

# The Contribution of Managed Care to the Performance of Healthcare Systems – Evidence from Three Countries

JOHANNES SCHODER and PETER ZWEIFEL<sup>a</sup>

JEL-Classification: I11

Keywords: healthcare expenditure, managed care, performance, principal-agent relationship

## 1. Introduction

Healthcare expenditure (HCE) continues to increase at a faster rate than GDP in almost all industrialized countries. Governments have tried to alleviate the pressure on their budget<sup>1</sup> mainly in two different ways. One has been to limit HCE by regulation, the other, to introduce competition in an attempt to increase efficiency (CUTLER 2002). Since the first option has not proved too successful, more and more countries are seeking ways to enhance competition, among them by fostering Managed Care (MC). By vertically integrating health insurance and healthcare provision, MC may improve the allocation of resources in healthcare while limiting HCE. Indeed, most of the current literature on MC focuses on its impact on HCE.

Based on the Rand Health Insurance Experiment, MANNING ET AL. (1984) studied the effect of MC on the utilization of healthcare services and on the level of HCE. They had randomly assigned a group of 1,580 persons to receive care free of charge from either a fee-for-service physician of their choice (representing conventional care) or a physician participating in a Health Maintenance Organization (HMO, representing MC). In addition, a group of 733 individuals, already enrolled in a HMO, constituted a control group. The crucial innovation of this study was that participants were assigned to plans, which served to avoid risk selection effects, causing healthier individuals to enrol in MC plans.

a University of Zurich, Socioeconomic Institute, Hottingerstr. 10, CH-8032 Zurich, Switzerland. E-mail: (J. Schoder) johannes.schoder@soi.uzh.ch, (P. Zweifel) pzweifel@soi.uzh.ch.

The authors thank Philippe Widmer, Boris Krey, Maria Trottmann, Karolin Becker, and participants of the 2008 Annual Meeting of the SSES for helpful comments. The support of the Association of Pharma Importers in Switzerland (VIPS) is gratefully acknowledged.

1 In Switzerland 58.5 percent, in Germany 76.9 percent, and in the Netherlands 62.5 percent of HCE are paid by the government (WHO STATISTICS 2005).

Both groups enrolled in the MC plan had 40 percent fewer inpatient admission levels than those assigned to the conventional insurance plan. Their total HCE was about 25 percent lower than under conventional care.

CUTLER, MCCLELLAN and NEWHOUSE (2000) analyzed the effect of MC on the cost of treatment of one particular disease. They compared the treatment of heart disease in Health Maintenance Organizations (HMOs) and traditional insurance plans using two datasets from Massachusetts. For the HMOs they found 30 to 40 percent lower HCE than for traditional plans, mainly due to differences in unit prices. They concluded that MC may yield substantial increases in measured productivity relative to traditional insurance. Using Swiss panel data, LEHMANN and ZWEIFEL (2004) were able to distinguish cost savings due to risk selection and due to innovation effects. They found some evidence of risk selection effects, which however, accounted for only one-third of the cost advantage in the case of HMOs, with the remainder attributed to innovation effects.

This paper follows a more comprehensive (but more descriptive) approach by assessing the contribution of MC to the performance of an entire healthcare system. Performance is measured using five standard criteria developed for the assessment of an economy. They are (1) matching of consumer preferences, (2) technical efficiency, (3) adaptive capacity, (4) dynamic efficiency, and (5) a rent-free distribution of income that provides incentives for producers to attain criteria (1) through (4). These criteria are applied to the three contractual relationships typically characterizing a healthcare system, viz. (a) between the insured and patients and health insurers (the government as it were in the case of National Health Service-type systems); (b) between insurers (the government, respectively) and healthcare providers; and (c) between the insured and patients and healthcare providers.

The countries to be analyzed according to these five criteria and three contractual relationships are Germany, the Netherlands, and Switzerland. This choice can be justified for the following reasons. First, all three are insurance-based, which facilitates the comparison. Second, elements of MC were introduced in all three countries during the last few years. Third, the Netherlands underwent an important reform of their healthcare system in 2006, which allows to test the hypothesis that the contribution of MC to system performance depends on the institutional framework.

