" model for the structure and organization of primary care services, then the factors that are important to employers—those making the primary choice of plan—must be studied. Extrapolating the results of the limited consumer-choice studies for use in policy decisions would effectively affirm

and enfranchise the values held by employers regarding primary health care, without first subjecting them to study.

A TWO-STAGE ANALYTIC FRAMEWORK FOR THE CHOICE OF HEALTH CARE PLAN AND PROVIDER

The proposed framework describes the process of choice from its beginning, the point at which those paying for health care negotiate with those supplying health care: this seems to be the most appropriate place to begin a process that occurs in a marketplace. Following this negotiation, individuals become involved and the process assumes its familiar shape as seen in the literature. This more inclusive model of the process can be summarized as a two-stage process in which each stage results in a contract.

The framework will be presented as a unified model, and the supporting evidence from the literature will be included as it is available. Each stage of the model can be used separately for specific research designs, but it is perhaps best seen initially as a whole.

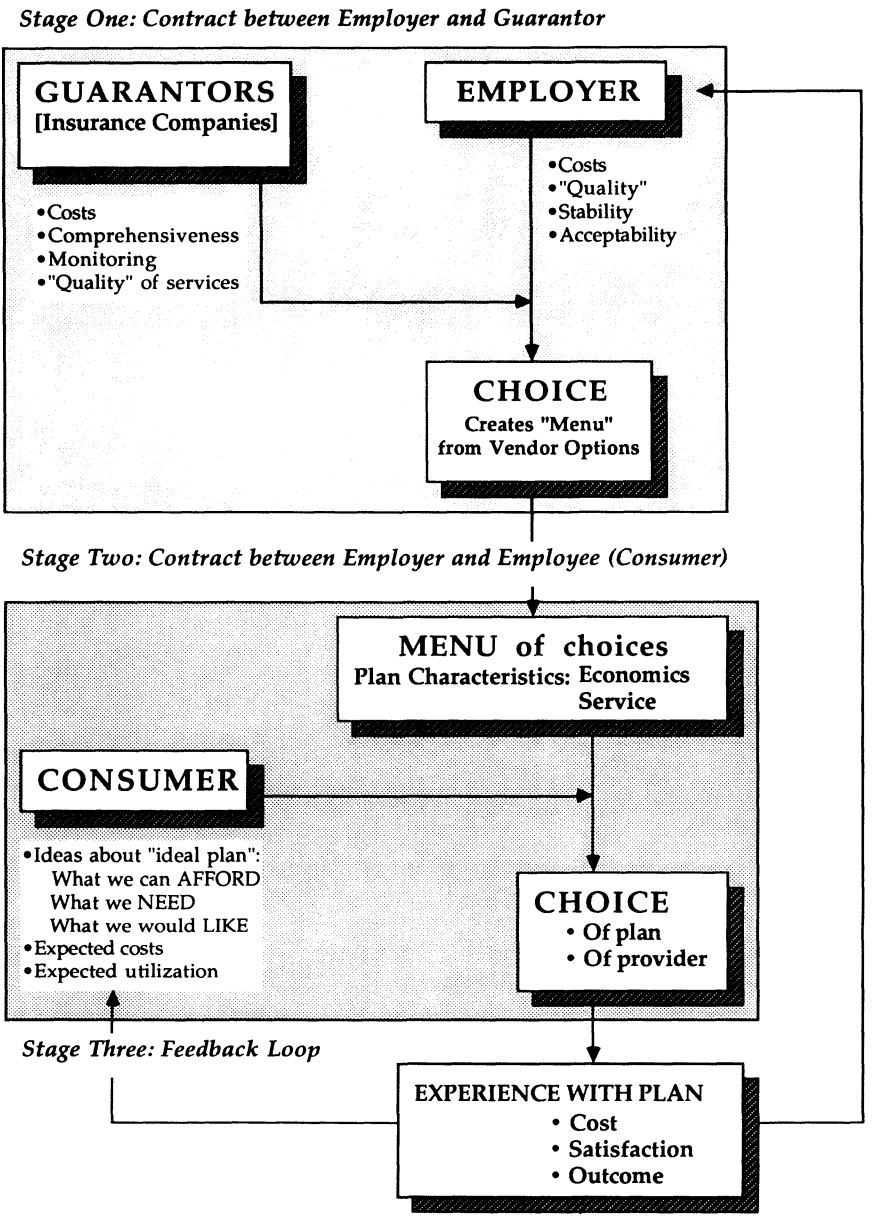
Stage One: The Contract between Employer and Guarantor

Stage one involves the employer (more accurately, the benefits office or responsible person in the employer's organization) and representative(s) of the health care plan(s) available in the geographic region. These two parties initiate the process of provider choice through the negotiation of a contract between the employer and a guarantor, as seen in Figure 2.

This is an area in which there has been little research to date. Although studies have examined the competitive effects of HMOs in a given market (Frank and Welch 1985), very little information is available on employers' decision-making strategies regarding health care insurance. The following discussion is somewhat limited by lack of evidence, but it can serve as a good starting point in understanding this stage of the choice process.

