
Other Articles

No Exit? The Effect of Health Status on Dissatisfaction and Disenrollment from Health Plans

Mark Schlesinger, Benjamin Druss, and Tracey Thomas

Objective. To examine the implications of serious and chronic health problems on the willingness of enrollees to switch health plans if they are dissatisfied with their current arrangements.

Data Source. A large (20,283 respondents) survey of employees of three national corporations committed to the model of managed competition, with substantial enrollment in four types of health plans: fee-for-service, prepaid group practice, independent practice associations, and point-of-service plans.

Study Design. A set of logistic regression models are estimated to determine the probability of disenrollment, if dissatisfied, controlling for the influence on satisfaction and disenrollment of age, race, education, family income and size, gender, marital status, mental health status, pregnancy, duration of employment and enrollment in the plan, number of alternative plans, and HMO penetration in the local market. Separate coefficients are estimated for enrollees with and without significant physical health problems. Additional models are estimated to test for the influence of selection effects as well as alternative measures of dissatisfaction and health problems.

Data Collection. Data were collected through a mailed survey with a response rate of 63.5 percent; comparisons to a subsample administered by telephone showed few differences.

Principal Findings. In group/staff model HMOs and point-of-service plans, only 12–17 percent of the chronically ill enrollees who were so dissatisfied when surveyed that they intended to disenroll actually left their plan in the next open enrollment period. This compared to 25–29 percent of the healthy enrollees in these same plans, who reported this level of dissatisfaction and 58–63 percent of the enrollees under fee-for-service insurance.

Conclusions. Switching plans appears to be significantly limited for enrollees with serious health problems, the very enrollees who will be best informed about the ability of their health plan to provide adequate medical care. These effects are most pronounced in plans that have exclusive contracts with providers. We conclude that disenrollment provides only weak safeguards on quality for the sickest enrollees and that reported levels of dissatisfaction and disenrollment represent inaccurate signals of plan performance.

Key Words. Managed care, report cards, disenrollment, chronic illness, enrollee satisfaction

As various forms of managed care have spread throughout the American healthcare system, policymakers and the general public have grown concerned about the implications for the quality of medical care, particularly for the most vulnerable populations of patients (Freudenheim 1997; Rosenbaum et al. 1997; Rodwin 1996). In response, state and federal governments have adopted a variety of oversight arrangements (Riley 1997), while the managed care industry has pursued efforts at accreditation and other forms of self-regulation (McGlynn 1997; Sainfort and Booske 1996). One common theme linking these various efforts has been the notion that the best way to protect the well-being of individual enrollees is to ensure that they can effectively select among managed care plans. This philosophy was strongly embraced by the Clinton administration's Health Security Act (Sangl and Wolf 1996; Brock and Daniels 1994). It has since become the central feature of the managed care strategies pursued by the Health Care Financing Administration, state Medicaid programs, and many large employers (Schlesinger 1997; McMullan 1996).

At the heart of this strategy are two key behavioral assumptions essential to what Hirschmann labeled "exit" by consumers: first, that enrollees are sufficiently informed to identify inappropriate managed care practices and, second, that they are suitably motivated to switch to other plans that are more amenable to their health needs and preferences (Rodwin 1997; Hirschmann 1970). To this end, a variety of groups have developed "report cards" to facilitate informed switching among plans (McCormack, Garfinkel, Schnaier, et al. 1996; Rodwin 1996; General Accounting Office 1994). The process of disenrolling when dissatisfied is seen as more than simply a protection for individual enrollees. High rates of disenrollment, it has been argued, provide an important signal to plan administrators (Enthoven 1993), state regulators (Allen 1995), and federal officials (Riley, Ingber, and Tudor 1997) that something is amiss with a plan's managed care practices. To this end, a number of report cards have explicitly incorporated disenrollment rates as a measure of plan performance (McCormack, Garfinkel, Schnaier, et al. 1996).

This research was supported by a grant from the Robert Wood Johnson Foundation.

Address correspondence and requests for reprints to Mark Schlesinger, Ph.D., Associate Professor, Department of Epidemiology and Public Health, Yale University School of Medicine, P.O. Box 208034, New Haven, CT 06520. Benjamin Druss, M.D., M.P.H. is an Assistant Professor, Department of Psychiatry, and Tracey Thomas, M.P.H. is a Research Associate, Department of Epidemiology and Public Health, Yale University. This article, submitted to *Health Services Research* on August 29, 1997, was revised and accepted for publication on July 29, 1998.

Although studies of enrollee behavior under managed care do suggest that dissatisfaction encourages the switching of plans (Sainfort and Booske 1996; Klinkman 1991) and that choice provides an important safeguard for enrollees (Davis et al. 1995; Ullman et al. 1997), experience with plan disenrollment does raise some doubts about its role as a safeguard of quality. Much disenrollment has been shown to be involuntary, the consequence of employer decisions or job loss (Robinson and Gardner 1996; Davis et al. 1995). This makes disenrollment rates a poor marker for dissatisfaction with the plan (Rodwin 1997).

We would argue that a more fundamental problem with the prevailing emphasis on disenrollment involves the heterogeneous nature of experiences with health plans. Relatively healthy enrollees will base their assessments of plan performance primarily in terms of concerns about paperwork, the costs of premiums, or other considerations that are unrelated to the quality of the medical care delivered under plan auspices (Allen et al. 1994; Mechanic 1989; Long, Settle, and Wrightson 1988). It is only the less healthy enrollees who will have substantial experience with the delivery of healthcare in the HMO, making their actions a critical signal of plan performance. "Currently healthy consumers should be concerned about how well a health plan treats persons who are ill, particularly with serious or chronic medical conditions . . . the litmus test for consumers should be 'how does the plan perform when I am sick?'" (Sangl and Wolff 1996:2). But sicker enrollees may be less willing or able to switch health plans than their healthier counterparts. Finding a new plan may disrupt existing relationships with providers and requires that the enrollee learn the administrative protocols of the new plan, a potentially daunting task for people who expect to require a substantial set of services in the immediate future.

Existing research provides few insights into the ways in which health status mediates enrollee choices under managed competition. There is considerable evidence that enrollees who have been sick are less satisfied with health plans of all types than are otherwise comparable healthy enrollees (Komisar et al. 1997; Allen 1995), but we know little about how this dissatisfaction translates into various forms of consumer behavior. Evidence suggests that some types of managed care plans provide less effective treatment for at least some chronic conditions (Mechanic, Schlesinger, and McAlpine 1996; Shaughnessy, Schlenker, and Hittle 1993) or groups of people with chronic illness (Gold, Nelson, Brown, et al. 1997; Ware, Bayliss, Rogers, et al. 1996). However, we do not know if these differential outcomes lead to systematically higher rates of disenrollment in these groups.

This article is designed to address these gaps in our knowledge about consumer behaviors under managed care. It draws on data collected in a large survey of health plan satisfaction conducted in 1993 (Allen et al. 1994). Because the survey included over 20,000 respondents, we are able to identify substantial numbers of enrollees who are in ill health, report having various chronic conditions, or are functionally impaired. Because the sample was drawn from three large corporations that emphasize choice among health plans as part of their strategy of managed care, all enrollees have the opportunity to switch among plans without being forced to do so by contractual requirements. This provides an opportunity to identify the ways in which health status mediates the relationship between satisfaction and disenrollment and ways in which this mediation process differs among different health plans.

THE RELATIONSHIPS AMONG DISSATISFACTION, HEALTH STATUS, AND DISENROLLMENT

Conventional portrayals of choice among managed care plans portray the disenrollment decision as primarily a matter of information: given sufficient knowledge, enrollees can decide whether they will be better off at an alternative plan, and if so, they can make the switch. But as Hirschmann recognized almost three decades ago, "exit" has its costs. Consequently, to accurately predict the circumstances under which dissatisfied enrollees will switch health plans after an episode of ill health, one must assess the impact of these costs on disenrollment.

Past Research Linking Disenrollment to Dissatisfaction

Although little research has investigated the specific ways in which health status affects consumer behavior, for three decades empirical studies have examined the factors that influence consumers' choice of health plan (Sainfort and Booske 1996; Klinkman 1991; Berki and Ashcraft 1980). Much of the recent literature has focused on the potential for enrollee choices to create adverse or favorable risk selection for health plans (Sainfort and Booske 1996; Miller and Luft 1988). Although this evidence is mixed, it generally suggests that both enrollment and disenrollment decisions can affect the average health status and dissatisfaction reported under particular health plans (Allen and Rogers 1997). Of more immediate salience to this article are the studies

that focus on the determinants of disenrollment. In addition to identifying the circumstances under which plan switching is most likely to occur, this research has produced findings that have been interpreted as evidence that exit represents a viable option for enrollees whose medical treatment has been inadequate.