This paper is organized as follows. Section 2 contains the definition of MC and an explanation of the criteria for measuring performance. In section 3, these criteria are applied to the three contractual relationships of a healthcare system before the introduction of MC. Finally, the contribution of MC to the performance of the three healthcare systems is assessed in section 4 by applying the

criteria to the contractual relationships after the introduction of MC. The last section presents a conclusion and suggestions for future work.

## 2. Analytical Framework

### *2.1 The Common Building Block of Healthcare Systems and the Scope of Managed Care*

The common building block of all healthcare systems is the relationship between the patient (the principal in the economic theory of contract) and the physician (the agent). Patients experience a significant informational disadvantage, causing them to delegate decision-making authority to the physician. In particular, they may at best observe the outcome of a treatment, but not physician effort. For the physician, however, additional effort is costly, at the very least in terms of leisure forgone. This fact alone prevents physicians from being a perfect agent of their patients. Generally, physicians will set their effort at a level they consider optimal from their own point of view. Since it is in general impossible for the patient to find the payment function inducing the optimal treatment effort by the physician, there is scope for complementary agents who promise to mend the physician-patient relationship (ZWEIFEL, 1998).

In Germany, the Netherlands, and Switzerland health insurers (in Germany medical associations as well) represent the dominant complementary agents. However, complementary agents induce new information asymmetries leading to moral hazard and adverse selection effects. Specifically, insured patients tend to consume more healthcare services than medically necessary. The objective of MC is therefore to rearrange the relationship between these three players in order to mitigate information asymmetries and enhance efficiency as well as to optimize the allocation of the healthcare resources used (FINSTERWALD, 2004).

Different forms of MC exist, including Health Maintenance Organizations (HMOs), Preferred Provider Organizations (PPOs), and Independent Practice Associations (IPAs). They integrate insurance and provision of healthcare services, however to a different extent. This integration is designed to reduce moral hazard effects between healthcare service provider and insurer, to optimize the use of healthcare resources (e.g. by avoiding double visits), and to better structure treatment processes. To this end, MC organizations listed above apply different instruments, such as selective contracting, gatekeeping, and disease management (AMELUNG, 2007; FELDER, 2003).

In the following we will analyze the impact of MC on the performance of healthcare systems. The criteria used for evaluation are presented below.

## 2.2 Evaluation Criteria

The five criteria listed below were originally developed for the assessment of an economy in general. ZWEIFEL (2006) adapted them to the healthcare sector in the following way.

*Matching of consumer preferences:* Healthcare services should match the preferences of the insured, who are assumed to decide about the types of medical care that should be covered by insurance before they are ill.

*Technical efficiency:* The healthcare services that are provided according to criterion (1) should be produced at least cost.

*Adaptive capacity:* The insured as well as insurers and healthcare providers should adapt e.g. to population ageing or to medical technical change.

*Dynamic efficiency:* The healthcare sector should have an optimal mix of product innovation (goods with changed characteristics that may fetch a higher price) and process innovation (unchanged goods at lower cost and price). In general, insurance-induced moral hazard biases this mix in favor of product innovation (ZWEIFEL and BREYER, 1997).

*Income distribution according to performance:* Providers of healthcare services should not be able to enjoy monopolistic rents (e.g. incomes that exceed the amount that is necessary to keep them in their current activity). Rents jeopardize the attainment of the other four criteria because providers lack the incentive to make the pertinent efforts.

These criteria are applied to the three contractual relationships characterizing a healthcare system defined in section 2.1. Each time, the issue is whether MC contributes to the improvement of the contractual relationship in the light of the five criteria.

## 3. The Contractual Relationships Prior to Managed Care in Germany, the Netherlands, and Switzerland

First, the healthcare system of Germany, the Netherlands, and Switzerland will be described prior to MC using criteria (1) to (5). This is somewhat difficult for the Netherlands since some MC elements have been part of the healthcare system for a long time.

