

The impact of the fee-for-service reimbursement system on the utilisation of health services

Part II. Comparison of utilisation patterns in medical aid schemes and a local health maintenance organisation

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Summary

This study reports the results of a retrospective analysis of the use of a range of inpatient and outpatient services by the members of a health maintenance organisation (HMO), in which most providers are salaried, and by the members of three medical aid schemes in which providers are paid on a fee-for-service basis. The analysis shows significantly higher utilisation of all services by medical aid scheme members than by HMO members. Medical aid scheme patients saw all doctors 33% more often than their HMO counterparts. For general practitioners and specialists specifically, the differences were 36% and 18% respectively. Doctors looking after medical aid scheme beneficiaries ordered 133% more radiological procedures and 14% more pathological investigations than did those caring for HMO beneficiaries. Hospital utilisation was also higher for medical aid patients. While quality of care is difficult to measure, there are no reasons to suspect that significant differences in quality exist between the two systems described here.

One factor that may contribute to the higher utilisation rates in the medical aid group is the higher average income of this group. However, these results also demonstrate that providers working in the fee-for-service system are likely to increase the supply of services compared with providers who are salaried. The different methods of reimbursement are compounded by the different practice settings in which these groups of doctors work; the HMO generates an awareness of costs that is absent from the independent practice, 'third-party payment' system of the medical aid schemes.

These differences in utilisation represent millions of rand in unnecessary expenditure that results from the current organisation of the private health sector. In view of the current shortage of resources for health care, this is unjustifiable. The fee-for-service system, and other structural aspects of the private health sector, require urgent attention.

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The majority of health care providers in the private sector in South Africa are paid on a fee-for-service basis, and they usually work as independent practitioners caring for patients covered by some form of medical aid scheme. While the majority of providers in the public sector are salaried, direct comparisons between these two systems are problematic for several reasons. There has therefore been limited opportunity for study of the effects of these different methods of payment in a local context.

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A limited number of private sector schemes pay providers on a salary basis, and in these cases comparison with the fee-for-service system is feasible. In this study, we compare a private sector health maintenance organisation (HMO), in which providers are salaried, with medical schemes in which the fee-for-service system operates. Our specific aim was to test the hypothesis that the fee-for-service system generates an incentive for providers to increase the supply of services, and that such systems would therefore demonstrate higher utilisation of services.

Methods

We conducted a retrospective analysis of the per capita rate of utilisation of a range of inpatient and outpatient services over a period of 1 year, for two groups of white beneficiaries belonging to two different types of medical scheme. The schemes were selected for comparability in age, sex, race and income distribution, so that a similar profile of medical need and access to health services could be expected.

The first group were beneficiaries of a medical benefit scheme situated in the Transvaal, which functions much like an HMO. In this scheme, general practitioners and several specialists are employed full-time on a salary basis, while other specialists are paid a fixed salary for sessional work. There is also a small component of capitation fee and bonus payment in the overall reimbursement package of most of the medical employees. Hospital care is provided by a nearby provincial hospital, which bills the HMO for all services and accommodation expenses. The members contribute monthly premiums, and in return receive a full range of medical benefits. A small proportion of members are retired and live in other parts of the country. These members are allowed to use private fee-for-service practitioners who are reimbursed by the HMO.

Data were obtained for 44 324 white beneficiaries for the 12-month period January - December 1988 from management statistics of the various services provided (general practitioner, specialist, laboratory, X-ray), or of payments made to outside providers such as the hospitals.

The second group consisted of the beneficiaries of three regular medical aid schemes, in which virtually all doctors delivering services are independent practitioners paid on a fee-for-service basis. The medical aid scheme data were obtained for 104 735 white beneficiaries of three separate medical aid schemes, for the 4-month period January - April 1988, and extrapolated to 1 year. Data were extracted from computer records of all claims submitted to the medical aid schemes.

Results

Consultation services

All rooms-based, as well as home-based, consultations by GPs for the medical aid scheme patients were compared with

total GP consultations in the HMO group. The latter group included a range of specialised clinic-based services provided by GPs employed by the scheme. Examples here include hypertension, obesity, antenatal and sports injury clinics.

In the case of specialists, we again measured all rooms-based consultations in the medical aid schemes, and the total of specialist rooms-based and clinic-based consultations in the HMO, since certain of the clinics, such as chest, cancer and colposcopy clinics, are run by specialists. All hospital visits by medical aid scheme specialists were omitted since these are not recorded as additional consultations by the HMO but are instead treated as an integral part of the doctors' job description. Since the HMO employs a limited range of specialists, and records separately those services provided by outside specialists, we measured only the services of the medical aid scheme specialists in categories corresponding to those employed by the HMO.