Most fundamentally, these studies have established that disenrollment rates are higher for those who are dissatisfied in their current plan (Klinkman 1991). Increased rates of plan switching are apparent for those who are dissatisfied with either their health care (Grazier et al. 1986; Juba, Lave, and Shaddy 1980) or with aspects of the health plan itself (e.g., cost or paperwork) (Patrick et al. 1997; Allen et al. 1994; Grazier et al. 1986). Given some choice, rates of switching tend to be high compared to expressed levels of dissatisfaction.

Past studies also report that plan switching generally is not related to the health status of the enrollee. Studies that have directly measured health status have generally found that it has no independent effect on the probability that enrollees will switch plans (Sofaer and Hurwicz 1993; Klinkman 1991).¹ An association between dissatisfaction and plan switching has been shown among Medicare beneficiaries (Edgman-Levitan and Cleary, 1996; Rossiter et al. 1989), a population with a much higher level of chronic illness than that found among younger enrollees (Fishman et al. 1997; Hoffman, Rice, and Sung 1996). Dissatisfaction was also associated with disenrollment in the Social/Health Maintenance Organization (S/HMO) demonstration project (Newcomer, Preston, and Harrington 1996; Harrington, Newcomer, and Preston 1993). People with chronic illnesses are as likely to seek out information about alternative health plans as are healthier individuals (Knutson, Fowles, Finch, et al. 1996).

If enrollees readily switch plans in response to dissatisfaction and this response is as large among healthy enrollees as among less healthy enrollees, one might conclude that disenrollment does provide an appropriate signal of plan performance and an adequate safeguard even for sicker enrollees. These findings, however, provide less evidence of effective exit than might initially appear. Many people who switch plans are not dissatisfied with their health care, and many of those who are dissatisfied with their care do not switch. Consider, for example, the findings of the Medicare Competition Demonstration Project, generally viewed as indicating that the consumer model “works” for older enrollees. Fewer than half of those who disenrolled from their HMOs were actually dissatisfied with the plan. And a substantial number of those who remained with their HMO were dissatisfied with their

care—particularly with the professional competence of providers and their willingness to discuss treatment (Rossiter et al. 1989).

Indeed, the lack of a measured relationship between health status and plan switching may actually be evidence that disenrollment is not occurring in response to the experience of inadequate care among the least healthy enrollees. Enrollees who are less healthy tend to be significantly less satisfied with their health plans (Komisar et al. 1997; Allen 1995). One would thus expect that these comparatively less healthy persons should be more likely to switch plans in response to their greater dissatisfaction. Yet no such relationship is observed, suggesting that these beneficiaries may not be exiting in the expected manner.

The Mediating Effects of Chronic Illness

Past research suggests several reasons for anticipating that sicker enrollees, particularly those with chronic illness, will be less likely to switch plans if they are dissatisfied. During episodes of illness, individuals establish bonds with their physicians and other healthcare providers (Thorne 1993). Switching plans typically entails changing providers, particularly when individuals are enrolled in group practice plans that require their physicians to be affiliated exclusively with a single managed care plan. The desire to maintain continuity of care will thus discourage plan switching (Sofaer and Hurwicz 1993); past studies have found, for example, that enrollees with higher past use were less likely to disenroll from a health plan after a premium increase (Wersinger and Sorensen 1982) and also were less likely to join a newly introduced managed care plan if they had established provider relationships (Blendon, Knox, Brodie, et al. 1994). These effects are likely to be particularly pronounced for enrollees with chronic illness. Evaluations of the S/HMO demonstration sites found that enrollees' use of care for chronic conditions was negatively related to disenrollment (Harrington, Newcomer, and Preston 1993), although the relationship between functional impairment and disenrollment varied by site (Newcomer, Preston, and Harrington 1996).

In addition, enrollees may require considerable time and experience to begin to understand the administrative requirements found in many managed care plans (Schlesinger 1997; Allen et al. 1994). Those who have experienced episodes of illness have thus developed expertise about a particular plan and may be hesitant to undertake the costs of acquiring this information about a new plan. Studies have demonstrated that information can play an important role in the process of disenrolling from a plan (Sofaer and Hurwicz 1993).

Finally, enrollees with chronic illness can expect to require additional health services over time. Although evidence on this point is mixed, it appears that the anticipation of future costs does influence choice among managed care plans (Klinkman 1991). Concerns about expected costs may therefore discourage enrollees from shifting to fee-for-service or point-of-service insurance options that would expose them to greater out-of-pocket costs when they use these services in the future (Allen et al. 1994).

Hypothesized Relationships Among Health Status, Disenrollment, and Satisfaction

By integrating the insights produced by these studies, we can specify with greater precision the conditions under which one would expect dissatisfied enrollees to switch health plans. In contrast to the prevailing emphasis on enrollee information, these findings suggest that exit is best assessed in terms of the potential costs and benefits of disenrollment. From this revised perspective we draw three hypotheses about plan exit as well as several conclusions about the appropriate methods for testing the hypotheses. The first two hypotheses focus on factors affecting the initial decision to disenroll, the third hypothesis on costs that may inhibit enrollees' willingness to actually disenroll once they have decided to do so.

The first hypothesis involves the influence of dissatisfaction on the enrollee's motivations to switch plans. Because exit entails a variety of costs, dissatisfaction with a plan will induce disenrollment only if the plan is thought to have a sufficiently important bearing on the well-being of the enrollee (or other family members) to offset the transitional costs. We will term this perceived impact as the "motivational salience" of dissatisfaction with the health plan—that is, the perceived benefits from exit.

All else equal, one would expect some types of health plans to induce greater motivational salience for disenrollment because they are more visible to enrollees. Managed care plans in general have more interactions with their enrollees than do traditional indemnity plans. Consequently, one would expect all forms of HMOs to have greater visibility to enrollees. One would also expect to find variation in this source of motivational salience among different types of HMOs. Because independent practice associations (IPAs) are largely contractual affiliations with physicians practicing out of individual offices, one would expect these HMOs to have the least visibility to enrollees.²

Motivational salience is also likely to be influenced by an enrollee's exposure to the plan. Enrollees who have been relatively healthy will have had little experience with a plan's utilization review protocols, specialist referral

requirements, or other administrative practices that may limit enrollees' access to services. Healthy enrollees may still become dissatisfied with their health plan—with its network of primary care providers, its paperwork, or its ability to clearly explain benefits (Mechanic, Ettel, and Davis 1990). But this sort of dissatisfaction is not as strong a motivator for going through the costs of switching to an alternative plan as an enrollee's feeling that he or she has been denied access to necessary services. One would therefore expect sicker enrollees who are dissatisfied to be more motivated to want to switch plans. These considerations suggest our first two hypotheses:

Hypothesis 1: Motivational Salience and Plan Type.

Dissatisfaction with a health plan will (a) provide a stronger motivation to disenroll from managed care plans than fee-for-service plans because the former are more visible to enrollees, but (b) this effect will be least pronounced for IPAs.

Hypothesis 2: Motivational Salience and Health Status.

Because episodes of illness expose enrollees to the ways in which plans constrain access to services, dissatisfaction with a health plan will provide a stronger motivation to disenroll for enrollees who have been sick than for those who are relatively healthy.

For enrollees who intend to disenroll, one additional hypothesis emerges from considerations about the costs of changing plans. We have identified two types of "transition costs," such as disruptions of continuity with providers and the time required to learn to deal with the administrative requirements of a new plan. Learning costs will be similar for people who are healthy and those who are sick. But they will likely vary across plans, with more substantial costs in HMOs than in fee-for-service plans, because the former operate with more administrative restrictions. If the costs of past learning matter (economists argue that they should not, although people often behave to the contrary), then we would expect that they would discourage exit from HMOs more than from FFS plans.

As suggested earlier, the costs of disrupting continuity of care are likely to be far more problematic for the least healthy enrollees, particularly those with chronic conditions.³ But here again, the effect will be mediated by plan type. Switching plans is most likely to disrupt continuity of care for those enrolled in plans that have exclusive provider arrangements, so that switching plans necessarily entails switching providers. These exclusive contracts are

most common among private group practices (PGPs) (Gold, Nelson, Brown, et al. 1995). Because point-of-service (POS) plans are a mixed category that includes both IPAs and PGPs as core networks, one would expect that sicker enrollees of POS plans would on average be more discouraged from switching than enrollees of IPAs, but less so than enrollees of PGPs. Consequently, one would expect:

Hypothesis 3: Transition Costs and Health Status.

Sicker (especially chronically ill) enrollees will be less likely to disenroll when dissatisfied than their healthy counterparts; the desire to maintain continuity of care will be reflected primarily in lower rates of disenrollment from PGP and, to a lesser extent, POS plans.