The employer needs to obtain health insurance coverage for employees and, in most cases, will subsidize the cost of the insurance, at least in part. The major constraints facing the employer in the search for appropriate coverage are the expense of the search and the need for predictability and control of the company's overall expenditure for health care (Gray 1989; Jensen, Morrisey, and Marcus 1987; Mullen 1988; Scammon 1989; Califano 1989). The first constraint might limit the op-

FIGURE 2 The Process of Choice of Health Care Plan



tions that can be considered by an employer to a select few well-known "vendors" of health insurance (such as Blue Cross/Blue Shield or the Kaiser-Permanente organization). The second constraint translates broadly into the following major criteria for determining acceptable options:

Costs. How costly is the option to the employer? Is the expenditure predictable and budgetable, or will it be impossible to plan for health care costs under this option? Some employers have turned to self-funded health benefits plans, featuring preferred provider organizations (PPOs), to achieve increased control of expenses (Jensen, Morrisey, and Marcus 1987; Scammon 1989). Other employers seek to transfer some of the financial risk either to employees, through the use of copayment and benefit limit provisions, or to providers, through HMO capitation provisions.

Stability. How long has this option been in existence? How firm is its financial structure? Is this a stable insurance plan, or will it be unavailable in a year, forcing employees to change their coverage and employers to find new options?

Acceptability. Will employees find the option acceptable, or will this plan be so unattractive that the time spent developing the option will have been wasted? Will employees leave the option after a brief period, creating administrative problems? Does the option require continuing administrative effort by the employer or employee?

Quality. Will the option be seen by employees as offering "quality" health care—in whatever way employees might define the term? Will the employer be getting a "quality" product from its vendor—however the employer chooses to define the quality of a plan? The definition and determination of "quality" is an extremely important and difficult issue, and is addressed in more detail further on.

The employer negotiates with potential vendors of health care plans in much the same fashion as with other suppliers (Gray 1989; Califano 1989). The key difference between this process and most other business negotiations is that the "product" is not tangible and the criteria for choice are evanescent. However, the magnitude of the expense for health care makes necessary a careful choice from among available options.

Potential guarantors for health care coverage (insurance companies) are the vendors of health care plans, the "other side" in this initial negotiation. Their goal, broadly stated, is to supply a desirable product that will be both attractive to employers and profitable for themselves. They will be designing options with the following characteristics in mind:

Costs. The cost to the employer must be competitive, particularly if the quality of care offered in an option cannot easily be determined (see *Quality* below).

Comprehensiveness. Two items are incorporated within this term, both of value to employers. The first is the inclusion of both inpatient and ambulatory care under the plan. This may be seen as desirable to employees. The second is the presence of contractual relationship(s) with specialty providers, ancillary services, and/or health care institutions that reimburse on a fixed level or capitation basis rather than fee-for-service. This serves to make expenses more predictable for employers (Califano 1989). Comprehensiveness must be carefully structured to avoid adverse risk selection, whereby "sicker" individuals choose more inclusive plans.

Monitoring. Plans that are structured to facilitate data collection for monitoring of utilization, expenses, or "quality" of care may allow for improved control over health care costs by employers and for improved assessment of profitability by guarantors. Both parties in the negotiation consider this characteristic to be desirable, but it is extremely difficult to design and implement.

Quality. The plan must be viewed by employers as offering quality at least equivalent to that of other plans of similar cost. Ideally, guarantors could offer higher-quality plans for increased cost, but the definition and determination of "quality," particularly in ambulatory care, has been problematic. The notion of buying for cost rather than for quality has been thoroughly studied by McClure, who states that companies will buy options with the lowest cost if they cannot assess the quality of services (McClure 1988; Iglehart 1988).

Employer and guarantor(s) meet, with the employer's criteria for desired health care benefits and the vendors' plan characteristics and pricing of options the basis of the negotiation. Following this interaction, the employer chooses a limited number of health care plans to offer to employees. (Some employers may choose to self-fund or self-design a health insurance plan, but this is still a rare event.) Small companies may choose only one plan; larger companies may choose several and may select plans from one or more than one guarantor (Frank and Welch 1985). The employer selects the "menu" from which the consumer will later choose. Through its participation in this initial negotiation, *the employer is the first-line consumer of health care.*

As mentioned earlier, the decision-making process used by employers has not been well studied. It is presumed that much variation in the process of choice exists among individual employers, but that certain

characteristics of the process are relatively universal. A brief summary of four major features of the employer-guarantor interaction is presented:

1. *Employers cannot accurately assess most of their criteria for choosing health care options,* such as quality or stability; they look for options with predictable and minimal costs, as that is the only hard information available at their point of decision.

2. *The "quality" of the institutions and providers in each option cannot at present be assessed or compared, and is a relatively nonspecific factor in choice.* Although one study has examined the influence of "reputation" on choice as one surrogate for quality (Scitovsky, McCall, and Benham 1978), further evidence will depend on developing a methodology to define and examine the quality of care in a care plan option. There are signs that employers are beginning to push for quality assessment (Ham 1989) and that guarantors are marketing their "quality" (Gray 1989; Nelson and Goldstein 1989), but these efforts are hampered by the difficulty of defining quality in health care (Caper 1988; Cleary and McNeil 1988). Uncertainty about the quality of an option can be minimized by either choosing more options to offer to employees or choosing options that offer more combinations of providers and institutions. This transfers to the employee the onus of determining the quality of the options. Employers, health providers, and insurers are all actively working on quality assessment, but there is no proven approach to the issue of "quality" at present.