### 3.1 *The Contractual Relationship between Consumers and Health Insurers*

In all the three countries, consumers can choose among different health insurers. However, insurance policies are highly regulated. The government not only limits the range of admissible premiums (contribution rates, respectively in Germany), but also the treatments to be covered. Only in the Netherlands, cost-effectiveness constitutes a criterion for the inclusion or exclusion of benefits (SCHREYÖGG, STARGARDT, VELASCO-GARRIDO and BUSSE, 2005). Dutch and Swiss health insurers have more freedom to launch different types of insurance policies than their German counterparts (SCHUT and VAN DE VEN, 2005; BECKER, BRÄNDLE and ZWEIFEL, 2007). In Germany, only private health insurers have the right to differentiate their products<sup>2</sup> (JACOBS and SCHULZE, 2006).

Clearly, the obligation for health insurers to offer largely uniform insurance policies makes it difficult to match consumer preferences, to quickly adapt to changes of the economic environment, and to sustain technical and dynamic efficiency. Therefore, criteria (1) through (4) are violated (see Table 1). However, competition for consumers has been enough in the three countries to prevent the creation of rents [criterion (5)] (ZWEIFEL, 2006).

### 3.2 *The Contractual Relationship between Health Insurers and Healthcare Providers*

In Germany and Switzerland, health insurers are subject to an “any-willing-provider” clause, i.e. they are forced by law to contract with every approved physician. In the Netherlands, selective contracting has been possible since 1994; however, health insurers have been making very limited use of this right up to the present (BAUR, HEIMER and WIESELER, 2001). Health insurers also lack the right of negotiating differentiated, incentive-compatible modes of physician remuneration in the countries analyzed. In Germany, the association of social health insurers and contract physicians negotiate both the global medical budget and the nationwide fee schedule<sup>3</sup> (BUSSE, 2000). In the Netherlands, insurers have the choice between paying (primary care) physicians either fee-for-service or using capitation (i.e. a fixed amount per enlisted patient). Swiss health insurers must apply Tarmed (*Tarif médical*), a nationwide fee schedule. For hospital

2 Since more than 90 percent of the population is covered by the social insurance, the analysis performed below does not relate to the private health insurance sector.

3 Medical associations and health insurer associations distribute the budgeted amount proportionally according to billed activity between the primary care physicians of a given land.

services, German health insurers are subject to a nationwide fee schedule (*Pflegesatzverordnung*). Dutch insurers have some negotiating leeway, which is however constrained in several ways. In Switzerland, they are confronted with cantonal hospital associations. For pharmaceuticals, all three countries impose a national benefit list along with regulated prices.

Obviously, collective contracting and uniform payment schedules in Switzerland and Germany violate criteria (1), (2), and (5). However, criterion (2) is satisfied to a higher degree in the Netherlands due to more flexibility with regard to modes of payments.

### 3.3 *The Contractual Relationship between Consumers and Healthcare Providers*

In Germany and Switzerland, patients can choose their preferred physicians without any limitation. In the Netherlands, they are obliged to see a primary care physician first, which may not be in accordance with consumer preferences [criterion (1)].

Table 1 summarizes the rough overall assessment of the German, Dutch, and Swiss healthcare system prior to MC.

Table 1: Main Violations of Performance Criteria Prior to MC

	Consumers-Insurers	Insurers-Providers	Consumers-Providers
Germany	criteria (1) through (4)	criteria (1), (2), and (5)	Criterion (2)
Netherlands	criteria (1) through (4)	criteria (1) and (5)	Criterion (1)
Switzerland	criteria (1) through (4)	criteria (1), (2), and (5)	Criterion (2)

## 4. Assessing the Contribution of Managed Care to the Performance of the German, Dutch, and Swiss Healthcare Systems

This section is devoted to an assessment of the contribution MC makes to the performance of the German, Dutch, and Swiss healthcare systems. The scales used will be 2 points if MC fully contributes to the attainment of the criterion, 1 point if MC partially contributes, and 0 points if it does not contribute to the attainment of the criterion. Points will be simply added to obtain a total score. For each country, the assessment focuses on the MC element that is most prominent, e.g. Disease Management Programs in the case of Germany.