Past research also suggests some important methodological considerations in testing these hypotheses. First, previous studies have identified a number of enrollee characteristics that affect plan satisfaction and the disenrollment process and thus may confound measures of the relationship between dissatisfaction and disenrollment unless appropriately identified and controlled in statistical models. Second, these studies suggest that the disenrollment process is also affected by certain external circumstances, such as the prevalence of particular types of HMOs in the local market, the number of alternative plans, or the length of time on the job (Klinkman 1991). Third, the complex interactions of health status, satisfaction, and plan type require careful specification of the statistical models. Finally, the tendency for enrollees with particular health conditions to gravitate to particular types of health plans suggests that statistical models to test the hypotheses introduced here must control for selection effects (Robinson, Gardner, and Luft 1993).

To assess the effectiveness of exit as a signal of enrollee discontent and a safeguard on quality of care, one must therefore explore carefully the questions that identify the individuals who disenroll from health plans and under what circumstances they make this choice. One must also distinguish among different forms of managed care that may differentially inhibit exit behavior. This is the task to which we now turn.

RESEARCH METHODS

To sort out the nested relationships among plan satisfaction, disenrollment, health status, and plan type, it is helpful to estimate separate regressions

for one of the mediating factors. For example, one could examine the relationship between satisfaction and disenrollment, mediated by health status, with a regression for each type of health plan. Similarly, one could estimate separate regression models for (a) different outcomes (dissatisfaction versus disenrollment) or (b) different subsamples (healthy enrollees versus enrollees in poor health).

We will pursue the two strategies that provide the most intuitive analyses of the influence of health status on the disenrollment process. The first, which we will term the "split-outcome" strategy, estimates separate regressions using dissatisfaction and disenrollment as the dependent variables. Independent variables in these models will include measures of health status, plan type and the interaction of the two (along with variables to control for other factors that have been shown to affect satisfaction or disenrollment). The framing questions under this approach are (1) Do enrollees at different levels of health differentially report being dissatisfied with particular types of health plans? and (2) For each type of health status, are the plans with the highest levels of reported dissatisfaction also those from which the greatest disenrollment occurs?

The second approach to modeling these interacted relationships we will refer to as the "split-sample" strategy. Following this approach, we estimate separate regressions for subsamples of healthy and less healthy enrollees. The dependent variables in the regression models are disenrollment, with measures of the interaction of dissatisfaction and plan type as the independent variables (along with other appropriate variables to control for other influences on disenrollment). The framing questions in this case are (1) Do the enrollees in different types of health plans differentially respond to dissatisfaction by disenrolling? and (2) For each type of plan, does the responsiveness of disenrollment to dissatisfaction vary for healthy versus less healthy enrollees?

Selecting an approach for assessing interaction effects is not the only methodological complexity that must be addressed. Enrollee satisfaction can be measured in various ways, and little is known about which way provides the most sensitive predictor of subsequent disenrollment (Allen 1995). A variety of plausible ways also exist with which health status might be measured to determine how enrollees' health affects consumer behaviors. To carefully estimate these relationships, it is therefore necessary to obtain data with multiple measures of enrollee satisfaction from a population that has been given a choice among managed care plans, and to gather an overall sample large enough so that researchers can identify a substantial number of individuals who have experienced healthcare needs or chronic conditions

over the past year under various types of health plans. This has proved to be impossible in most past studies of either satisfaction with health plans or disenrollment from them, which have focused on relatively small numbers of health plans (Sangl and Wolf 1996). Fortunately, an appropriate data source was available that also included multiple measures of plan satisfaction and health status.

The data from this study come from the Employee Health Care Value Survey (EHCVS), fielded by a consortium of large corporations in the fall of 1993. The EHCVS was conducted by researchers from the New England Medical Center for a consortium of three major corporations (Xerox, GTE, and Digital Equipment Corporation). A 154-question survey was distributed to all active employees of the three companies located primarily in six geographic regions (New England, upstate New York, several regions in California, the Tampa area in Florida, and the Dallas and Houston metropolitan areas in Texas) in which the employees had a choice among multiple managed care plans. The survey data used here were collected through an established five-step mailed protocol that yielded an overall response rate of 63.5 percent (Allen et al. 1994).⁴ Analysis of these data showed few differences among respondents in different geographic regions or employed by different corporations.

The final sample for this study uses data from the mailed portion of the survey (which has a more complete set of variables than the telephone instrument), totaling 20,283 respondents. Compared to the overall population in the United States, respondents were more often male and white, less likely to live alone, and from households with considerably higher socioeconomic status than is true for the average American. However there is still considerable variation in socioeconomic status in this sample, as well as a sufficient diversity of race and gender to control adequately for the influence of these factors in our subsequent statistical models. The age distribution is compressed toward middle-aged groups.

Respondents were distributed among four types of health plans. Eighteen percent were enrolled in traditional fee-for-service (FFS) insurance coverage; 20 percent were enrolled in prepaid group plans (PGPs); 53 percent were enrolled in decentralized prepaid plans, commonly referred to as independent practice associations (IPAs); and 9 percent were enrolled in point-of-service (POS) plans, prepaid plans in which enrollees retain the option to seek services from unaffiliated providers, although they are required to pay a larger portion of charges when they do so.⁵ The number of plans available to each

enrollee varied by geographic region and employer; on average, respondents had a choice among eight plans, including fee-for-service coverage.

Measures Used in This Study

We describe here four sets of variables: (a) measures of health status, (b) measures of enrollee satisfaction, (c) measures of disenrollment, and (d) the other variables known to affect reported levels of satisfaction or choice of health plan. The latter will be introduced as independent variables in the regression models to control for potentially confounding effects.

Measures of Health Status. The EHCVS collected a variety of different measures of health status, including (a) an index of activity limitation and (b) an index of health perceptions. Both were developed as part of the Medical Outcomes Study. Summary measures—respectively, the Physical Functioning Index (PFI) and the General Health Perceptions (GHP) index—have been shown in past research to be reliable (McHorney et al. 1994) and valid (McHorney, Ware, and Raczek 1993). We anticipate that the index of general health perceptions will reflect a combination of acute and chronic conditions, while the indexes of activity limitations will better identify enrollees who have chronic health problems. Using these measures, we identified respondents who were in poor health based on their placement in the lowest decile of the distribution.⁶

Measures of Plan Satisfaction. The EHCVS assessed enrollees' perceptions of their health plan, through a number of aggregate measures, as well as questions that focused on more detailed dimensions of plan performance. Respondents were asked how satisfied they were with their plan on a seven-point scale, described at the most positive extreme as "completely satisfied, couldn't be better" and at the most negative as "completely dissatisfied, couldn't be worse." They were also asked whether they would recommend their current plan to "your family or friends if they needed care."⁷

Negative assessments of plan performance occurred with equivalent frequency across these questions: dissatisfaction with the plan's overall performance was reported by 11.6 percent of respondents; 13.3 percent said they would not recommend the plan to family or friends. Ratings were positively associated among the measures, with the first-order correlations for the two measures of 0.72. This suggests that, although the questions are capturing allied concepts, they are tapping into slightly different aspects in the assessment of plan performance. In the next analyses we used both measures to test for the sensitivity of our findings to the measurement method, although for simplicity we report the results from the measure of recommendation to

family and friends. (Results were very similar for both measures.) To estimate parallel logistic regressions for dissatisfaction and disenrollment, both of these measures were converted to dichotomous variables, with a positive value representing enrollees who were dissatisfied with the plan or would not recommend it.

Measures of Intention to Exit and Actual Disenrollment. At the time respondents were surveyed, they were asked: "Do you intend to switch to a different health plan when you next have an opportunity?" Responses were on a four-point scale, ranging from "definitely not" to "definitely yes." When they were asked in this manner, 5.7 percent of the respondents reported that they definitely intended to switch, another 10.1 percent that they would probably switch. We treat this variable as a measure of the motivational salience of dissatisfaction. Because it is asked contemporaneously with the questions about satisfaction, we anticipate that dissatisfied enrollees will express a willingness to switch plans largely based on the perceived benefits of this switch; the costs of actually switching are likely to become more salient only when the enrollee is later faced with making a change in the next open enrollment period. Again, to facilitate parallel analyses with actual disenrollment, this variable was transformed into a dichotomous measure grouping those who reported definitely or probably disenrolling.

Actual disenrollment was subsequently collected from administrative records. The actual disenrollment rate is remarkably close to the level of intended disenrollment—15.6 percent of respondents had switched health plans by January 1, 1994. But fewer than half of those who indicated that they would disenroll actually did so in the open enrollment period.