These comparisons show substantial differences in utilisation of doctors' services between the two schemes. As is shown in Table I, the medical aid scheme patients visited GPs 36% and specialists 18% more frequently than did members of the HMO. These differences amount to an additional 100 consultations per 100 persons per year in the case of GPs, and an additional 10 consultations per 100 persons per year for specialists.

Because there may be a different division of work between GPs and specialists in the different schemes, the total number of doctor consultations is also calculated. Medical aid scheme patients saw all doctors 33% more often than their HMO counterparts. Per 100 persons, this amounts to 110 more visits per year.

Another useful statistic is to be found in a comparison of the ratio of GP visits to specialist visits within each scheme. This

is a reflection of the rate at which patients are referred to specialists. In this case, as shown in Table I, the rates are very similar, with a slightly lower rate in the case of the medical aid schemes.

Investigations

The results for investigations again reflect higher utilisation by beneficiaries of the medical aid schemes compared with those of the HMO. Doctors looking after medical aid scheme beneficiaries ordered 133% more radiological procedures than did those caring for HMO beneficiaries. In the case of laboratory tests and other pathological investigations, the difference was 14% (Table II).

Hospital utilisation

Finally we compared hospital utilisation in the two schemes by measuring rates of total admissions, the number of hospital days per capita per year, and the average length of stay per admission. Hospital utilisation was greater for medical aid scheme patients than for HMO patients on all three measures used, although (as shown in Table III) the differences in hospital admission rates and average length of stay are not as large as the other results we have described.

Discussion

Utilisation rates in all categories are higher for the medical aid schemes than for the HMO that was investigated here. Before

TABLE I. UTILISATION OF CONSULTATIONS

	HMO rate (/person/yr)	Medical aids rate (/person/yr)	Relative rate (RMA/RHMO)	Difference (visits/100 people/yr)
GPs	2,77	3,77	1,36	100
Specialists	0,537	0,634	1,18	9,7
All doctors	3,31	4,41	1,33	110
GP/specialist ratio	5,16	5,96		

RMA = rate of the medical aids; RHMO = rate of HMO.

TABLE II. UTILISATION OF INVESTIGATIONS

	HMO rate (/person/yr)	Medical aids rate (/person/yr)	Relative rate (RMA/RHMO)	Excess investigations (/100 people/yr)
Radiology	0,24	0,57	2,33	33
Pathology	2,65	3,03	1,14	38

TABLE III. HOSPITAL UTILISATION

	HMO rate (/person/yr)	Medical aids rate (/person/yr)	Relative rate (RMA/RHMO)	Difference (/100 people/yr)
Admissions	0,24	0,26	1,09	2
Hospital days	0,63	0,74	1,17	11
Average length of stay	2,6 days	2,8 days	1,07	

seeking explanations of these differences, it is necessary to establish the comparability of these two sets of data.

The first point to note is that the data for the medical aid schemes were collected for a period of 4 months and extrapolated to 1 year. This extrapolation might be expected to underestimate the utilisation figures for the medical aid schemes, since it would exclude the winter months during which utilisation might be somewhat higher. However, we found no significant differences in the utilisation of several of the services examined when we compared the figures for the same 4-month period and for the whole year in the HMO statistics. We therefore concluded that the extrapolation would not significantly bias the results.

Secondly, if the two groups differed in their age structures, this could result in different utilisation patterns, since the very young and the elderly are known to make greater use of health services than the intermediate age groups. Unfortunately, the data only allowed us to examine the ages of members, and not of their dependants. Nevertheless, we believe that the evidence presented in Table IV confirms the similarity in the age structures of the medical aid and the HMO beneficiaries.

TABLE IV. COMPARISON OF MEDICAL AID AND HMO MEMBERS BY AGE

	Medical aid	HMO
Median age of members (yrs)	40	37
Members over 60 yrs (%)	14,6	14,1
Dependants (% of total beneficiaries)	61,3	62,8

The two groups were also compared for income distribution, since the association between higher average incomes and some degree of increased use of services is well described. The median income of the medical aid scheme members was in the category R3000+, while for the HMO group it was in the category R1500 - 2000. While these differences could account for some of the higher utilisation described for the medical aid beneficiaries, two qualifications must be noted. Firstly, to the extent that higher average income does lead to greater utilisation, this is because patients are supposedly more educated about their medical needs and how to access the care they need. On this basis, greater utilisation should be reflected in higher rates of first contacts with health services and in proportionally higher use of referral services such as investigations and hospitalisation. It is possible that some proportion of the 33% greater use of doctors' services by medical aid patients could be accounted for by increased numbers of first visits to doctors. This increase might also explain the increase in investigations and in hospitalisation, since the increased first visits may lead to higher rates of use of these other services. However, this would not explain the 133% greater use of radiological services, or the 7% increase in average length of stay in hospital. At a minimum, therefore, there is both increased patient- and supplier-induced demand for services in the medical aid scheme compared with the HMO patients.