#### 4.1 *The Contribution of Disease Management Programs to the Performance of the German Healthcare System*

The Laws on Health Insurance of 2000 and 2004 paved the way for MC in Germany (BMJ, 2006). The governments' objective is to foster the integration of hitherto strictly separated ambulatory and hospital care.<sup>4</sup> In the MC setting, sickness funds<sup>5</sup> are allowed to selectively contract with physicians without the involvement of medical associations. Moreover, alternative forms of payment, including capitation can be implemented. The government promotes three different types of MC in particular, viz. Medical Care Centers (*Medizinische Versorgungszentren*), Independent Practice Associations (*Hausarztmodelle*), and Disease Management Programs (*Strukturierte Behandlungsprogramme*) (GREINER, 2005; BUSSE, 2004).

The effects of MC will be illustrated for the Disease Management Programs (DMPs). They have been developed to improve quality and cost-effectiveness of treatment received by the chronically ill. So far the government has defined DMPs for four chronic diseases, diabetes, breast cancer, asthma, and coronary heart disease. The sickness funds receive payments out of the risk adjustment scheme<sup>6</sup> for every individual enrolled in a DMP. It was hoped that connecting DMPs with the risk adjustment scheme would provide a stimulus for sickness funds to attract chronically ill people rather than eschewing them as high risks (BMG, 2007; WIECHMANN, 2003).

##### *Relationship between Consumers and Insurers*

Preferences of patients are not considered in the definition of DMPs. However, participation in DMPs is not mandatory but offers an additional choice. Therefore matching of consumer preferences is slightly improved. There is little reason to expect that the chronically ill will obtain their treatment at lower cost because the DMPs do not provide incentives to health insurers or providers for a better coordination of care. Therefore, static efficiency is not enhanced. The Government determines the design of DMPs, e.g. it decides (using lengthy procedures) which chronic diseases are included. This does not improve adaptive capacity of the system. However, sickness funds have incentives to support cost-reducing process innovation because the payment of the risk adjustment scheme is fixed,

4 Therefore, MC is known as integrated care (*integrierte Versorgung*) in Germany.

5 In Germany statutory sickness funds act as social health insurers.

6 The risk adjustment scheme is currently based on age, sex, gender, and the four DMPs officially implemented.

putting them at risk for exclusive cost of treatment. This serves to redress the balance between product and process innovation somewhat. These considerations may justify the entries in the second column of Table 2.

#### *Relationship between Insurers and Providers*

Thanks to selective contracting, sickness funds are supposed to become prudent purchasers on behalf of their clients. One would expect them to contract only with those physicians exhibiting a favorable cost-benefit ratio in treatment of chronic illness. However, physicians participating in DMPs lose their autonomy in medical decision-making. Beside many other regulations, they must follow treatment guidelines and document the whole treatment process electronically. On the whole, DMPs are unattractive to physicians, who continue to have the option of billing fee-for-service. Therefore the DMPs do little to increase the degree of competition between healthcare providers and hence to improve the matching of consumer preferences, technical efficiency, adaptive capacity, or the avoidance of monopolistic rents. At least, the DMP guidelines may induce providers to focus more on process innovation, motivating the entry + 1 for criterion (4) in the second column of Table 2.

#### *Relationship between Consumers and Physicians*

In general, German consumers have a free choice of physicians but are expected to visit the hospital recommended by their primary care physician. However, usually primary care physicians place no restrictions on the hospital choice (BMJ, 2006). In contrast, DMP-patients are constrained to select a participating physician. This limitation is hardly compensated; in particular, there is almost no reduction in the rate of contribution. But at least consumers are not forced to participate, justifying the zero entry for criterion (1) in the third column of Table 2. Likewise, attainment of criteria (2) through (5) remains unchanged.

In sum, the contribution of DMPs to the performance of the German healthcare system remains limited (3 out of 30 points, see the last column of Table 2). The main violations of the criteria prior to the introduction of MC (see the shaded fields in Table 2) could not be offset, except for the criteria (1) and (4) relating to the relationship between consumers and insurers. This limited contribution is mainly due to comprehensive and uniform regulation stifling any innovative action by sickness funds. For the same reason, selective contracting does not produce the expected benefits for consumers. Thus, DMPs fail their main objective, viz. improved coordination and quality of treatment provided to the chronically ill.