Other Factors Influencing Reported Levels of Satisfaction or Disenrollment. Although the surveys measuring satisfaction with health plans are of relatively recent vintage, measures of satisfaction in clinical settings have been conducted for several decades (Edgman-Levitan and Cleary 1996; Hall and Dornan 1988). This research has identified a number of respondent characteristics that may affect reported levels of satisfaction. These include age (Hall and Dornan 1990; Pascoe 1983), race (Hall and Dornan 1990), gender (Weiss 1988; Like and Zyzanski 1987), educational attainment (Ware, Davies-Avery, and Stewart 1982; Fox and Storms 1981), and marital status (Hall and Dornan 1990), as well as the size (Ware, Davies-Avery, and Stewart 1982) and income level (Hall and Dornan 1990; Fox and Storms 1981) of the respondent's household. The EHCVS included measures of all of these variables.

Research that has focused on managed care plans has identified three additional factors with a large influence on enrollee satisfaction. The first

involves the amount of choice among plans. Not surprisingly, disenrollment is higher when more choices are available (Sofaer and Hurwicz 1993; Long, Settle, and Wrightson 1988). A second important consideration involves the duration of enrollment. All else equal, those who have been affiliated with a plan for a longer time report higher levels of satisfaction (Ross, Wheaton, and Duff 1981). It remains unclear, however, whether this reflects a growing socialization into the norms of the plan or the disenrollment of those who feel less comfortable with the plan's practice protocols. Long-term enrollees are correspondingly less likely to disenroll from their current health plan (Grazier et al. 1986). Information on both variables is available from the EHCVS.

Past research also suggests that the prevalence of particular types of plans in local markets will affect patterns of disenrollment, perhaps because prevalence is related to enrollees' familiarity with certain types of plans and thus with the learning costs associated with switching (Long, Settle, and Wrightson 1988). Although this information was not collected on the EHCVS, we merged data on the contemporaneous state-level penetration of managed care and POS plans (McCloskey, Woolwich, and Holahan 1995).

Studies have demonstrated that a number of the factors that influence satisfaction may have an independent effect on enrollees' willingness to disenroll from a plan. These include level of income (with lower-income enrollees seeking out the greater financial protections associated with HMOs) (Klinkman 1991) and household size (multiple provider relationships may inhibit switching, but having young children appears to make HMOs more attractive) (Juba, Lave, and Shaddy 1980), as well as age and gender (younger households and women are more likely to switch from fee-for-service coverage to HMOs) (Buchanan and Cretin 1986; Grazier et al. 1986). Employees with longer job tenure are also less likely to switch from fee-for-service coverage to HMOs, although the study could not determine whether this reflected resistance to HMOs or a generally reduced tendency to switch health plans (Buchanan and Cretin 1986). Because expected health needs may also affect the willingness or ability to switch plans, our regression models also included measures of pregnancy and poor mental health status. Because satisfaction measures in clinical settings have been shown to be sensitive to the general emotional state of the respondent (Greenley, Young, and Sheonherr 1982), patients who are depressed when answering the survey may express greater levels of dissatisfaction even though their experience with the plan is no different from that of other enrollees. Alternatively, patients who are depressed may feel less able to act on that dissatisfaction by switching plans (Simon 1992). The EHCVS asked female employees if they were pregnant

(although, unfortunately, they failed to ask male employees about pregnant spouses). Mental health was measured by a five-item scale, the Mental Health Index, that was developed as part of the SF-36 instrument.

Statistical Methods

Means and standard deviations for these dependent and independent variables are presented in Table 1 (with sample sizes for each type of health plan). We begin our analysis with simple comparisons of rates of dissatisfaction, intent to disenroll, and actual disenrollment, stratified by the type of plan and health status. In order to control for possible confounding variables, we then estimate two sets of logistic regression models. The first set uses the split-outcome approach described earlier: we compare the ways in which health status and plan type predict satisfaction with the plan and actual disenrollment. The second set of logistic regressions uses the split-sample

Table 1: Means for Variables Used in the Analysis, by Type of Health Plan

<i>Variables</i>	<i>Measurement Scale</i>	<i>Mean Value in Plan Type:</i>			
		<i>IPA</i>	<i>PGP</i>	<i>POS</i>	<i>FFS</i>
<i>Dependent Variables</i>					
Satisfaction	1-7 (low = satisfied)	2.56	2.54	3.12	2.98
Recommendation	1-4 (low = recommended)	1.66	1.72	2.01	1.95
Intention to exit	1-4	1.79	1.75	1.93	2.04
Actual exit	0-1	0.12	0.07	0.15	0.28
<i>Independent Variables</i>					
Age	Years	40.61	39.50	40.49	42.86
Education	Years	14.57	14.81	15.53	14.48
Female	0-1	0.37	0.34	0.32	0.39
Pregnant	0-1 (female only)	0.04	0.04	0.04	0.02
White	0-1	0.87	0.79	0.92	0.87
Household size	Number of members	3.05	3.02	2.80	2.77
Years employed at firm	1-6	4.33	4.08	4.22	4.64
Income	In \$10,000	6.42	6.45	7.33	6.52
Married	0-1	0.73	0.69	0.68	0.71
Years enrolled	1-6	3.40	4.02	3.19	4.66
Number of plan choices	1-14	7.96	10.10	12.18	5.66
HMO penetration rate in state (1993)	0-100	24.40	28.00	26.10	33.20
Percent of HMOs offering POS option	0-100	66.20	77.10	67.30	74.30
<i>Sample Sizes</i>		9726	3548	1621	3548

strategy. We determine there the extent to which dissatisfaction with a health plan predicts disenrollment, with separate regressions estimated for healthy and for chronically impaired enrollees. Finally, we add a second stage of regression analyses to test for the impact of selection effects on levels of satisfaction and disenrollment, estimating a set of Heckman selection models.

RESULTS

Stratified Comparisons of Dissatisfaction and Disenrollment

Cross-plan comparisons of dissatisfaction, intended disenrollment, and actual disenrollment are presented in Table 2 for two groups of respondents: those who are healthy (defined as reporting no limitations in physical functioning) and those with serious functional impairments (i.e., scoring in the lowest decile on the Physical Functioning Index).⁸ Between 8.5 percent and 22 percent of healthy enrollees report being dissatisfied with their health plan, a percentage that varies by type of plan. For functionally impaired enrollees, average dissatisfaction is higher, ranging from 11.8 to 23.5 percent and increasing most markedly for enrollees in PGP plans. Although not yet controlling for confounding factors, these data shed light on the hypotheses developed earlier in the article.

The Motivational Salience of Dissatisfaction. Recall that Hypotheses 1 and 2 suggested that dissatisfaction with one's health plan would more likely lead enrollees to want to disenroll from HMOs than from fee-for-service plans. This hypothesis is supported for enrollees with functional impairments, but not for their healthier counterparts. Only trivial differences exist among plans in the proportion of dissatisfied healthy enrollees who report that they intend to disenroll: the proportion is consistently about two-thirds for all types of plans. But more pronounced interplan differences appear among functionally impaired enrollees. Averaging across the three types of HMOs, 75 percent of the functionally impaired enrollees who were dissatisfied were prepared to disenroll, compared to 67 percent of those covered by fee-for-service plans (the difference is statistically significant at a 10 percent confidence level). Somewhat surprisingly, the motivational salience of dissatisfaction was lowest for PGPs.

These stratified comparisons also lend mild support to Hypothesis 2, the prediction that sicker enrollees will be more motivated to disenroll than will their healthier counterparts. Unexpectedly, however, this difference appears only for those enrolled in HMOs. Sixty-five percent of the dissatisfied but

healthy enrollees report being ready to switch out of their current managed care plans, compared to 75 percent of the functionally impaired enrollees who were dissatisfied with these same plans.

Dissatisfaction and Disenrollment. Although an equal proportion of dissatisfied but healthy enrollees report that they intend to switch out of each type of health plan, the data presented in Table 2 indicate that their actual disenrollment from HMOs was considerably lower (on average, 33.8 percent) than for comparably dissatisfied individuals covered by fee-for-service plans (57.7 percent). Hypothesis 3 suggests that sicker enrollees will be deterred from leaving plans that have exclusive provider arrangements because of disruption of continuity of care, a concern most likely to occur for enrollees of PGP plans (and to a lesser extent, on average, for enrollees in POS plans). As Table 2 demonstrates, the proportion of enrollees in PGP and POS plans intending to exit who actually disenroll is markedly lower among functionally impaired individuals than among healthy enrollees. Fewer than one in five of the sick enrollees who intended to leave PGPs actually did so; barely more than one in ten sick POS plan enrollees did so. The decline is more modest for enrollees of IPAs (from 39.2 percent to 34.4 percent). And disenrollment rates for the sickest individuals dissatisfied with fee-for-service plans are actually higher than the comparable rate for healthy but dissatisfied enrollees.

