Switching Swiss Enrollees from Indemnity Health Insurance to Managed Care: The Effect on Health Status and Satisfaction with Care

Thomas V. Perneger, MD, PhD, Jean-François Etter, DES sci pol, MPH, and André Rougemont, MD

ABSTRACT

Objectives. In 1992, most members of a Swiss indemnity health insurance plan were automatically transferred into a newly created managed care organization. This study examined whether this semivoluntary change affected enrollees' health status and satisfaction with care.

Methods. Three groups of enrollees were compared: 332 plan members who accepted the switch (managed care joiners); 186 plan members who opted to maintain indemnity coverage (nonjoiners); and 296 persons continuously enrolled in another indemnity plan (indemnity plan members). Health status, health-related behaviors, and satisfaction with care received in the previous year were surveyed at baseline and 1 year later.

Results. Health status remained unchanged in all three groups. Smoking prevalence decreased among managed care joiners but remained constant in the other groups. Satisfaction with insurance coverage increased between baseline and follow-up in managed care joiners, but decreased in nonjoiners and indemnity plan members. The latter groups had higher satisfaction with health care, particularly with continuity of care.

Conclusions. A semivoluntary switch from indemnity health insurance to managed care reduced satisfaction with health care but increased satisfaction with insurance coverage. There were no changes in self-perceived health status. (*Am J Public Health.* 1996;86:388–393)

Introduction

A shift to managed care is advocated by health care reform proposals in several countries.[1] Yet whether managed care is good or bad for its enrollees is not well known, for several reasons.[2] Cross-sectional comparisons of populations enrolled in different health insurance plans may reflect nonrandom enrollee selection more than the quality of health care delivery.[3] Few studies have assessed enrollee outcomes prospectively before and after enrollment in a plan. How to best measure the effects of a health care delivery system is another concern. Global outcome indicators, such as the health status[4] and satisfaction with care[5,6] of all enrollees, measure the overall impact of a health care delivery system at the population level, not only among users of health services. Few studies have used such indicators. Finally, experimental trials of competing health care delivery systems are rarely feasible, so most evidence comes from observational studies in which people choose freely their health insurance plan. Interpreting changes in satisfaction after voluntary enrollment in a new health insurance plan is difficult because people tend to switch plans precisely because they are dissatisfied with their current plan.[7]

We were able to address some of these difficulties using a "natural experiment" in health insurance that took place in Geneva, Switzerland, in 1992. This event had two unusual features. First, an insured population was automatically transferred from indemnity insurance to managed care, with little opportunity to exercise consumer choice. Second, at the time this managed care organization was established, the Swiss government considered managed care to be an experimental way of delivering health care and mandated a scientific evaluation of any newly established managed care organization. This rule enabled us to implement a prospective controlled study of the impact of the switch from indemnity insurance to managed care on enrollee health status and satisfaction with care.

Methods

Study Setting, Design, and Participants

In the fall of 1992, members of the indemnity health insurance plan of the University of Geneva were automatically transferred into a new managed care organization. The switch to managed care was semivoluntary: the change of contract occurred during the summer break, plan members were not offered an alternative insurance option, and they were given only 2 weeks (later extended to 1 month) to disenroll and find a new insurance policy if they wished to retain indemnity coverage. Those who opted out also lost the benefit of a university-negotiated group insurance premium. As a result, 88% of former plan members switched to managed care. The features of the managed care organization and of Swiss indemnity insurance plans are described in Table 1. Those who joined the managed care organization and those who opted not to join differed in terms of

The authors are with the Institute of Social and Preventive Medicine, University of Geneva, Geneva, Switzerland.

Requests for reprints should be sent to Thomas V. Perneger, MD, PhD, Institute of Social and Preventive Medicine, University of Geneva, Centre Médical Universitaire, 1211 Geneva 4, Switzerland.