Table 2: Contribution to Performance of DMPs in Germany

Criteria \ Contractual relationship	Consumers-Insurers (1)	Insurers-Providers (2)	Consumers-Providers (3)	$\Sigma$ (max = 6 per item) (4)
(1) Matching of consumer preferences	1	0	0	1
(2) Technical efficiency	0	0	0	0
(3) Adaptive capacity	0	0	0	0
(4) Dynamic efficiency	1	1	0	2
(5) Income distribution according to performance	0	0	0	0
$\Sigma$ (max = 10 per item)	2	1	0	3

0 = No change; 2 = improvement; 1 = partial improvement.

Shaded fields = Main violations of performance criteria prior to MC noted in Table 1.

#### 4.2 *The Contribution of the Independent Practice Association to the Performance of the Dutch Healthcare System*

The Dutch government implemented radical market reforms with the Healthcare Act of 2006, the main objective being to increase efficiency by promoting competition in all three contractual relationships. The Act created a level playing field between private and social health insurers, who converted to for-profit status. By March 2006, every Dutch citizen had to explicitly choose an insurer and a policy. Competitive pressure is expected to make better use of already existing MC tools, viz. selective contracting and gatekeeping. In contrast to their German and Swiss counterparts, Dutch health insurers can selectively contract with physicians (and, to a far more limited extent, hospitals). Gatekeeping, requiring patients to first contract their primary care physician, was also established practice prior to the 2006 reform.

The effects of MC will be discussed focusing on the Independent Practice Association (IPA). The IPA is a network of primary care physicians who agree to act as gatekeepers. The main objective is to use medical care efficiently, e.g. by preventing unnecessary hospitalisations (DOUVEN, MOT and POMP 2007; EXTER, HERMANS, DOSLJAK and BUSSE, 2004).

*Relationship between Consumers and Insurers*

An IPA might endanger the matching of consumer preferences since patients have to visit a primary care physician first. However, health insurers are more likely to become prudent purchasers on behalf of their costumers, using their freedom to contract with physicians who match the preferences of their members. Competition for customers also forces health insurers to pass on savings to their clients and to adapt quickly to changes of the economic environment. These considerations justify the positive entries for criteria (1) through (3) in the first column of Table 3. In contrast, dynamic efficiency and income distribution according to performance are not attained to a higher degree because the mix between product and process innovation and provider competition for patients remains unchanged.

*Relationship between Insurers and Healthcare Providers*

Profit-maximizing health insurers seem to be at a first glance only interested in providers that keep down cost. However, they need to contract with providers who respect patient preferences to be successful since customers can switch insurers. Insurers' freedom to contract exposes physicians to an increased intensity of competition. Because physicians do not have the alternative of contracting outside the IPA (unlike in Germany and Switzerland), freedom to contract clearly serves to enhance technical efficiency. Moreover, beside cost competition there is still scope for quality competition, making physicians adapt quickly to changes of the economic environment [criterion (3)]. They are also more inclined to adopt cost-saving process innovation since many are paid a capitation, shifting the risk of high treatment cost on their shoulders. Finally, physicians with an unfavorable cost-benefit ratio have difficulty striking contracts with insurers. On the whole, these considerations motivate the entries of the second column in Table 3.

*Relationship between Consumers and Healthcare Providers*

Dutch patients do not have direct access to specialists. The restriction to see the gatekeeper first clearly is not compatible with a matching of consumer preferences. On the other hand, it does enhance technical efficiency by a more coordinated treatment process, e.g. by avoiding double visits. Since the guidelines are voluntary, physicians can increase their chances by adopting them, increasing the adaptive capacity of the system. However, the IPA does not contribute to an increased satisfaction of criteria (4) and (5).

**Table 3: Contribution to Performance of the IPA in the Netherlands**

Criteria \ Contractual relationship	Consumers-Insurers (1)	Insurers-Providers (2)	Consumers-Providers (3)	Σ (max = 6 per item) (4)
(1) Matching of consumer preferences	1	1	0	2
(2) Technical efficiency	2	2	2	6
(3) Adaptive capacity	2	1	1	4
(4) Dynamic efficiency	0	1	0	1
(5) Income distribution according to performance	0	2	0	2
Σ (max = 10 per item)	5	7	3	15

0 = No change; 2 = improvement; 1 = partial improvement.

Shaded fields = Main violations of performance criteria prior to MC noted in Table 1.