3. *It is not known whether employee preferences are considered by employers in their initial selection of options.* If employee preferences are not considered, dissonance between ideal and constrained consumer choices may occur, and disenrollment may result, with unknown implications for the quality and cost of care.

4. *The decision is fundamentally made between two parties: a representative of the employer and the marketing agent(s) for the health care plan.* Physician input is not a factor in this decision except to the extent that physicians are members of the above parties. It is ironic that neither of the parties in a clinical health care encounter (physician and patient) has direct involvement in the primary decision regarding how that care is to be delivered. The decision that physicians typically face is whether or not to participate in a specific plan—a secondary rather than primary decision.

To briefly summarize step one, *employers serve a screening function—to determine acceptable options, paying primary attention to costs.*

Stage Two: The Contract between Employer and Employee

Stage two involves the employee (or consumer) and his or her family. The household chooses its health care plan from the options offered by the employer; thus, the employee is the second-line selector of health care.

This step in the process can be conceptualized in much the same way as stage one (see Figure 2). The output of the employer-guarantor negotiation (stage one) becomes the menu from which employees (consumers) may choose. All of the plans contained as options in this menu have both economic characteristics and service characteristics that serve to position each option in some unique way. Consumers view each option through their own set of perceptions, consisting of their ideas about an ideal plan, their expected utilization of health services, and their expected costs under each option. Their choice is presumed to be the option with the best fit to that perceptual set.

This part of the choice process has been more thoroughly studied than stage one. Despite the presence of significant problems in the literature reviewed, the analytical framework proposed by Berki and Ashcraft (1980) can still serve as the basis for organizing further study on this part of the process.

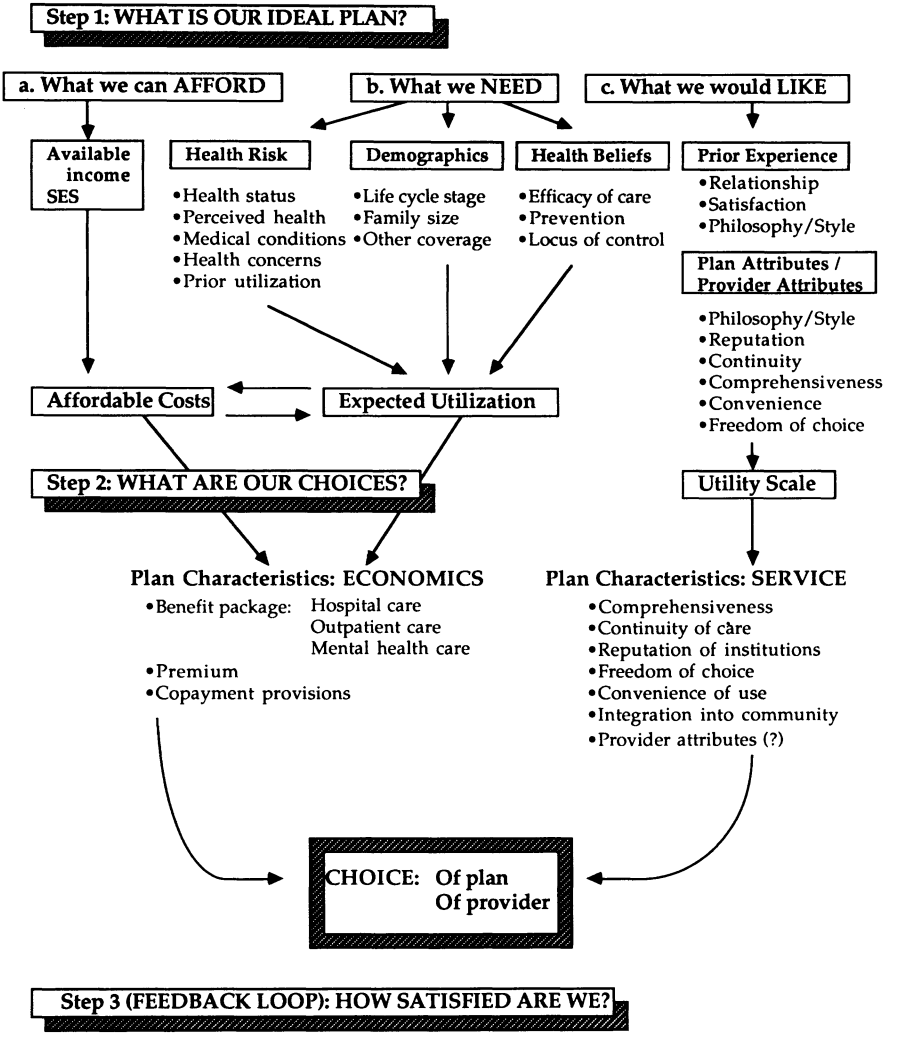
Stage two can be seen in more detail in Figure 3, a minor revision of Berki and Ashcraft's framework as shown in Figure 1. In Figure 3, consumers are seen to go through a two-step process in choosing their health care plan. Unlike the stages in the full model of choice, these two steps probably cannot be thought of as occurring in sequence. Both are factors implicitly balanced by the consumer when making a choice, and are separated here for conceptual clarity.

In step one, the consumer asks, "What is our ideal plan?" The answer to that question has three parts.

"What we can afford." This translates to the economic status of the consumer: his/her income and other demands on it, leaving the amount of income that can be used to purchase health care benefits and pay for uncovered services. This corresponds to a portion of the financial vulnerability hypothesis of Berki and Ashcraft.