Logistic Regression Strategy #1: Split-Outcome Models

Under this approach, we estimate logistic regression models to identify the enrollee and plan characteristics that predict dissatisfaction, then estimate comparable models to predict disenrollment. To test for the sensitivity of our findings to the specific measures being used, these models are estimated using two different measures of physical dysfunction (general health perceptions and the physical functioning index). Table 3 reports the consolidated results from four different regression models, one in each quadrant of the table. In each model, enrollees are divided into eight categories based on plan type and health status; the omitted comparison group is the healthy enrollees under fee-for-service coverage.

Health Status and Satisfaction with Health Plan. In comparison to the levels of dissatisfaction reported for healthy enrollees under fee-for-service insurance, an increased risk of dissatisfaction is found for enrollees who are less healthy. Consider first the measures relying on general perceptions of health (the upper left quadrant of Table 3). Respondents with the 10 percent lowest perceptions of health are less satisfied than their healthy counterparts in all health plans (the differences are statistically significant in all except

Table 2: Average Rates of Dissatisfaction and Disenrollment, Stratified by Health Status and Plan Type

<i>Respondents Enrolled in Plan Type</i>	<i>Outcomes Being Measured</i>		
	<i>Percent Dissatisfied[†] with Their Plan</i>	<i>Of Those Who Were Dissatisfied</i>	
		<i>Percent Intending to Disenroll</i>	<i>Percent Intending Who Actually Disenrolled</i>
<i>Healthy Enrollees* (N=13,365)</i>			
IPA	8.5	67.3	39.2
PGP	11.1	64.7	29.8 [¶]
POS	22.2	63.3	24.6 [¶]
FFS	20.0	68.4	57.7
<i>Most Impaired Enrollees[‡] (N=2,303)</i>			
IPA	11.8	75.6	34.4 [¶]
PGP	18.0	68.3	17.1 ^{§¶}
POS	23.5	80.7	12.0 ^{§¶}
FFS	21.4	67.1	62.5

*Based on the PFI, those scoring at the 45 percentile and above.

[†]As measured by an unwillingness to recommend the plan to family or friends.

[‡]Based on the PFI, those scoring in the lowest decile of physical functioning.

[§]Difference between healthy and impaired enrollees in same type of health plan is statistically significant at a 5 percent confidence level.

[¶]Among enrollees of similar health status, difference between HMO and FFS is statistically significant at a 5 percent confidence level.

the point-of-service plans). Notice also that healthy enrollees in HMOs are generally more satisfied than are healthy enrollees with FFS coverage (again, these results are not statistically significant for enrollees in POS plans).

A somewhat different picture emerges when health status is measured by functional limitations, a measure more sensitive to the effect of chronic conditions (lower left quadrant of Table 3). As one would anticipate, the choice of health status measure has little impact on the patterns of health plan satisfaction for healthy enrollees: IPAs and PGPs continue to look superior to FFS or POS plans for this group. But the relative satisfaction rankings across plan type for respondents in the lowest decile of health status is strikingly different than for general health perceptions. Satisfaction levels are highest for the sickest enrollees covered by FFS and POS plans, lowest for those enrolled in prepaid group practices. Satisfaction for the sickest enrollees in independent practice associations falls somewhere in between these extremes. Only for PGP and IPA enrollees are these differences statistically significant.

Table 3: Relationships Between Health Status, Dissatisfaction, and Disenrollment, by Type of Health Plan (split-outcome logistic regression models)

<i>Health Plan and Health Status</i>	<i>Odds Ratios for Dissatisfaction, Measured by Unwillingness to Recommend Plan to Family or Friends</i>		<i>Odds Ratios for Disenrollment Measured by Switching Plans During Next Open Enrollment Period</i>	
	<i>Odds Ratio</i>	<i>95% CI</i>	<i>Odds Ratio</i>	<i>95% CI</i>
<i>Health Status Measured As: General Health Perceptions</i>				
<i>10 Percent Sickest Enrollees, Compared to Healthy FFS Enrollees</i>				
Enrolled under FFS	1.52	1.30–1.79	1.09	0.92–1.29
Enrolled under POS	1.20	0.81–1.77	0.70	0.42–1.18
Enrolled under IPA	1.20	0.94–1.53	0.92	0.71–1.20
Enrolled under PGP	1.57	1.14–2.16	0.65	0.39–1.11
<i>Healthy Enrollees in HMOs, Compared to Healthy FFS Enrollees</i>				
POS compared to FFS	0.86	0.72–1.03	0.22	0.19–0.27
IPA compared to FFS	0.28	0.25–0.32	0.24	0.21–0.27
PGP compared to FFS	0.39	0.34–0.46	0.11	0.09–0.13
<i>Health Status Measured As: Physical Functioning Index</i>				
<i>10 Percent Sickest Enrollees, Compared to Healthy FFS Enrollees</i>				
Enrolled under FFS	1.12	0.93–1.31	1.11	0.91–1.36
Enrolled under POS	1.09	0.67–1.76	0.67	0.37–1.24
Enrolled under IPA	1.41	1.06–1.89	0.90	0.67–1.20
Enrolled under PGP	1.91	1.32–2.76	0.82	0.48–1.40
<i>Healthy Enrollees in HMOs, Compared to Healthy FFS Enrollees</i>				
POS compared to FFS	0.86	0.72–1.02	0.22	0.18–0.27
IPA compared to FFS	0.28	0.25–0.31	0.24	0.21–0.27
PGP compared to FFS	0.38	0.32–0.45	0.11	0.09–0.13

Notes: Controlling for age, race, education, family income, gender, marital status, family size, mental health status, pregnancy, duration of employment, time enrolled in the plan, number of plan options, HMO penetration, and POS penetration in the state of residence.

Health Status and Actual Disenrollment. The relationships between health status and the probability of actually leaving a plan are presented in the right-hand column in Table 3. Healthy enrollees in all forms of managed care plans are much less likely to have switched than are enrollees previously in fee-for-service insurance. Somewhat surprisingly, the type of managed care plan that had the lowest satisfaction ratings for healthy enrollees (point-of-service plans) did not have the higher rates of disenrollment, compared to the rates for healthy enrollees in other types of HMOs.

Disenrollment by the sick is significantly more likely under fee-for-service coverage than under any form of HMO, whichever measure of health status is used, although these differences are not statistically significant. It is

only in contrast with the findings on dissatisfaction that meaningful patterns emerge. Whichever way one measures health status, the plans that have the highest levels of dissatisfaction (controlling for other enrollee characteristics) are no more likely to have high levels of disenrollment than the plans in which enrollees are comparatively satisfied.

Logistic Regression Strategy #2: Split-Sample Models

The split-sample regression strategy more directly captures the intermediate stage of intention to disenroll. These logistic regression models estimate factors associated with the probability of intending to disenroll or of actually doing it. Table 4 summarizes results from four regression models (separate models for healthy and sick enrollees, intended and actual disenrollment) for dissatisfied enrollees in each type of health plan.⁹ (Satisfied enrollees in fee-for-service plans are the omitted comparison group in this case.) The estimated coefficients are strongly consistent with the first part of Hypothesis 1 and Hypothesis 2, generally consistent with Hypothesis 3.

Table 4: Relationships Between Dissatisfaction and Disenrollment, by Type of Health Plan (split-sample logistic regression models)

<i>Type of Plan and Enrollee</i>	<i>Intended Disenrollment</i>		<i>Actual Disenrollment</i>		<i>Ratio of Actual to Intended</i>
	<i>Odds Ratio</i>	<i>95% CI</i>	<i>Odds Ratio</i>	<i>95% CI</i>	
<i>Enrollees with No Functional Impairments (N=12,799)</i>					
<i>Dissatisfied* Enrollees Compared to Satisfied in FFS</i>					
Enrolled under FFS	13.85	9.38-16.73	2.59	1.98-3.39	0.19
Enrolled under POS	24.16	12.45-34.12	1.46	0.95-2.24	0.06 [‡]
Enrolled under IPA	24.82	27.25-46.21	3.15	2.46-4.03	0.13
Enrolled under PGP	22.24	20.47-46.49	5.07	3.37-7.61	0.23
<i>10 Percent Most Functionally Impaired (N=2,499)</i>					
<i>Dissatisfied* Enrollees Compared to Satisfied in FFS</i>					
Enrolled under FFS	10.40	6.10-17.72	2.87	1.72-4.80	0.28
Enrolled under POS	64.07	18.35-23.74	0.90	0.77-3.52	0.01 ^{†‡}
Enrolled under IPA	37.84	22.95-62.39	4.42	2.74-7.14	0.11 [†]
Enrolled under PGP	26.36	12.81-54.25	2.16	0.77-6.12	0.08 ^{†‡}

Notes: Controlling for age, race, education, family income, gender, marital status, family size, mental health status, pregnancy, duration of employment, time enrolled in the plan, number of plan options, and HMO penetration.

*Dissatisfaction measured by unwillingness to recommend plan to family and friends.