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sociodemographic characteristics, health status, and past use of services.[8,9]

Our evaluation involved a before–after design with nonequivalent comparison groups. The "intervention" group consisted of university plan members who agreed to switch from indemnity insurance to managed care ("managed care joiners"). The first comparison group consisted of former university plan members who opted out in order to keep indemnity insurance ("nonjoiners"). The second comparison group consisted of members of another health insurance plan (unrelated to the university) who retained the same indemnity insurance throughout the study (indemnity plan members). The study was approved by Switzerland's Federal Office of Social Insurance.

Eligible participants were all plan members who spoke French, lived in Geneva, were 18 to 44 years old, and had belonged to their current health plan for 1 year or more in October 1992. Participants were selected from a list of plan members by means of a simple random sampling procedure (in Switzerland, an individual insurance contract is signed by each adult member of a household; therefore, individuals, rather than households, were the units of analysis). Of 1235 eligible persons, 1007 (82%) responded to a baseline mail survey conducted in November and December 1992 (421 managed care joiners, 222 nonjoiners, and 364 indemnity plan members).[10] In the fall of 1993, 959 still lived in Geneva, and 851 (88%) responded to the follow-up survey. Seventeen respondents were eliminated because they had changed their health insurance status in the meantime, and 20 were eliminated because of a discrepancy on sex or on age between the baseline and follow-up surveys. Thus, 814 persons remained for analysis (81% of the baseline sample): 332 managed care joiners, 186 nonjoiners, and 296 indemnity plan members (Table 2). Thirteen couples provided two individual evaluations each.

TABLE 1—Features of the Geneva Managed Care Organization (MCO) as Compared with the Usual Type of Health Insurance in Switzerland: 1992 and 1993

Feature	MCO	Usual Indemnity Insurance
Coverage	As specified by Swiss law on mandatory health insurance	As specified by Swiss law on mandatory health insurance
Choice of primary care physician	Only gatekeeper affiliated with MCO; unrestricted for gynecologists and pediatricians; unrestricted in case of emergency	Unrestricted
Choice of specialist	Only through referral from gatekeeper	Unrestricted
Organization of physicians	Gatekeepers: group practice organized by MCO; others: independent solo or group practice (under no contract with MCO; MCO works with any willing provider)	Independent solo or group practice
Payment of physicians	Gatekeepers: on salary; others: fee-for-service (no retainer)	Fee-for-service
Global budget	Yes (annual per capita budget managed by team of physicians and managers)	No
Monthly insurance premium	120 Swiss francs for persons > 25 years old	Variable, generally 25% more expensive than MCO; 165 Swiss francs in comparison plan
Copayment	None for authorized care (ambulatory and inpatient); 50% for care not authorized by gatekeeper	10% for ambulatory care; none for inpatient care
Annual deductible	150 Swiss francs	150 Swiss francs

Study Variables

Health status was measured at baseline and at follow-up with a validated French-language version[11] of the SF-36 Health Survey.[12] The SF-36 provides a health profile of eight dimensions of health (see Table 3), each scaled between 0 (worst possible state) and 100 (best possible state). A dimension score was declared missing if more than half of its items were missing. In addition, respondents provided information about alcohol use, smoking, number of sexual partners, and condom use. These practices were surveyed because the managed care organization intended to promote healthy lifestyles.

Satisfaction with various aspects of health care received in the past 12 months was measured with an instrument derived from the Patient Satisfaction Questionnaire[13] consisting of 25 statements such as "I am very satisfied with the medical care I have received in the past year." Each statement was followed by five response options ranging from strongly agree to strongly disagree. Eight satisfaction scores on a 0-to-100 scale were derived from these items (see Table 4).

In addition, in the follow-up survey only, participants were asked to compare the care received in the past year with care received previously and to state their preference between indemnity health insurance (no restrictions on consultations) and managed care ("gatekeeper" controlled but lower premiums and no copayments).