"What we need." This is a complex mix of the consumer's perceived health risk, demographics, and health beliefs. *Health risk items*

FIGURE 3 Stage Two: The Consumer's Choice of Health Care Plan



include perceived health status, underlying health problems and concerns about future health problems (e.g., the likelihood of future cardiac disease with cardiac risk factors present), and patterns of prior health services utilization. *Demographic items* include family size and the number of dependents included in the plan, the presence of other health

insurance benefits (such as those available to a working spouse), and the family's stage in the family life cycle (e.g., with several young children versus the "empty nest" stage). *Health beliefs items* include beliefs about the efficacy of primary health care and/or preventive care and the consumer's health locus of control (e.g., "do what the doctor says" versus "participate in making decisions about your care").

This factor incorporates Berki and Ashcraft's risk perception hypothesis, along with a portion of their financial vulnerability hypothesis.

"What we would like." This is a new factor, incorporating several items difficult to quantify that address prior experience and desired attributes of a primary care provider or plan. Items from prior experience might include a previous or ongoing relationship with a provider, satisfaction with a previous or current provider or plan, and the philosophy or style of care that has been the most satisfactory to the consumer in the past. *Desired provider attributes* may stem from prior experience, but are better described as the ideal relationship as seen by the consumer: these include the provider's philosophy of care, the style of care delivered in the practice, the reputation of the practice or provider, the continuity and comprehensiveness of care delivered in the practice, and the convenience of use of that provider's services. *Desired plan attributes* might include the comprehensiveness of services offered, the reputations of the institutions included in the plan, the freedom of choice of providers or institutions for receiving care, and the convenience of the plan (from provider location and access to administrative ease of use). Some of these items have been loosely incorporated into the "integration" or "provider attributes" factors examined in previous studies.

Please note that the "quality" per se of either provider or plan has not been included in this description, because consumers have no objective standard for assessing quality. Their assessment of quality occurs in the assessment of specific items, such as continuity of care, access, previous experience, or reputation, depending on their own perception of what "quality" of health care means.

From consideration of anticipated needs and economic status, expected utilization and "affordable costs" can be estimated. From consideration of the attributes of care most desired, a utility scale for service characteristics might be constructed: this may be an explicit scale, but it probably is more often an implicit ordering of priorities.

In step two, these three constructs are matched against the available options from the employer's menu, and the plan with the best fit is chosen. The matching occurs for economic features and for service features.

The *economic characteristics* of plans include the benefit package offered (hospital care coverage, coverage for outpatient care and laboratory or ancillary services, and mental health care coverage), the premium charged to consumers (*not* the portion paid by the employer), and copayment provisions. These characteristics are balanced against expected utilization and affordable costs to determine plan acceptability.

The *service characteristics* of plans include the plan attributes just described: the comprehensiveness of the plan, the continuity of care delivered in the plan, the reputations of participating providers and institutions (for quality of care), the freedom of choice within the plan, and its overall convenience of use, which incorporates the "access" characteristics of Berki and Ashcraft's framework. The "integration" of the plan, the extent to which it allows maintenance of existing community services and referral networks, is another characteristic that may be considered by consumers. These characteristics are compared on the consumer's utility scale to determine plan acceptability. The extent to which provider attributes are a factor in choice depends on knowledge of the individual providers in the plans.

There is also both a stage three and a step three, describing a feedback loop for both employers and consumers. Based on their experiences with the plan chosen, they may change their order of preferences or their desired set of attributes. When the next opportunity for choice occurs, these changes may influence their decision, either by reinforcing their previous choice or by making other options seem more attractive. As mentioned, the absence of appealing options may result over time in inconsistent "plan-jumping" with both economic and potential quality-of-care implications.

Stage Two in the Real World

The model of stage two described in the previous section has imposed a rational structure on a complex, personal process. In the real world the matching process is nowhere nearly as clear or as rational as that described; it is difficult to picture a human being proceeding through the steps on this pathway. However, this structure may have great value in enhancing our understanding of the choice process when joined with the concept of *consumer information processing*.

The complex balancing of the choice process takes place in a setting in which both *information supply* and *information seeking* are limited. Most of the information supplied about health plan options comes as a result of marketing efforts that often describe only some of a plan's economic characteristics. Additional written information about plan characteristics

is usually available prior to choice (such as copayment provisions and details of benefit packages), but its influence has not been studied. Very little information about individual provider attributes is supplied. Lists of names of available health care sites and providers may be supplied by plan sponsors, but often the only information available to consumers about their choice of individual caregiver comes from their own experience or from word of mouth of other consumers. This information supply problem affects step two of the choice process in that only a fraction of the items listed in Figure 3 may be known to the consumer, indirectly altering his or her decision making.