[†]Difference in ratios between healthy and impaired enrollees in same type of health plan is statistically significant at a 5 percent confidence level.

[‡]Among enrollees of similar health status, difference in ratios between HMO and FFS is statistically significant at a 5 percent confidence level.

Recall that Hypothesis 1 suggests that dissatisfaction with one's health plan will provide a stronger motivation for enrollees of HMOs to want to disenroll than for their counterparts covered under fee-for-service insurance. This is clearly true for healthy enrollees (top half of Table 4). Compared to satisfied respondents, dissatisfaction with a plan was associated with almost twice as large an increase in the intention to disenroll from HMOs than from FFS coverage. These differences in responsiveness were statistically significant for IPAs and PGPs (there were no significant differences among the three types of HMOs).

As suggested by Hypothesis 2, dissatisfaction is associated with even larger increases in intention to disenroll for functionally impaired (bottom half of Table 4) enrollees than for healthy enrollees. Among this group, the intention to disenroll associated with plan dissatisfaction is four times as large, on average, for HMO enrollees as that for those covered under FFS plans. Separating the results by type of HMO, enrollees in IPA and POS plans are significantly more likely to intend to disenroll in response to dissatisfaction than are their counterparts in FFS plans.

Hypothesis 3 predicts that the costs of disenrollment will inhibit exit for persons with chronic illness who are enrolled under PGP or (to a lesser extent) POS plans, but not for those under other health plans. Using the results in Table 4, one can assess this hypothesis in two different ways. The first simply looks at the magnitude of the coefficients in the middle column of the table: if Hypotheses 3 is correct, one should see significantly smaller coefficients predicting actual disenrollment for chronically ill enrollees who are dissatisfied with PGPs and POS plans than for enrollees under IPAs or FFS coverage. This is exactly what one finds (bottom half of Table 4), although these differences are not statistically significant.

A second way to assess the costs of disenrollment is to compare the ratio of intended to actual disenrollment. This is presented in the right-hand column of Table 4 and is equivalent to the results in the right-hand column of Table 2, although in Table 4 the results are adjusted for sociodemographic characteristics of the respondents and for coexisting conditions (emotional status and pregnancy), as well as for the length of enrollment in the plan and for local market characteristics. Measured in this way, disenrollment among the chronically ill is substantially suppressed for all three forms of HMOs, compared to their disenrollment from FFS plans. Note that this drop-off is considerably more pronounced for enrollees under either PGP or POS plans. Notice also that among FFS enrollees, this regression-adjusted ratio increases for functionally impaired enrollees compared to healthy enrollees. This is

exactly the opposite pattern than one observes among enrollees of managed care plans.

Testing and Controlling for the Effects of Selective Enrollment

It is possible that the differences observed in patterns of satisfaction or disenrollment across plans are produced by having individuals who are predisposed to certain attitudes or behaviors selectively enroll in particular types of health plans. Although the various independent variables are included in the logistic regressions to control for enrollee differences, certain unmeasured aspects of motivation or cognitive processes may still exist.

To control for these possible selection effects, we employed a two-stage modeling technique known as the Heckman selection model (Greene 1993). Under this approach, a first-stage regression is estimated predicting the type of health plan in which an individual is enrolled. This predicted value (or propensity to have been enrolled in a particular type of health plan) is then used to construct a selection effects variable introduced into the second-stage regression (estimating either dissatisfaction or disenrollment). This approach captures the unmeasured factors that may predispose an individual to be part of a particular plan in the selection effects variable.

The first-stage models used here were identified using both sociodemographic characteristics and attitudes toward disease and injury prevention (smoking, seat belt use, alcohol consumption, vitamin intake, and amount of exercise). Separate selection models were estimated for each type of HMO: IPAs, PGPs, and POS plans. The selection effects variables were then included in regressions that used both measures of dissatisfaction, intention to disenroll and actual disenrollment, as the dependent variables.

The results of these analyses indicated that enrollees in POS plans were predisposed to be more satisfied and less likely to intend to disenroll than enrollees in other health plans. Those who joined PGPs and IPAs, in contrast, had a propensity toward greater dissatisfaction and intention to disenroll. None of the selection effects variables were significantly related to actual levels of disenrollment. And controlling for selection effects did not alter the pattern of findings reported in Tables 3 and 4.

DISCUSSION AND CONCLUSION

Analyses of the data collected through the Employee Health Care Value Survey suggest that the relationship between satisfaction and disenrollment

is far more complicated than is typically assumed by proponents of managed care and managed competition. Responses to dissatisfaction are strikingly different between those who report themselves to be in high versus low health status. The relative rankings of different types of plans depend on both the measure of satisfaction and the scale for health status that are used in the analysis.

Because the data for this study were collected from employees in only three corporations from a limited number of geographic sites, one must extrapolate with care to the healthcare system as a whole. In particular, a study of this sort includes neither low-income households nor the elderly, two groups that experience the most problematic outcomes under managed care. Because the data were collected in 1993 and the practices of managed care plans are in considerable flux, one should not assume that the relative rankings across types of managed care that were observed in this study would necessarily be replicated in more contemporary performance. However, a second wave of the EHCVS suggested that the relative rankings of different types of plans changed little between 1993 and 1995 (Allen and Rogers 1997).

Finally, some of the categories of HMOs (most notably POS plans) are quite heterogeneous. This makes it difficult to cleanly map the behavioral factors identified in the hypotheses (e.g., motivational salience and transition costs) to the results derived from the regression models.¹⁰ It is therefore probably most appropriate to view these analyses as only exploratory tests of the hypotheses. The patterns of dissatisfaction and disenrollment are clearly different for managed care and fee-for-service plans; they are generally consistent with the hypotheses, but one needs to measure both motivation and transition costs more directly to have more assurance that it is in fact these factors that are creating the different patterns of disenrollment. We hope that future research will focus on these factors.

Our findings linking disenrollment to other sociodemographic and health insurance characteristics are consistent with earlier research. As with previous studies, we found that disenrollment is more common when there is more plan choice, greater penetration of HMOs into local markets, younger enrollees, and enrollees who had been enrolled for a shorter time in their current health plan.¹¹ The finding that sicker enrollees (both in terms of physical and mental symptomatology) report lower satisfaction is also consistent with previous findings (Gold, Nelson, Brown, et al. 1997; Ware, Bayliss, Rogers, et al. 1996; Mechanic, Schlesinger, and McAlpine 1996). We believe that one can therefore draw from this study some implications for public policies and employer practices.

First, it is clear that satisfaction measures that group together healthy and sick respondents are a poor proxy for the satisfaction reported by enrollees with extensive health problems. Healthy enrollees in prepaid group practices were among the most likely to be satisfied with their healthcare plan (Table 3). For the sickest enrollees (those in the lowest decile of reported health status), however, PGPs were the least satisfactory. For healthy enrollees, point-of-service plans were the least attractive form of managed care. Yet the sick enrollees of POS report the lowest levels of dissatisfaction among the three types of HMOs. These findings suggest that the aggregate satisfaction measures that are incorporated into HMO report cards provide little protection against inadequate care for the sick, because they will be dominated by responses from the numerous healthy enrollees. Similar problems exist for physician compensation systems that reward doctors based on the reported satisfaction of enrollees (Hanchak, Schlackman, and Harmon-Weiss 1996).

But if HMO performance standards are to report measures of enrollee satisfaction that differentiate by health status, information must be collected in a manner much different from that of the current standard of practice. The satisfaction ratings reported in HEDIS or the FEHBP guidebook are typically based on reports from 500 through 700 respondents (Allen 1995). This sample is far too few people to provide a reliable portrait of enrollees with serious functional impairments or other chronic health problems. Indeed, even with a sample as large as that used in the EHCVS, the estimated responses to dissatisfaction among sick enrollees in the four categories of health plan had quite large standard errors. Approaches must be developed for reliably measuring the experience of enrollees who have received substantial amounts of healthcare from the plan.

These results also cast doubt on the use of disenrollment as a marker for plan performance, a measure increasingly used in HMO report cards and assessments of managed care under Medicare (Riley, Ingber, and Tudor 1997; Palmer and Chapman 1997). At the plan level the connection is not particularly strong between enrollee satisfaction and actual disenrollment. Compare the ranking of health plans for the sickest enrollees in Table 3. When health status is measured by the GHP, dissatisfaction was highest for the sickest enrollees under prepaid group plans, yet these had the lowest disenrollment. When health status is measured using the PFI, PGPs have by far the highest rates of dissatisfaction for sick enrollees. But they have only the third-highest rates of disenrollment.