Analysis

For categorical variables, we used cross tabulations and chi-square tests to compare the study groups; we used *t* tests and analyses of variance to compare means of continuous variables.[14] Two-sided values of $P \leq .05$ were considered statistically significant. Changes over time in binary variables (smoking, dangerous sexual practices) were assessed with exact McNemar's tests for matched data. We compared changes in behaviors between study groups by testing the heterogeneity of the matched odds ratio across groups.[15] For all health status and satisfaction dimensions, we computed individual differences between baseline and follow-up scores and compared the three study groups using analysis of covariance models. To control for regression to the mean, we adjusted these comparisons for baseline values. To control for potential confounders, we made further adjustments for age, sex, Swiss vs non-Swiss country of birth, and university student

TABLE 2—Comparison of Sociodemographic Characteristics of Study Participants, by Health Insurance Change Status, Geneva, 1992 and 1993

	Accepted Switch from Indemnity Health Insurance to Managed Care (n = 332)	Refused Switch to Managed Care; Retained Indemnity Health Insurance (n = 186)	Remained under Indemnity Insurance; Switch to Managed Care Not Offered (n = 296)
Age, y, mean (SD)	28.9 (5.5)	29.1 (4.6)	31.4 (6.1)
Women, %	49.4	55.9	55.7
Born in Switzerland, %	28.7	49.7	42.3
University students, %	82.9	63.2	13.7
Education, y, mean (SD)	18.4 (4.1)	18.7 (3.6)	12.9 (4.3)
Working part or full time, %	56.0	67.8	80.1
No. persons in household, mean (SD)	1.9 (1.2)	2.2 (1.2)	2.7 (1.4)
Annual household income > 75 000 Swiss francs, %	16.3	40.6	22.9
Had a personal physician in Geneva at baseline, %	49.7	71.2	69.8

Note. With the exception of mean age, all between-group differences were significant at the $P < .05$ level.

TABLE 3—Mean Changes in Study Participants' Health Status, Measured by the SF-36 Health Survey, by Health Insurance Status

	Accepted Switch from Indemnity Health Insurance to Managed Care	Refused Switch to Managed Care; Retained Indemnity Health Insurance	Remained under Indemnity Insurance; Switch to Managed Care Not Offered
Physical functioning	−0.7	0.8	−1.9
Role: physical	−1.6	0.7	−3.4
Bodily pain	−1.3	−0.3	−2.1
General health	−1.2	−0.7	−0.5
Vitality	0.1	−0.2	−0.4
Social functioning	−2.0	0.5	0.0
Role: emotional	−1.2	5.5*	2.8
Mental health	−0.8	0.1	0.0
Retrospective assessment of change in general health[a]	56.0	56.0	53.8

Note. Adjustment was made for baseline health status. Changes reflect the difference of raw scores between 0 (worst possible health status) and 100 (best possible health status); 0 indicates no change, negative values indicate decline, and positive values indicate improvement.
[a]At follow-up, 0 indicates that current health was much worse than 1 year ago, 100 indicates that current health was much better, and 50 indicates no change.
*$P < .05$ (difference with managed care enrollees).

status. Analyses were conducted with SPSS Windows software, and exact tests were computed with StatXact Turbo.

Results

The three study groups differed on several sociodemographic variables (Table 2; all differences were statistically significant except for the proportion of women). Managed care joiners were more likely to be born outside Switzerland and to be university students and less likely to be working, to have high annual incomes, and to have a personal physician in Geneva. Despite these differences, adjustment for sociodemographic variables did not modify between-group comparisons on the principal outcome variables.

Effect on Health Status and Health-Related Practices

All SF-36 subscales remained stable at follow-up in all three groups (Table 3). Only one of the many comparisons (change in role limitations due to emotional problems, adjusted for baseline values, for nonjoiners vs managed care joiners) was statistically significant; this might have been due to chance alone.