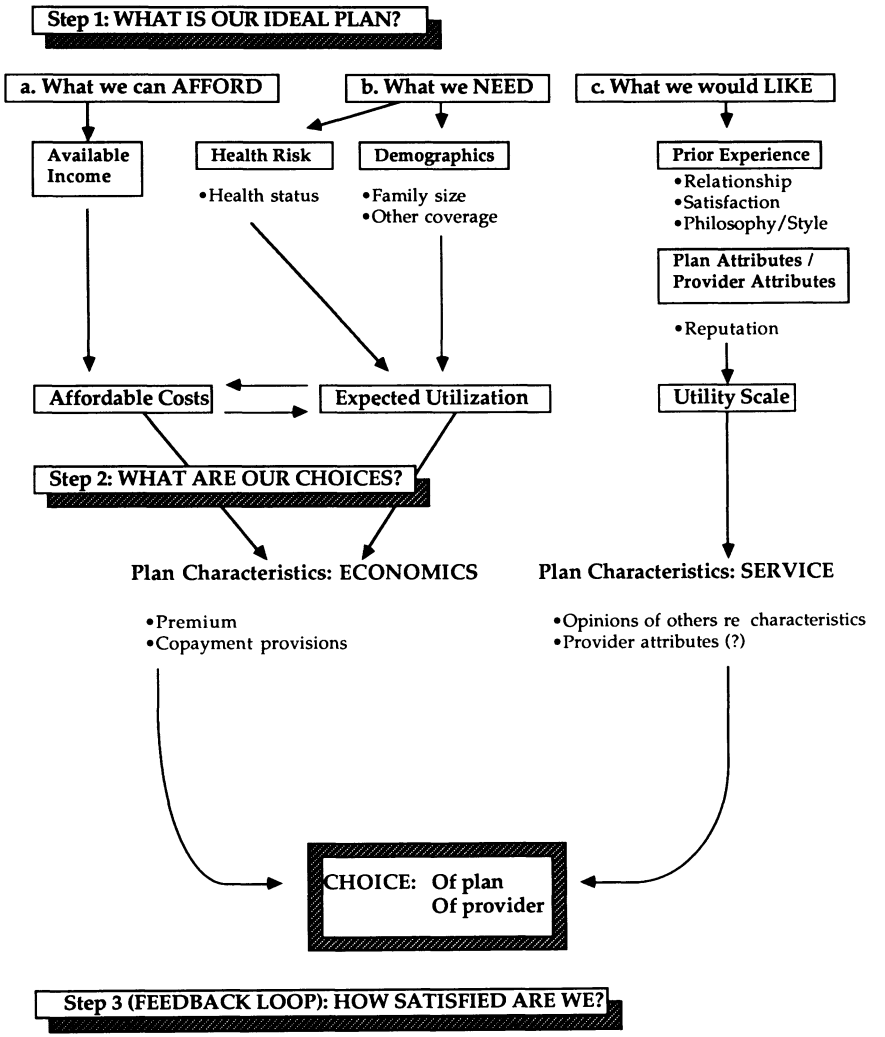
On the other hand, information seeking has already been shown to be limited for most consumers when choosing a health care provider. It has been presumed that individuals possess and use knowledge of their income and family size, and perhaps the health status of family members, when making health care decisions. However, preferences for health care, whether preferred attributes of providers or desired features of plans, may be either unknown or unimportant to the decision maker. In other words, consumers may not accurately assess "what we would like" or develop the utility scale seen in Figure 3. What little information is available suggests that individuals may pare their utility scale to a single item such as reputation or satisfaction, based largely on the opinions of others (Glassman and Glassman 1981; Stewart et al. 1987; Hickson et al. 1988; Stewart, Hickson, Pechmann, et al. 1989). In addition, it is not known whether individuals understand or use the information available to them about the economic or service characteristics of their options.

The combination of rational model and uncertain information processing results in a dynamic model of the choice process. Each choice situation can be characterized in terms of the demographic characteristics of individuals, the information available to them, and the information they seek. If these three aspects of the process can be determined and explicitly described, a clear examination of the decision-making process can be made.

Figure 4 presents one hypothetical example of such a situation. Researchers are examining the choices, between an HMO and one of two PPOs, made by employees of a large firm. They collect demographic information such as income, family size, presence of a working spouse with other insurance coverage, and health status for household members. They also collect information given to employees about each of their options, and find that while thorough descriptions of economic characteristics are available, the employees receive no formal description of service characteristics. Finally, the investigators survey a sample of

employees to determine the attributes they most desire in their health care choice, and, later, they survey information used in that choice. The researchers find that employees do not recall the details of the benefit packages available, but that they do remember premium and copayment provisions; further, the employees are found to value most the attributes

FIGURE 4 A Consumer "Choice Map" for Plan Choice



of "reputation" and prior experience with a provider, and they consulted with other employees informally before making their decisions. The resulting "choice map" describing this situation is seen in the highlighted areas of Figure 4. Other situations may yield different maps, but over time some characteristics common to all choice situations should be seen.

SUMMARY OF ANALYTIC FRAMEWORK

The process of choice of health care plan and provider is a more complex process than that previously described, since earlier models of this process included only the choice made by consumers. The process begins earlier, with the employer's choice of plan(s) from among competing guarantors. After this initial choice is made, employees may select from the "menu" of options chosen by the employer based on their individual needs, desires, and financial circumstances. Their choice also depends upon both their processing of information supplied by guarantor and employer, and their own experiences.

This integrated analytic framework highlights five important features of the choice process.

1. *The primary choice of health care plan occurs without the direct involvement of either physician or patient.* It is instead the result of a negotiation between employer and guarantor—neither of whom is directly involved in a clinical encounter.
2. *The information on which choices are based is limited and of uncertain accuracy.* Employers choose based on their sense of how well guarantors' options meet their needs, and this information comes primarily from marketing representatives of each plan. Individuals' choices are the result of their uncertain and complex processing of information about options, as supplied by employers and their own past experiences.
3. *The quality of care delivered under different options cannot easily be assessed, and is at present a "non-factor" in decision making.* Some surrogate measure for quality (such as reputation) may be substituted, but often employers and consumers will choose based solely on cost considerations. Conversely, it is possible that some consumers will equate increased "quality" of options with increased cost (as experienced with other consumer decisions) and will select on that basis—although there is no evidence that this occurs.