In all, the IPA of the Netherlands achieves 15 out of 30 points and therefore contributes considerably to a higher performance of the Dutch healthcare system. Especially the criteria violated prior to the introduction of MC are now satisfied to a higher degree (see the shaded fields in Table 3). These are criteria (1) through (3) in the relationship between consumers and insurers and criteria (1) and (5) in the relationship between insurers and providers. The highest score comes from the relationship between insurers and healthcare providers (7 out of 10 points). Among the five criteria, technical efficiency benefits most, mainly due to selective contracting (6 out of 6 points). Apparently, the changed institutional setting of the Dutch healthcare system causes the contribution of MC to performance to be higher than the institutional setting of Germany.

*4.3 The Contribution of Health Maintenance Organizations to the Performance of the Swiss Healthcare System*

The new Law on Social Health Insurance (*KVG*), effective 1996, established MC options, which had been introduced to the Swiss healthcare system since 1993. It enables health insurers to selectively contract with physicians (but not hospitals for the mandatory basic package). The MC alternatives offered include physician networks (similar to the afore-mentioned IPAs), Preferred Provider Organizations (PPOs), and Health Maintenance Organizations (HMOs).

In the following, focus will be on the HMOs when discussing the effects of MC on the performance of the Swiss healthcare system. The typical Swiss HMO takes the form of capitated local group practices, with physicians as salaried employees (LEHMANN and ZWEIFEL, 2004).

### *Relationship between Consumers and Health Insurers*

In Switzerland, HMOs constitute an alternative to conventional fee-for-service policies. They allow consumers to voluntarily limit their choice of physician in exchange for a lower insurance premium. However, government regulation prevents the premium reduction from exceeding 20 percent for the first five years of contract life. This is not sufficient for the average Swiss consumer since market experiments show that restrictions of the freedom of physician choice have to be compensated with one-third of average premium (ZWEIFEL, TELSER and VATERLAUS, 2006). The expression of individual preferences therefore is not quite perfect (see entry in the first column of Table 4). Swiss HMOs do provide healthcare services at up to 63 percent lower cost than conventional fee-for-service. About one-third of the amount is due to risk selection effects, while two-thirds can be attributed to changed incentives (LEHMAN and ZWEIFEL, 2004). This may justify the entry for criterion (2) in Table 4.

MC was also expected to foster product innovation in health insurance. However, prior to the introduction of MC, Swiss policy makers put a risk adjustment scheme in place. Such a scheme in fact punishes innovators, who at first inevitably attract the mobile young. However, insurers with an above-average share of young enrollees must pay into the scheme. In this way, insurers' adaptive capacity fails to be enhanced. Next, MC seems to have encouraged switching by consumers to a rate of around 10 percent by 2006 (BAG, 2007). In their fight for market share, insurers can be expected to improve the cost-benefit ratio of their products, thus contributing to dynamic efficiency. However, with uniform premiums also imposed on MC alternatives, many insured are free to consume medical services without any financial consequences, which is not compatible with a no-rent (net) income distribution. These considerations lead to the remaining entries in the first column of Table 4.

### *Relationship between Health Insurers and Healthcare Providers*

Insurers' obligation to contract with any willing provider is not compatible with a matching of consumer preferences, technical efficiency, and an income distribution devoid of rents. However, this "any-willing-provider" clause is not

applicable to MC options that permit insurers to select physicians with a favorable cost-benefit ratio. With only a small share of the population enrolled in MC alternatives (18 percent in 2006, one-third of which in HMOs; see BAG, 2007), physicians still can easily revert to conventional fee-for-service with its “any-willing-provider” clause. Therefore, MC only partially enhances attainment of criteria (1), (2), and (4) while not affecting adaptive capacity [criterion (3)] and rent-free income distribution [criterion (5)].

### *Relationship between Consumers and Healthcare Providers*

Consumers signing up for a HMO accept limited physician choice. However, they do this voluntarily. As long as MC is not the dominant type of healthcare provision, criterion (1) is not violated. The remaining criteria (2) through (5) are not affected, mainly because patients were able to choose their physicians freely prior to MC. Their choice of hospital is restricted to the canton of residence (except if covered by supplementary insurance), and MC has not changed this.