Smoking prevalence decreased significantly among managed care enrollees, from 40% to 36% (over time $P = .003$), but remained stable in nonjoiners (32% and 34%; over time $P = .36$; change vs managed care joiners $P = .004$) and in indemnity plan members (47% and 47%; over time $P = .65$; change vs managed care joiners $P = .01$). The managed care organization had offered a free smoking cessation program, but only a few plan members attended. Alcohol use remained constant in managed care joiners (3.8 and 4.3 drinks per week), nonjoiners (4.4 and 4.4 drinks per week), and indemnity plan members (5.4 and 5.4 drinks per week). The latter within-group and between-group differences were nonsignificant. The proportion engaging in dangerous sexual practices (several sexual partners but nonsystematic condom use) decreased in managed care joiners (21% and 17%; over time $P = .04$), nonjoiners (13% and 9%; over time $P = .15$; change vs managed care joiners $P = .91$), and indemnity plan members (12% and 10%; over time $P = .51$; change vs managed care joiners $P = .41$).

Effect on Satisfaction with Care

Managed care joiners differed considerably from nonjoiners and indemnity plan members in their reporting of satisfaction with health care (Table 4). Follow-up satisfaction ratings tended to be lower than at baseline among managed care joiners, and higher in the two groups that remained under indemnity coverage, for all dimensions except insurance coverage. On the latter aspect, managed care joiners fared significantly better than the two other groups. Between-group differences were small and statistically nonsignificant for satisfaction with technical aspects of care. For other aspects of satisfaction, particularly satisfaction with continuity of care, nonjoiners and indemnity plan members evidenced better rating changes than managed care joiners. Trends in satisfaction changed moder-

ately after further adjustment for age, gender, country of birth, and university student status (Table 5), but substantial differences remained between the managed care joiners and the two other groups.

We conducted several post hoc analyses to compare subgroups defined by gender and age with regard to changes in satisfaction. Satisfaction with continuity in care increased among women enrolled in the indemnity insurance plan but decreased in men, while no gender differences were seen in the two other groups ($P = .02$ for interaction between health insurance status and gender). Changes in satisfaction with access to care were more positive as age increased in managed care joiners and in nonjoiners but more negative as age increased in indemnity enrollees ($P = .004$ for interaction between health insurance status and age). These results should be interpreted while keeping in mind that multiple tests were performed and that corresponding hypotheses had not been specified a priori.

Managed care joiners were further stratified according to whether they had used the managed care organization gatekeepers (n = 152) or not (n = 180). Those who had consulted the gatekeepers tended to provide a lower rating of their care at follow-up than managed care joiners who did not consult gatekeepers. The differences were significant for general satisfaction with care (a decrease in rating of 5.3 vs an increase of 3.4; $P = .002$), access to care facilities (a decrease of 4.3 vs an increase of 0.5; $P = .015$), and technical aspects of care (a decrease of 2.7 vs an increase of 3.1; $P = .007$). The change in ratings was remarkably similar for satisfaction with insurance coverage (increases of 2.8 and 2.4; $P = .90$).

TABLE 4—Mean Changes in Satisfaction with Health Care Received during the Previous Year, Adjusted for Baseline Satisfaction Ratings, by Health Insurance Status

	Accepted Switch from Indemnity Health Insurance to Managed Care	Refused Switch to Managed Care; Retained Indemnity Health Insurance	Remained under Indemnity Insurance; Switch to Managed Care Not Offered
General satisfaction with care	−2.5	3.1**	3.8**
Access to care facilities	−2.5	0.5	2.5**
Continuity of care	−3.8	6.1***	5.2***
Technical aspects of care	−0.7	1.7	0.4
Interpersonal aspects of care	−1.0	2.4*	1.9*
Explanations regarding care	−0.2	3.9*	3.0
Prevention/health promotion	−3.0	−0.2	3.8***
Insurance coverage	2.1	−5.7***	−7.1***

Note. Changes reflect the difference of raw scores between 0 (worst possible satisfaction) and 100 (best possible satisfaction); 0 indicates no change, negative values indicate decline, and positive values indicate improvement.
*$P < .05$; **$P < .01$; ***$P < .001$ (difference with managed care enrollees).