4. *Choice is often made without knowledge of the specific attributes of the primary physician or primary care site chosen.* Although consumers may be able to identify desired attributes of a primary care provider, the information available to them at the time of choice usually does not include descriptions of individual providers or practices. It may include lists of names, practice locations, and specialty or board certification information. The only attributes known to consumers at the time of choice are those of providers already familiar to them, which may help to explain why those ties tend to be maintained when possible.
5. *Choices may be based primarily on short-term cost/benefit considerations.* Employers basing their decisions on cost considerations will have difficulty forecasting future costs and benefits of their options, and will likely make short-term commitments to guarantors. The result of this strategy is that employees may see different menus at each choice period. In a setting of uncertainty, individuals will also have difficulty making long-term choices. The presence of altered benefit packages and cost structures for existing plans, and the changing menu of available plans, may make health care more of a year-to-year contractual arrangement.

IMPLICATIONS FOR FUTURE RESEARCH

This integrated analytic framework is intended to address the limitations seen in previous frameworks, which described only the second stage in the choice process. It represents an excursion into terrain previously unexplored. The interaction between employer and guarantor has been developed on theoretical grounds, as has the influence of information-seeking on consumer choice. These are the areas of most pressing need for further study.

RESEARCH ON EMPLOYERS' CHOICE OF PLANS

At present we do not know how employers gather and use information when making their decisions about the makeup of the "menu" for employees. Initial research efforts will need to examine the process using qualitative methods. Case studies of employers of different sizes and structures can serve as the qualitative underpinning of later efforts.

These studies would describe the process as it occurs in the real world: the use of resources, the information sought by employers and presented by guarantors, and the actual negotiation and decision-making process. A separate line of inquiry is of equal importance in early work in this area, for employers' perceptions of "missing information," information important in choice but not available to them.

The combination of case studies and "missing information" studies would assist in development of the employer choice framework, so that some common steps in the process could be identified. For example, a set of standard features defined by most as representing "quality" or "comprehensiveness" might be identified. These features could then be used as items in a more comprehensive employer survey to assess their relative importance in choice. The "missing information" studies could also assist guarantors in providing information relevant to employers and so improve the choice process.

With this foundation in place, the study of employer choice could assume a more conventional appearance. Quantitative work in specific areas such as the perception of quality, the assessment of quality, or the influence of quality on choice could be pursued with realistic expectations of understandable results.

RESEARCH ON CONSUMER CHOICE OF PLAN

Superimposing the issue of information processing on top of the rational model of consumer choice of health insurance plan transforms a static, probably unrealistic model into a dynamic framework. It should be possible to create a series of "choice maps" of groups of consumers that show their relevant demographic features, the information available to and processed by them, and their choices. From this information, the relative importance of each of these factors could be determined for each of the groups or types of consumer.

Making this scenario happen will require much more information about ways in which consumers gather and process information about potential health care choices. Qualitative methods have much to offer in this area. Initial studies could follow individual employees through a choice process, collecting data about information availability and use, household decision-making styles, and perceptions about the importance and reversibility of the decision. One goal of such work would be to identify groups of consumers with common methods of information processing and decision making. Follow-up studies could use as their foundation these common themes and could then conduct consumer surveys about information the consumers seek when making choices.

As a result of this more careful approach, we would gain considerable insight into the types of information relevant in choice, rather than simply knowledge of what may be available around the time of choice. More detailed studies could examine consumers' ways of operationalizing "quality" or "provider attributes," whether consumers are given the information they need to determine either or both when making choices, and the relative importance of both in making a choice. These results could then be applied to actual choice settings using quasi-experimental research designs. The final step would be the creation of understandable "choice maps" representing groups of consumers with common strategies.

The critical need at present is for simple, descriptive work that will serve as the foundation for more elaborate efforts. Progression along the lines of the research described earlier will allow testing of the assumptions underlying this framework and should result in an improved understanding of the choice process. However, if we simply apply more sophisticated statistical methods to currently available data without using a framework, we will probably continue to produce uninterpretable results.

OTHER RESEARCH QUESTIONS

There is a long list of researchable questions with more indirect relationships to analytic frameworks. These questions can perhaps be seen best from the perspectives of each of the actors in the system.

From the perspective of employers and guarantors, the questions are almost limitless, but most are variations on the themes of *cost effectiveness in health care* and *marketing.*

- What are the most desirable features of health plans for employees?
- How can the quality of the individual providers in a plan be determined?
- What might be appropriate marketing strategies for guarantors?
- Is the market for health care a fragmented one, making the appropriate response the creation of several "boutique"-type health plans aimed at specific consumer groups?
- Which type of plan or provider gives the most efficient care to patients?
- How can the health care needs of retirees and elderly individuals be met in an efficient manner?

From the perspective of the consumer, in addition to the issues discussed above we need to know much more about the time frame of plan choice, the relationship between the choice of plan and the choice of provider, and the patterns of decision-making over time.