These findings may be portrayed somewhat differently. Consider ratings of dissatisfaction or measures of disenrollment as signals of plan performance

for potential enrollees, employers, or state regulators. To what extent can these signals capture problems with quality of care? Only enrollees who have been sufficiently sick to experience treatment can plausibly make an assessment of quality. But 63 percent of those who report that they are dissatisfied and 56 percent of those who disenroll from a health plan are relatively healthy. If we assume that only those enrollees who have experienced significant functional impairments have real experience with the full range of plan performance, then only 13 percent of those who express dissatisfaction are fully informed. And only 8 percent of those who disenroll in a given year are significantly impaired enrollees dissatisfied with plan performance. Clearly, aggregate measures of satisfaction and disenrollment are weak signals of plans' actual treatment of enrollees in ill health.

Finally, these findings raise important questions about the extent to which past policies have relied on consumer choice as the primary safeguard for the well-being of individual enrollees. Outside of fee-for-service plans, a strikingly small proportion of those who reported that they intended to disenroll actually did so. This is true for both healthy and unhealthy enrollees, suggesting that various costs of disenrollment may be a substantial deterrent for both groups.¹²

These limitations do not necessarily require abandoning strategies based on consumer choice. As we have shown, dissatisfied enrollees are more likely to change plans than are their counterparts who are satisfied. But choice alone is not an adequate safeguard for quality of care, particularly for chronically ill enrollees. For this group, other mechanisms such as those relying more on consumer "voice" need to be used in an effective manner (Rodwin 1997). The ethos of consumer choice has considerable allure across a wide ideological spectrum, appealing to conservatives who see it as an alternative to government regulation (Enthoven and Singer 1995) and to liberals who see it as a mechanism for empowering previously disenfranchised groups (Rodwin 1994). But its benefits will prove illusory unless we are wise enough to recognize the limitations on choice created by the costs of switching health plans. These costs create a number of important complications that have yet to be adequately addressed by proponents of managed competition arrangements.

ACKNOWLEDGMENTS

We are indebted to Harris Allen for access to the data and his suggestions for improving an earlier draft of the article. The article also benefited from

the comments of Brian Gran as well as from research assistance by Bonnie Kerker.

NOTES

1. In some studies, this neutral relationship reflected offsetting effects of different aspects of illness, with poor health status discouraging plan disenrollment and the existence of chronic illnesses encouraging disenrollment (Juba, Lave, and Shaddy 1980).
2. IPAs are also the type of HMO to contract most often with medical groups to assume some of the functions of "managing" care (Hillman, Welch, and Pauly 1992). This would further reduce the salience of the plan for enrollees who were unhappy with their healthcare.
3. An exception to this general pattern involves enrollees who are concerned about continuity of care for their family members, particularly young children who have an established relationship with a pediatrician or other provider.
4. A subsample of nonrespondents on the mailed survey were contacted by telephone. Subsequent comparisons of the two subsamples suggested that mailed survey administration had not affected either the average levels or patterns of satisfaction with particular types of health plans.
5. Point-of-service plans have been created by both PGPs and IPAs. They are therefore the most heterogeneous of the categories in terms of their implications for enrollee behavior.
6. This translated into a score of 55 on the GHP and a score of 80 on the PFI.
7. We made use of these aggregate measures, rather than constructing a composite measure for the more specific dimensions of plan performance, because the aggregate measures allow one to identify which respondents considered themselves to be dissatisfied with the plan. We did compare the aggregate measures to factor analyses of the more detailed measures. These suggested that the aggregate measures used here were more closely related (first-order correlation coefficients of 0.59–0.68) to enrollee perceptions of coverage and services, with substantial additional correlations with enrollee assessments of choice of providers (0.28–0.31), interpersonal aspects of quality of care (0.26–0.28), and utilization review practices (0.24–0.27). It should also be noted that there were substantial correlations in ratings among the different dimensions of satisfaction.
8. The results were similar if enrollees were grouped by general health perceptions.
9. The regression models also included interaction variables for healthy enrollees in each type of HMO. Complete results are available from the authors.
10. Heterogeneity also increases the size of the confidence intervals on the odds ratios reported in Tables 3 and 4. This may create situations in which substantively large differences among plans are not statistically significant. For example, functionally impaired enrollees who were dissatisfied were 2.6 times as likely to intend to disenroll from a PGA as a FFS plan, but the confidence intervals were overlapping.

11. The absence of a relationship between enrollee income and disenrollment rates suggest that exit was not being significantly deterred—at least in this employed population—by financial constraints.
12. These lower rates of disenrollment from HMOs were *not* induced by the threat of large out-of-pocket expenses under FFS coverage. As noted earlier, employees in these three corporations generally had a choice *among* HMOs, as well as the choice between HMO and FFS coverage. When we reestimated the regressions, controlling explicitly for enrollee satisfaction with out-of-pocket expenses, the patterns reported in the text persisted.

REFERENCES

- Allen, H. 1995. "Toward the Intelligent Use of Health Care Consumer Surveys." *Managed Care Quarterly* 3 (4): 10–21.
- Allen, H., and W. Rogers. 1997. "The Consumer Health Plan Value Survey: Round Two." *Health Affairs* 16 (4): 156–66.
- Allen, H. M., H. Darling, D. N. McNeill, and F. Bastien. 1994. "The Employee Health Care Value Survey: Round One." *Health Affairs* 13 (4): 25–41.
- Berki, S. E., and M. L. F. Ashcraft. 1980. "HMO Enrollment: Who Joins What and Why: A Review of the Literature." *Milbank Memorial Fund Quarterly* 58 (4): 588–632.
- Blendon, R. J., R. A. Knox, M. Brodie, F. E. Mebane, J. Benson, H. Taylor, and R. Leitman. 1994. "Americans Compare Managed Care, Medicare and Fee-for-Service." *Journal of American Health Policy* 10 (3): 42–47.
- Brock, D., and N. Daniels. 1994. "Ethical Foundations of the Clinton Administration's Proposed Health Care System." *Journal of the American Medical Association* 271 (15): 1189–96.
- Buchanan, J. L., and S. Cretin. 1986. "Risk Selection of Families Electing HMO Membership." *Medical Care* 24 (1): 39–51.
- Davis, K., K. S. Collins, C. Schoen, and C. Morris. 1995. "Choice Matters: Enrollees' Views of Their Health Plans" *Health Affairs* 14 (2): 99–112.
- Edgman-Levitan, S., and P. Cleary. 1996. "What Information Do Consumers Want and Need?" *Health Affairs* 15 (4): 42–56.
- Enthoven, A. C. 1993. "The History and Principles of Managed Competition." *Health Affairs* 12 (Supplement): 24–48.
- Enthoven, A. C., and S. J. Singer. 1995. "Market-based Reform: What to Regulate and by Whom." *Health Affairs* 14 (1): 105–19.
- Fishman, P., M. Von Korff, P. Lozano, and J. Hecht. 1997. "Chronic Care Costs in Managed Care" *Health Affairs* 16 (3): 239–47.
- Freudenheim, M. 1997. "Pioneering State for Managed Care Fights for Change." *New York Times* (14 July): A1.
- Fox, J. G., and D. M. Storms. 1981. "A Different Approach to Sociodemographic Predictors of Satisfaction to Health Care." *Social Science and Medicine* 15 (A): 557–64.