TABLE 5—Mean Changes in Satisfaction with Health Care Received during the Previous Year, Adjusted for Baseline Satisfaction Ratings and Demographic Characteristics, by Health Insurance Status

	Accepted Switch from Indemnity Health Insurance to Managed Care	Refused Switch to Managed Care; Retained Indemnity Health Insurance	Remained under Indemnity Insurance; Switch to Managed Care Not Offered
General satisfaction with care	−2.6	2.0*	3.3*
Access to care facilities	−2.0	0.0	2.4*
Continuity of care	−2.3	5.9**	3.5
Technical aspects of care	−0.9	1.2	0.9
Interpersonal aspects of care	−0.6	2.4*	1.2
Explanations regarding care	−0.7	3.5*	3.4
Prevention/health promotion	−4.2	−0.7	5.1***
Insurance coverage	4.1	−6.0***	−9.4***

Note. Adjustments were made for baseline satisfaction ratings, age, sex, Swiss vs other country of birth, and university student status. Changes reflect the difference of raw scores between 0 (worst possible satisfaction) and 100 (best possible satisfaction); 0 indicates no change, negative values indicate decline, and positive values indicate improvement.
*$P < .05$; **$P < .01$; ***$P < .001$ (difference with managed care enrollees).

Comparison of Care Received in 1992 and 1993

When asked to compare the care they received in 1993 with that of the previous year, 66% of managed care joiners, 82% of nonjoiners, and 77% of indemnity plan members reported no change. Managed care joiners were more likely to estimate that their care became somewhat or much worse (19%) than both nonjoiners (1%) and indemnity plan members (5%; both $Ps < .001$).

Preference for Unrestricted or Managed Care

At follow-up, participants were asked to state their preference between two health insurance options: a managed care option (which included gatekeeper control, premiums lowered by 20%, and no copayment) and an unrestricted care option (which included indemnity health insurance, free choice of physician, standard premiums, and a 10% copayment on ambulatory care). Managed care joiners were about equally divided among those who favored unrestricted care (42%) and those who preferred managed care (46%). Unrestricted care was favored by most nonjoiners (76%) and indemnity plan members (59%), while managed care was the preferred choice of 17% of nonjoiners and 27% of indemnity plan members. The between-group differences were statistically significant ($P < .001$).

Discussion

The natural experiment described in this article answered several important

questions about managed care. First, a majority of young and well-educated members of an indemnity health insurance plan could be transferred to a managed care setting through a combination of financial incentives and administrative hurdles. Second, this semivoluntary change in health care delivery systems had a mixed effect on global indicators of quality of care: health status remained stable, one health-related behavior (smoking) decreased, and satisfaction with insurance coverage improved, but satisfaction with health care—most notably for continuity of care and for access to health care facilities—decreased considerably. Third, a government mandate to evaluate managed care plans played an important role in allowing generally useful and locally relevant knowledge to be derived from this experience.

Former plan members transferred to managed care in a much larger proportion (88%) than has been previously reported for situations in which a managed care option is offered alongside an indemnity insurance option (typically $<25\%$).[16,17] We believe the reason was that former members of the Geneva University health plan were not given a fair opportunity to exercise informed choice. "Rationing through inconvenience"[18] can also apply to choice among health insurance plans.

The lack of impact on self-perceived health status is consistent with results from the RAND Health Insurance Experiment, which showed a prepaid group practice and fee-for-service care to have the same effect on somatic[19] and mental[20] health status. In a study of Medicare beneficiaries,[21] those enrolled in health maintenance organizations were less likely to decline in their functional status than those covered by fee-for-service insurance, but this difference waned after adjustment for sociodemographic and health-related factors. In contrast, a recent randomized trial conducted among poor elderly persons showed a small but significant improvement in general health under prepaid care but no change under fee-for-service care.[22] Our study extends to young well-educated adults the scarce evidence that managed care is probably not deleterious to health in the short run. The main limitations of our inferences are that a 1-year follow-up may be too short to allow any measurable changes in health status to occur and that the health status instrument we used may have been insensitive to small but meaningful changes in health.

The favorable change in smoking prevalence in managed care joiners can hardly be attributed to the smoking cessation program implemented by the managed care organization, because only a few dozen members participated. We believe that this result more likely reflects a historical tendency of well-educated people to stop smoking.