- Has the individual's choice of plan become a short-term contract?
- Do desired attributes of providers enter into the decision-making process, or is the choice made without knowledge about the provider?
- For what group of individuals might the choice of provider be more important than the choice of plan (and vice versa)?
- To what degree does consumer satisfaction with a plan influence subsequent decision making?
- When and why do consumers change their health insurance plan?
- What are the health implications of frequent changes in plan and provider?

From the perspective of health care providers, a group noticeably absent from discussion to this point, there are several research questions important for both practical and philosophical reasons.

- How can the quality of ambulatory care be assessed or measured?
- What skills are needed to be an effective provider in a managed care health plan?
- Do provider attributes have any influence on the choice process, or are providers becoming commodities in the process?
- What influence does an existing physician-patient relationship have on the choice process?
- How might the altered financial/incentive structure of managed care affect the physician-patient relationship?
- Have patients become short-term "clients"?
- What are the health implications of short-term relationships with patients?
- In a "short-term environment," will long-term health issues and psychosocial issues be ignored?

These many questions contain two major research themes. The first theme is that of research in the area of *quality of care*. Methods to assess the quality of hospital and ambulatory care must be found and applied; if this occurs, the criteria used by both employers and consum-

ers in the choice process should become more clearly defined. The second theme is more philosophical in nature, and therefore more difficult to address: the effects of the economic focus of health care on the *physician-patient relationship.* If primary health care is selected on the basis of short-term economic considerations, physicians and patients will have become commodities and their relationship transformed. The implications of such a transformation are explored elsewhere (Klinkman and Schwenk, under review).

CONCLUSION

The study of the process of choice of health care plan and provider has assumed increasing importance in the transformation from health care system to health care marketplace. Previous research has been flawed in several ways, perhaps most importantly in its failure to examine the primary influence of employers on the choice made by individuals.

In this work an integrated analytic framework describing the process of choice of health care plan has been described. It includes two steps: first, the interaction between employer and guarantor from which a "menu" of choices is created, and second, the employee's selection of an option from the menu. Although the framework is developed to describe the situation for employees whose employers supply health insurance benefits, it may increasingly apply to those under federal sponsorship as the government turns to selective contracting with insurers. The framework offers theoretical advantages in organizing the study of decision making in this very complex area but, currently, experimental evidence to support its details is limited.

It is all too typical to end reviews and theoretical works with the call for "more research," but that does seem clearly to be the need here. Our need for understanding is far greater right now than our capacity to generate answers, especially in the areas of employer decision making and consumer information processing in health care choice. The increased competition among alternative forms of health care delivery has established a rich setting for examination of the process of choice of health care plan and provider, and of the implications of that process for primary health care. This should remain for some time as a productive area for those interested in health services research.

REFERENCES

Acito, F. "Consumer Decision Making and Health Maintenance Organizations: A Review." *Medical Care* 16, no. 1 (1978): 1–13.

Ashcraft, M., R. Penchansky, S. E. Berki, R. S. Fortus, and J. Gray. "Expectations and Experience of HMO Enrollees after One Year: An Analysis of Satisfaction, Utilization, and Costs." *Medical Care* 16, no. 1 (1978): 14–32.

Berki, S. E., and M. L. F. Ashcraft. "HMO Enrollment: Who Joins What and Why; A Review of the Literature." *Milbank Memorial Fund Quarterly* 58, no. 4 (1980): 588–632.

Berki, S. E., M. Ashcraft, R. Penchansky, and R. S. Fortus. "Enrollment Choice in a Multi-HMO Setting: The Roles of Health Risk, Financial Vulnerability, and Access to Care." *Medical Care* 15, no. 2 (1977): 95–114.

Berki, S. E., R. Penchansky, R. Fortus, and M. L. Ashcraft. "Enrollment Choices in Different Types of HMOs: A Multivariate Analysis." *Medical Care* 16, no. 8 (1978): 682–97.

Buchanan, J. L., and S. Cretin. "Risk Selection of Families Electing HMO Membership." *Medical Care* 24, no. 1 (1986): 39–51.

Califano, J. A. "Employer Health Costs: The Chrysler Experience, and Forecasts." *Consultant* 29, no. 1 (January 1989): 58–66.

Caper, P. "Defining Quality in Medical Care." *Health Affairs* 7, no. 1 (1988): 49–61.

Cleary, P.D., and B. J. McNeil. "Patient Satisfaction as an Indicator of Quality Care." *Inquiry* 25, no. 2 (Spring 1988): 25–36.

Enthoven, A., and R. Kronick. "A Consumer-Choice Health Plan for the 1990s." Parts 1, 2. *New England Journal of Medicine* 320, nos. 1 and 2 (1989a and 1989b): 29–37, 94–101.

Frank, R. G., and W. P. Welch. "The Competitive Effects of HMOs: A Review of the Evidence." *Inquiry* 22, no. 3 (Summer 1985): 148–61.

Glassman, M., and N. Glassman. "A Marketing Analysis of Physician Selection and Patient Satisfaction." *Journal of Health Care Marketing* 1, no. 4 (1981): 25–31.

Gray, J. "How Serious Are Employers about Cutting Health Costs? Very." *Medical Economics* (16 October 1989): 112–24.

Grazier, K. L., W. C. Richardson, D. P. Martin, and P. Diehr. "Factors Affecting Choice of Health Care Plans." *Health Services Research* 20, no. 6, Part I (February 1986): 659–82.