- General Accounting Office. 1994. *Health Care Reform: "Report Cards" Are Useful but Significant Issues Need to Be Addressed*. General Accounting Office Pub. No. GAO/HEHS-94-219. Washington DC: Government Printing Office.
- Gold, M., L. Nelson, R. Brown, A. Ciemnecki, A. Aizer, and E. Docteur. 1997. "Disabled Medicare Beneficiaries in HMOs." *Health Affairs* 16 (5): 149-62.
- Grazier, K. L., W. C. Richardson, D. P. Martin, and P. Diehr. 1986. "Factors Affecting Choice of Health Care Plans." *Health Services Research* 20 (6): 660-82.
- Greene, W. H. 1993. *Econometric Analysis*. New York: Maxwell McMillan.
- Greenley, J. R., T. B. Young, and R. A. Sheonherr. 1982. "Psychological Distress and Patient Satisfaction." *Medical Care* 20 (4): 373-85.
- Hall, J. A., and M. C. Dornan. 1990. "Patient Sociodemographic Characteristics as Predictors of Satisfaction with Medical Care: A Meta-Analysis." *Social Science and Medicine* 30 (7): 811-18.
- . 1988. "Meta-Analysis of Satisfaction with Medical Care: Description of Research Domain and Analysis of Overall Satisfaction Levels." *Social Science and Medicine* 27 (6): 637-44.
- Hanchak, N. A., N. Schlackman, and S. Harmon-Weiss. 1996. "U.S. Healthcare's Quality-based Compensation Model." *Health Care Financing Review* 17 (3): 143-59.
- Harrington, C., R. J. Newcomer, and S. Preston. 1993. "A Comparison of S/HMO Disenrollees and Continuing Members." *Inquiry* 30 (4): 429-40.
- Hillman, A. L., W. P. Welch, and M. V. Pauly. 1992. "Contractual Arrangements Between HMOs and Primary Care Physicians: Three-Tiered HMOs and Risk Pools." *Medical Care* 30 (2): 136-48.
- Hirschmann, A. 1970. *Exit, Voice and Loyalty: Responses to Decline in Firms, Organizations and States*. Cambridge, MA: Harvard University Press.
- Hoffman, C., D. Rice, and H. Y. Sung. 1996. "Persons with Chronic Conditions: Their Prevalence and Costs." *Journal of the American Medical Association* 276 (18): 1473-79.
- Juba, D. A., J. R. Lave, and J. Shaddy. 1980. "An Analysis of the Choice of Health Benefits Plans." *Inquiry* 17 (spring): 62-71.
- Klinkman, M. 1991. "The Process of Choice of Health Care Plan and Provider: Development of an Integrated Analytic Framework." *Medical Care Review* 48 (3): 295-330.
- Knutson, D. J., J. B. Fowles, M. Finch, J. McGee, N. Dahms, E. Kind, and S. Adlis. 1996. "Employer-Specific Versus Community-Wide Report Cards: Is There a Difference?" *Health Care Financing Review* 18 (1): 111-25.
- Komisar, H. L., J. A. Reuter, J. Feder, and P. Neuman. 1997. *Medicare Chart Book*. Menlo Park, CA: Henry J. Kaiser Family Foundation.
- Like, R., and S. J. Zyzanski. 1987. "Patient Satisfaction with the Clinical Encounter: Social Psychological Determinants." *Social Science and Medicine* 24 (4): 351-57.
- Long, S., R. Settle, and C. Wrightson. 1988. "Employee Premiums, Availability of Alternative Plans, and HMO Disenrollment." *Medical Care* 26 (10): 927-38.
- McCloskey, A., J. Woolwich, and D. Holahan. 1995. *Reforming the Health Care System: State Profiles 1995*. Washington, DC: American Association of Retired Persons.

- McCormack, L., S. Garfinkel, J. Schnaier, A. J. Lee, and J. Sangl. 1996. "Consumer Information Development and Use." *Health Care Financing Review* 18 (1): 15-30.
- McGlynn, E. 1997. "Six Challenges in Measuring the Quality of Health Care." *Health Affairs* 16 (3): 7-21.
- McHorney, C. A., J. E. Ware, and A. E. Raczek. 1993. "The MOS 36-Item Short-Form Health Survey (SF-36): II. Psychometric and Clinical Tests of Validity in Measuring Physical and Mental Health Constructs" *Medical Care* 31 (3): 247-63.
- McHorney, C. A., J. E. Ware, J. F. R. Lu, and C. D. Sherbourne. 1994. "The MOS 36-Item Short Form Health Survey (SF-36): III. Tests of Data Quality, Scaling Assumptions and Reliability Across Diverse Patient Groups." *Medical Care* 32 (1): 40-66.
- McMullan, M. 1996. "HCFA's Consumer Information Commitment." *Health Care Financing Review* 18 (1): 9-14.
- Mechanic, D. 1989. "Consumer Choice Among Health Insurance Options." *Health Affairs* 8 (1): 138-48.
- Mechanic, D., M. Schlesinger, and D. McAlpine. 1996. "Management of Mental Health and Substance Abuse Services: State of the Art and Early Results." *Milbank Quarterly* 72 (4): 19-56.
- Mechanic, D., T. Ettel, and D. Davis. 1990. "Choosing Among Health Insurance Options: A Study of New Employees." *Inquiry* 27 (1): 14-23.
- Miller, R. H., and H. S. Luft. 1988. "Patient Selection in a Competitive Health Care System." *Health Affairs* 7 (3): 97-119.
- Newcomer, R., S. Preston, and C. Harrington. 1996. "Health Plan Satisfaction and Risk of Disenrollment Among Social/HMO and Fee-for-Service Recipients." *Inquiry* 33 (2): 144-54.
- Palmer, R. H., and R. H. Chapman. 1997. "Quality of Care for Medicare Beneficiaries." AARP Policy Institute Paper #9703. Washington DC: American Association of Retired Persons.
- Pascoe, G. C., 1983. "Patient Satisfaction in Primary Health Care: A Literature Review and Analysis." *Evaluation and Program Planning* 6 (2): 185-97.
- Riley, G. F., M. J. Ingber, and C. G. Tudor. 1997. "Disenrollment of Medicare Beneficiaries from HMOs." *Health Affairs* 16 (5): 117-24.
- Riley, T. 1997. "The Role of States in Accountability for Quality." *Health Affairs* 16 (3): 41-43.
- Robinson, J. C., and L. Gardner. 1996. "Involuntary Health Plan Switching: Case Study of a Corporate Health Benefits Program." *Medical Care Research and Review* 53 (2): 225-39.
- Robinson, J. C., L. B. Gardner, and H. S. Luft. 1993. "Health Plan Switching in Anticipation of Increased Medical Care Utilization." *Medical Care* 31 (1): 43-51.
- Rodwin, M. A. 1997. "The Neglected Remedy: Strengthening Consumer Voice in Managed Care." *The American Prospect* 34 (May/June): 45-50.
- . 1996. "Consumer Protection and Managed Care: The need for Organized Consumers." *Health Affairs* 15 (3): 110-23.
- . 1994. "Patient Accountability and Quality of Care: Lessons from Medical

- Consumerism and the Patients' Rights, Women's Health and Disability Rights Movement." *American Journal of Law & Medicine* 20 (1-2): 147-67.
- Rosenbaum, S., R. Serrano, M. Magar, and G. Stern, 1997. "Civil Rights in a Changing Health Care System." *Health Affairs* 16 (1): 90-105.
- Ross, C., B. Wheaton, and R. Duff. 1981. "Client Satisfaction and the Organization of Medical Practice: Why Time Counts." *Journal of Health and Social Behavior* 22 (3): 243-55.
- Rossiter, L. F., K. Langwell, T. T. H. Wan, and M. Rivnyak. 1989. "Patient Satisfaction Among Elderly Enrollees and Disenrollees in Medicare Health Maintenance Organizations." *Journal of the American Medical Association* 262 (1): 57-63.
- Sainfort, F., and B. Booske. 1996. "Role of Information in Consumer Selection of Health Plans." *Health Care Financing Review* 18 (1): 31-54.
- Sangl, J., and L. Wolf, 1996. "Role of Consumer Information in Today's Health Care System." *Health Care Financing Review* 18 (1): 1-8.
- Schlesinger M. 1997. "Countervailing Agency: A Strategy of Principaled Regulation Under Managed Competition." *Milbank Quarterly* 75 (1): 35-87.
- Schlesinger, M., and D. Mechanic. 1993. "Challenges for Managed Competition from Chronic Illness." *Health Affairs* 12 (Supplement): 123-37.
- Shaughnessy, P. W., R. E. Schlenker, and D. F. Hittle. 1993. "Home Health Care Outcomes Under Capitated and Fee-for-Service Payment." *Health Care Financing Review* 16 (1): 187-221.
- Simon, G. 1992. "Psychiatric Disorder and Functional Somatic Symptoms as Predictors of Health Care Use." *Psychiatric Medicine* 10 (1): 49-60.
- Sofaer, S., and M. Hurwicz. 1993. "When Medical Group and HMO Part Company: Disenrollment Decisions in Medicare HMOs." *Medical Care* 31 (9): 808-21.
- Thorne, S. E., 1993. *Negotiating Health Care: The Social Context of Chronic Illness*. Newbury Park, CA: Sage Publications.
- Ullman, R., J. Hill, E. Scheye, and R. Spoeri. 1997. "Satisfaction and Choice: A View from the Plans." *Health Affairs* 16 (3): 209-217.
- Ware, J. E., A. Davies-Avery, and A. L. Stewart. 1982. "The Measurement and Meaning of Patient Satisfaction." *Health and Medical Care Services Review* 1 (1): 2-28.
- Ware, J. E., M. S. Bayliss, W. H. Rogers, M. Kosinski, and A. R. Tarlov. 1996. "Differences in Four-Year Health Outcomes for Elderly and Poor Chronically Ill Patients Treated in HMO and Fee-for-Service Systems." *Journal of the American Medical Association* 276 (13): 1039-47.
- Weiss, G. L. 1988. "Patient Satisfaction with Primary Medical Care: Evaluation of Sociodemographic and Predispositional Factors." *Medical Care* 26 (4): 383-92.
- Wersinger, R. P., and A. A. Sorensen. 1982. "Demographic Characteristics and Prior Utilization Experience of HMO Disenrollees Compared with Total Membership." *Medical Care* 20 (12): 1188-96.