In all, Swiss HMOs contribute to a higher performance of the Swiss healthcare system (6 out of 30 points, see Table 4 below). As for the Netherlands, main improvements are found especially for previously violated criteria (see the shaded fields in Table 4). These are criteria (1), (2), and (4) for the relationship between consumers and insurers and criteria (1), (2), and (5) for the relationship between

**Table 4: Contribution to Performance of HMOs in Switzerland**

Criteria	Contractual relationship	Consumers-Insurers (1)	Insurers-Providers (2)	Consumers-Providers (3)	$\Sigma$ (max = 6 per item) (4)
(1) Matching of consumer preferences		1	1	0	2
(2) Technical efficiency		1	1	0	2
(3) Adaptive capacity		0	0	0	0
(4) Dynamic efficiency		1	1	0	1
(5) Income distribution according to performance		0	0	0	1
$\Sigma$ (max = 10 per item)		3	3	0	6

0 = No change; 2 = improvement; 1 = partial improvement.

Shaded fields = Main violations of performance criteria prior to MC noted in Table 1.

insurers and physicians. Matching of consumer preferences and technical efficiency [criteria (1) and (2)] benefit most of the introduction of MC. However, government regulation such as the “any-willing-provider” clause in conventional medicine and for hospitals, prevent MC from making a more substantial contribution to the Swiss healthcare system.

## 5. Conclusion

This article proposes an innovative approach to analyze the impact of MC on healthcare systems. Rather than just analyzing the effects of MC on HCE, it considers economic criteria, viz. matching of consumer preferences, adaptive capacity, dynamic efficiency, and income distribution according to performance, which determine the performance of a healthcare system.

The contribution of MC to the performance of the German healthcare system remains limited (3 out of 30 points). The DMPs, designed to improve the quality and cost-effectiveness of treatments for chronically ill people, cannot fulfill their expectations. Government regulation such as the uniform design of the DMPs, the bureaucratic requirements for physicians, and the loss of free physician choice without adequate compensation, prevent DMPs from making a substantial contribution to the German healthcare system.

In the Netherlands, MC contributes considerably to a higher performance of the Dutch healthcare system (15 out of 30 points). MC together with the Healthcare Act of 2006 liberalized the relationship between health insurers and healthcare service providers, making health insurers prudent purchasers of healthcare services on behalf of their clients. Therefore the main improvements are found for the relationship between health insurers and healthcare service providers (7 out of 10 points) and for the second criterion, technical efficiency (6 out of 6 points).

In Switzerland, MC contributes to a higher performance of the healthcare system, but to a lower degree than in the Netherlands (6 out of 30 points). Improvements are found for the relationships between consumers and health insurers, and health insurers and healthcare service providers (both 3 out of 10 points). Among the five criteria, matching of consumer preferences [criterion (1)] and technical efficiency [criterion (2)] receive the highest score (2 out of 6). However, regulations such as the limit on the premium reduction for MC plans, the uniform benefit package, or the ‘any-willing-provider’ clause governing the relationship between health insurer and healthcare provider, prevent MC from making a more substantial contribution to the Swiss healthcare system.

Finally, the findings suggest that MC may depend on the institutional setting. The more freedom to contract between consumers, health insurers, and healthcare service providers, the greater the contribution of MC to the healthcare system. However, further research is necessary to test this hypothesis.

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## SUMMARY

This paper applies the five standard economic performance criteria to gauge the contribution of Managed Care (MC) to the performance of three healthcare systems, viz. Germany, the Netherlands, and Switzerland. The criteria are (1) matching of consumer preferences, (2) technical efficiency, (3) adaptive capacity, (4) dynamic efficiency, and (5) a rent-free distribution of income that provides incentives for producers to attain criteria (1) through (4). Being insurance-based, the German, Dutch, and Swiss healthcare systems comprise three contractual relationships that can be judged in the light of these criteria. The maximum contribution of MC to the performance of the healthcare system is found for the Netherlands followed by Switzerland. The Independent Practice Associations representing MC in the Netherlands, and the Health Maintenance Organizations representing MC in Switzerland score 15 respectively 6 out of 30 points. By way of contrast, the contribution of the Disease Management Programs to the performance of the German healthcare system remains limited (3 out of 30 points).