Ham, F. L. "Automakers to Test HMO Rhetoric on Cost Savings, Quality." *Physicians Financial News* (15 September 1989): 1.

Herzlinger, R. E. "How Companies Tackle Health Care Costs: Part II." *Harvard Business Review* (September–October 1985): 108–20.

Herzlinger, R. E., and D. Calkins. "How Companies Tackle Health Care Costs: Part III." *Harvard Business Review* (November–December 1985): 70–80.

Herzlinger, R. E., and J. Schwartz. "How Companies Tackle Health Care Costs: Part I." *Harvard Business Review* (July–August 1985): 69–81.

Hickson, G. B., D. W. Stewart, W. A. Altemeier, and J. W. Perrin. "First Step in Obtaining Child Health Care: Selecting a Physician." *Pediatrics* 81, no. 3 (1988): 333–38.

Himmelstein, D. U., and S. Woolhandler. A National Health Program for the United States: A Physicians' Proposal." *New England Journal of Medicine* 320, no. 2 (1989): 102–108.

Iglehart, J. "Competition and the Pursuit of Quality: A Conversation with Walter McClure." *Health Affairs* 7, no. 1 (1988): 79–90.

Jensen, G. A., M. A. Morrisey, and J. W. Marcus. "Cost Sharing and the Changing Pattern of Employer-Sponsored Health Insurance Benefits." *Milbank Memorial Fund Quarterly* 65, no. 4 (1987): 521–50.

Juba, D. A., J. R. Lave, and J. Shaddy. "An Analysis of the Choice of Health Benefit Plans." *Inquiry* 17, no. 1 (Spring 1980): 62–71.

Klinkman, M. S., and T. L. Schwenk. "How Patients Choose Physicians: Educational Implications of the New Medical Marketplace." Manuscript under review.

Lairson, D. R., and J. A. Herd. "The Role of Health Practices, Health Status, and Prior Health Care Claims in HMO Selection Bias." *Inquiry* 24, no. 3 (Fall 1987): 276–84.

Lewis, K. "Comparison of Use by Enrolled and Recently Disenrolled Populations in a Health Maintenance Organization." *Health Services Research* 19, no. 1 (April 1984): 1–22.

Long, S.H., R. F. Nettle, and C. W. Wrightson, Jr. "Employee Premiums, Availability of Alternative Plans, and HMO Disenrollment." *Medical Care* 26, no. 10 (1988): 927–38.

McClure, W. "Buying Right: Will Good Medicine Drive Out Bad?" *The Psychiatric Hospital* 19, no. 2 (1988): 57–62.

McGuire, T. G. "Price and Membership in a Prepaid Group Practice." *Medical Care* 19, no. 2 (1981): 172–83.

Mullen, P. "CIGNA Limits Premium Hikes in Unique Allied-Signal Contract." *HealthWeek* (14 March 1988): 6

Nelson, C. W., and A. S. Goldstein. "Health Care Quality: The New Marketing Challenge." *Health Care Marketing Review* 14, no. 2 (1989): 87–95.

Piontkowski, D., and L. H. Butler. "Selection of Health Insurance by an Employee Group in Northern California." *American Journal of Public Health* 70, no. 3 (1980): 274–76.

Roghmann, K. J., J. W. Gavett, A. A. Sorenson, S. Wells, and R. Wersinger. "Who Chooses Prepaid Medical Care: Survey Results from Two Marketings of Three New Prepayment Plans." *Public Health Reports* 90, no. 6 (1975): 516–27.

Scammon, D. L. "Self-funded Health Benefits Plans: Marketing Implications for PPOs and Employers." *Journal of Health Care Marketing* 9, no. 1 (1989): 5–16.

Scitovsky, A. A., N. McCall, and L. Benham. "Factors Affecting the Choice between Two Prepaid Plans." *Medical Care* 16, no. 8 (1978): 600–681.

Short, P. F. "Trends in Employee Health Benefits." *Health Affairs* 7, no. 2 (1988): 186–96.

Sorensen, A. A., and R. P. Wersinger. "Demographic Characteristics and Prior Utilization Experience of HMO Disenrollees Compared with Total Membership." *Medical Care* 20, no. 12 (1982): 1188–96.

Stewart, D. W., G. B. Hickson, C. Pechmann, S. Koslow, and W. A. Altemeier. "Information Search and Decision Making in the Selection of Family Health Care." *Journal of Health Care Marketing* 9, no. 2 (1989): 29–39.

Stewart, D. W., G. B. Hickson, C. Ratneshwar, C. Pechmann, and A. Altemeier. "Information Search and Decision Strategies among Health Care Consumers." In *Advances in Consumer Research.* Vol. 12. Edited by E. Hirschman and M. Holbrook. Ann Arbor, MI: Association for Consumer Research, 1987.

Travis, M., G. Russell, and S. Cronin. "Determinants of Voluntary HMO Disenrollment: An Examination of Consumer Behavior." *Journal of Health Care Marketing* 9, no. 1 (1989): 75–76.

Welch, W. P., and R. G. Frank. "The Predictors of HMO Enrollee Populations: Results from a National Sample." *Inquiry* 23 (1986): 16–22.

Wouters, A. V., and J. Hester. "Patient Choice of Providers in a Preferred Provider Organization." *Medical Care* 26, no. 3 (1988): 240–55.