Secondly, differences in utilisation are usually associated with substantial differences in income distribution. The income differences described here, while significant, are those between middle and high income earners, and this should not produce as significant a difference in utilisation of services.

It could also be argued that patients in the HMO are receiving inferior care, and that the greater utilisation in the medical aid schemes reflects a higher standard of vigilance and caution on the part of the doctors, and of treatment in general.

The measurement of subtle differences in standards of care between different systems is complex; to the extent that this has been undertaken in the USA, no significant differences between HMOs and regular private sector care have been demonstrated.¹ However, we need to recognise that medical care in the USA occurs in an environment in which the fear of litigation ensures the maintenance of high standards.

Without being able to prove this scientifically, then, the authors' personal experience of the HMO doctors, health professionals, facilities and services led us to believe that the standard of care received by patients in the HMO described here is not different from that received in the regular private sector schemes. One objective indicator that supports this impression is the higher rate of specialist referral among HMO patients.

The crucial differences between the HMO and the medical aid schemes, which, in our view, explain the differences in utilisation rates, are the method of reimbursement and the practice setting.

In the first place, our findings bear out the extensive evidence cited in another article in this issue of the *SAMJ* that fee-for-service payment generates a 'perverse incentive' to over-investigate and to overtreat, thus producing significant overutilisation of health care services and resources.²

Secondly, the practice setting of the HMO we have examined here differs significantly from that of the fee-for-service private sector. The HMO has an inbuilt cost-containment incentive owing to the fact that, unlike third-party payment by the medical aid schemes, the financing and delivery of services are the responsibility of the same organisation. This means that a global budget for all services is fixed in advance, that both managers and doctors are conscious of costs, and that various cost-containing mechanisms are developed and implemented. Examples here include limited drug lists, therapeutic protocols and various mechanisms for implementing and reviewing clinical practice policies.

This recognition of the importance of practice setting in explaining these utilisation trends means that we cannot isolate the fee-for-service payment mechanism as solely responsible for the excess utilisation we have described in the medical aid schemes. We take these results, therefore, as being evidence of the cost inefficiency and wastefulness of the fee-for-service private health sector *in toto*, and not of the fee-for-service payment mechanism in isolation.

While our general findings are in line with the USA experience, the patterns we have found differ somewhat from those in that country. There, the major reduction in utilisation shown by HMOs has been in hospital services, while ambulatory services have shown little decrease or have even increased.³⁻⁶ One likely reason for the less than expected reduction in hospital utilisation in the study is the lack of sufficient facilities for dealing with day cases that could be used to replace hospital admissions for surgical and other procedures.

The 14% increase in pathology services for medical aid scheme patients is explicable on the basis of the 33% increase in exposure to doctors *per se*. However, the 133% increase in radiological investigations for medical aid scheme patients demonstrates an excessive use of these services well beyond just the increased exposure to doctors. We have found no precedent for this in the literature.

The excess utilisation we have described represents, at a national level, an annual expenditure in the region of hundreds of millions of rand. For GP services alone, a reduction in utilisation by all medical aid scheme beneficiaries in the country to the level of use by the HMO beneficiaries would generate savings in the order of R62 million for 1 year. This figure is calculated on the basis of a cost per GP visit of R15 (the tariff gazetted in December 1987), and on a figure of

4 120 372 medical aid scheme beneficiaries.⁷ In the case of investigations, the potential savings amount to over R81 million and over R18 million for radiology and pathology respectively. Figures used here are an average cost of R60,74 per radiological procedure, and R11,50 per pathological investigation. These figures are derived from the average costs of the three medical aid schemes analysed here.

Combining the potential savings on GP services and investigations alone, we reach a figure of R161 million. When we consider that total benefit expenditure by medical aid scheme beneficiaries in 1988 was in the region of R2 billion,⁸ the magnitude of savings to be attained through this degree of reduction in the level of utilisation is highly significant.

In a country in which millions have hardly any access to health care, and in which health services for those who do have access are in a state of decline, this is unjustifiable expenditure that represents a gross misallocation of resources.

We would argue, in conclusion, that the evidence we have presented here is cause of serious concern about the structure and organisation of the fee-for-service private health sector in South Africa. We have shown that the utilisation of some services in this sector is substantially higher than in an HMO private sector alternative. While we cannot prove that the quality of care is equal, we believe that it is, and would argue that given the potential for cost containment, the onus is on private fee-for-service providers to prove that the lower utili-

sation rates result in inferior care, if they believe this to be the case.

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