Lower general satisfaction with health care in managed care plans has also been described previously. In the RAND Health Insurance Experiment, persons voluntarily enrolled in a prepaid group practice scored higher, but those randomized to the same provider scored lower, than persons in fee-for-service care.[23] Thus, being forced to adopt managed care (or, we suppose, any other mode of health care delivery) may cause dissatisfaction. In our study setting, the transfer from indemnity insurance to managed care was semivoluntary at best, which may explain the sharp declines in satisfaction with care among managed care enrollees. Recent cross-sectional studies show that even persons voluntarily enrolled in managed care organizations are less satisfied with their care than persons in fee-for-service care.[24,25] Among the elderly, persons voluntarily enrolled in[26] or randomized to[22] prepaid care have been shown to have the same level of general satisfaction as persons in fee-for-service care.

Our data also confirm that people can discriminate among various aspects of care in a logical way. In the two comparison groups, satisfaction with insurance coverage decreased during the study period. This trend was probably due to a government-mandated change in insurance premiums that aimed to increase solidarity between age groups. Under this regulation, premiums increased for young people just after the baseline survey. Another example of people's ability to discriminate can be seen in changes in satisfaction among managed care joiners. They had to select a new family physician and had to seek care at a single location; consequently, they reported a decrease in their satisfaction with continuity of care and with physical access to care. Moreover, among the managed care enrollees, only those who had consulted the gatekeepers provided lower satisfaction ratings. Such findings provided a basis for quality improvement initiatives: in 1994, the managed care organization established a network of gatekeepers to facilitate access to primary care facilities. These and other[23–26] results lend credibility to quality of care ratings provided by enrollees or patients.

Governmental regulation played a central role in the implementation of this study. We believe that major changes in health care delivery systems should be accompanied by mandatory evaluations. Evaluation mandates, which are well accepted for pharmaceutical substances, are the exception in the area of health care delivery. For instance, the growth of health maintenance organizations facilitated by the 1973 Health Maintenance Organization Act in the United States and the introduction of budget holding by general practitioners in the United Kingdom were not accompanied by controlled evaluations of these policies. Regrettably, the Swiss directive to evaluate new managed care plans will expire in 1996, when managed care plans will no longer be considered experimental.

Overall, neither unrestricted nor managed care appeared consistently better than the other option. Further research should identify which features of various modes of health care delivery are linked with improvements or deteriorations in enrollee outcomes. □

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Applications Sought for National Research Council Associateships

The National Research Council announces the 1996 Resident, Cooperative, and Postdoctoral Research Associateship Programs to be conducted on behalf of over 100 research laboratories throughout the United States and representing nearly all US government agencies with research facilities. The programs provide opportunities for PhD scientists and engineers of unusual promise and ability to perform research on problems largely of their own choosing yet compatible with the research interests of the sponsoring laboratory. Initiated in 1954, the programs have contributed to the career development of over 7500 scientists.

Approximately 420 new full-time associateships will be awarded on a competitive basis in 1996 for research in chemistry; earth and atmospheric sciences; engineering, applied sciences, and computer science; life, medical, and behavioral sciences; mathematics; space and planetary sciences; and physics. Most of the programs are open to both US and non-US citizens and to both recent doctoral recipients and senior investigators.

Awards are made for 1 or 2 years, renewable for a maximum of 3 years; senior applicants who have held the doctorate at least 5 years may request shorter periods. Annual stipends for recent PhDs for the 1996 program year range from \$32 000 to \$45 500 depending on the sponsoring laboratory and will be appropriately higher for senior associates. The host laboratory provides the associate with programmatic assistance, including facilities, support services, necessary equipment, and necessary travel.

Applications submitted directly to the National Research Council are accepted on a continuous basis throughout the year. Those postmarked no later than *April 15* will be reviewed in June, and by *August 15* in October. Awards will be announced in July and November. Information on specific research opportunities and participating federal laboratories, as well as application materials, may be obtained from the National Research Council, Associateship Programs (TJ 2094/D3), 2101 Constitution Ave, NW, Washington, DC 20418; fax: (202) 334-2759.