

# A comparison of prescribing patterns and consequent costs at Alexandra Health Centre and in the private fee-for-service medical aid sector

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## Summary

About 25% of private health expenditure in South Africa goes on medicines. This compares with about 6% in the public sector, and about 12% in the UK. A major factor contributing to these differences is the prescribing practices of physicians, and generic prescribing in particular. This is a preliminary study to assess the savings that might be possible by altering prescribing practices.

A sample of 528 scripts from Alexandra Health Centre (AHC) was analysed to calculate the average number of items per script and the average cost per script. In order to make the costs comparable to expenditure on medicines in the private fee-for-service sector, the scripts from AHC were costed as if they had been dispensed by private pharmacies — including dispensing fees, packaging costs and general sales tax. Since AHC clinicians generally prescribe medicines in the prepacked quantities, nothing is added to the costs for 'broken bulk'. However, as is the practice at AHC, cheaper therapeutic equivalents were substituted wherever possible. The number of items per script in the fee-for-service sector was 17% higher than at AHC, and the cost per item at AHC was one-quarter that in the private sector. Various explanations are offered including the possible incomparability of the case mix in the two sectors and the relative quality of care. However, the difference is so large that it is concluded that generic substitution, prepackaging and the use of treatment protocols by the clinicians are the major contributing factors.

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Among the issues being explored both in South Africa and abroad with respect to cost containment in health care are ways of achieving a more rational and cost-effective approach to the prescribing, purchasing and dispensing of medicines. In 1988 expenditure on medicines constituted about 25% of all medical aid expenditure<sup>1</sup> and about 30% of all private sector expenditure.<sup>2</sup> In contrast, expenditure on medicines in the public sector constituted less than 10% of total public sector expenditure on health.<sup>3,5</sup> Moreover, of total drug expenditure in South Africa in 1989, approximately 75% was spent in the private sector to purchase only 25% of the total volume of medicines consumed.<sup>5</sup> Clearly savings on this aspect of health care can have an important impact on the overall cost-containment effort.

In the private fee-for-service medical aid sector, there are no incentives or pressures on doctors to prescribe cost-effectively.<sup>6</sup> The doctor does not have to bear any of the drug costs himself and believes that the patient who is a medical aid

member will not have to foot the bill either. Doctors frequently do not even know the prices of the medicines they prescribe. They are also unaware of the routine pack sizes in which drugs are sold, and this often results in extra charges when the pharmacist has to break a pack of which only part is used.

The lack of knowledge and absence of incentives to prescribe cost-effectively is compounded by the enormous pressures on doctors to prescribe particular brand-name drugs. This marketing takes the form of advertising, personal lobbying by drug reps, sponsorships, presents, free lunches and travel, and other incentives in cash or kind. As a result few doctors prescribe generically, and the pharmacist is not allowed to substitute a therapeutic equivalent when the doctor has prescribed a brand-name drug.

In the case of dispensing doctors, a substantial component of the doctor's income derives from profit on the sale of medicines. There is therefore the further financial incentive to prescribe and dispense more expensive drugs rather than the cheapest therapeutic equivalent.

This study is a preliminary attempt to assess the savings that could be achieved by altering some of these prescribing practices. The study compares a sample of scripts from the Alexandra Health Centre and University Clinic (AHC) with the prescribing patterns and costs in the fee-for-service medical aid sector.

The AHC was chosen because, in contrast to the fee-for-service sector, it has attempted to implement a series of drug policies aimed at improving the cost-effectiveness of prescribing and dispensing. These policies may be divided into two categories: those concerned with prescribing and dispensing; and others related to procurement, supplies and storage. The former include standardised treatment protocols to which all clinicians are orientated when starting to work in AHC, restricted medicine lists and generic substitution. The procurement policies include bulk buying on a tender basis, prepacking medicines in predetermined quantities, and use of less skilled personnel for jobs that do not require a pharmacist's expertise. However, for the purposes of comparison with the private sector, the practices that fall into this second category have been disregarded and the AHC scripts were costed at retail pharmacy rates in order to compare the consequences of the different prescribing patterns as well as the effect of generic substitution.

## Method

Data on prescribing patterns and costs in the fee-for-service sector were obtained from claims processed by the Transvaal Pharmaceutical Society (TPS) for a large number of medical aid schemes in 1988. Prescriptions were for ambulatory care only, i.e. medicines provided to patients while in hospital are excluded.

At AHC, on a weekday chosen randomly in June 1988, all prescriptions in a 24-hour period were recorded and analysed. The information recorded with each prescription included the

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sex of the patient; whether treated in the adult, paediatric, casualty or maternity departments; the number of items prescribed; and the name of each drug prescribed with the dose and total quantity. From this the average number of items per script could be calculated for each category of patient.

In order to calculate the equivalent costs of these scripts in the private sector, each item prescribed was priced using a combination of the Ethical Drugs Retail Price List and the *South African Medicines Formulary*.<sup>7</sup> Where a cheaper drug with identical active ingredients and available in identical doses was found this was substituted. A dispensing fee of R1,30 and a packaging fee of 15 c was added to each item. No 'broken bulk' charge has been added because doctors at AHC prescribe according to the prepacked quantities. General Sales Tax (GST) at 12% (1988 level) was added to all costs.

**Results**

An analysis of the scripts by patient category indicated that certain categories of patients had fewer items per script and/or lower cost per item than the AHC average. This was the case for casualty patients, women attending for antenatal care and children attending the well-baby clinics. Because the data for the medical aid scheme patients could not be disaggregated into the same categories, and because it is unlikely that the proportion of these categories of patients is the same for the medical aid scheme claimants as at AHC, all these patients were excluded from the AHC scripts for the purposes of making the comparison. However, they could not be excluded from the medical aid scripts, which may lead to a slight underestimate of the difference between the two groups.

Table I shows the results from the AHC study.

Among adult patients at AHC, men receive slightly more medicines than women. There is no significant difference between adults and children in the number of items prescribed, and no difference between male and female children. Although the cost per item for children is different from that for adults, children have not been excluded because the proportions of children seen in the curative services at AHC and of children in the medical scheme data are likely to be similar. However, if children are excluded from the AHC data the cost per item for adults only increases to R8,29.

Table II indicates the findings from the TPS data for the average of more than 50 medical aid schemes and also compares these with schemes with an almost entirely black membership.

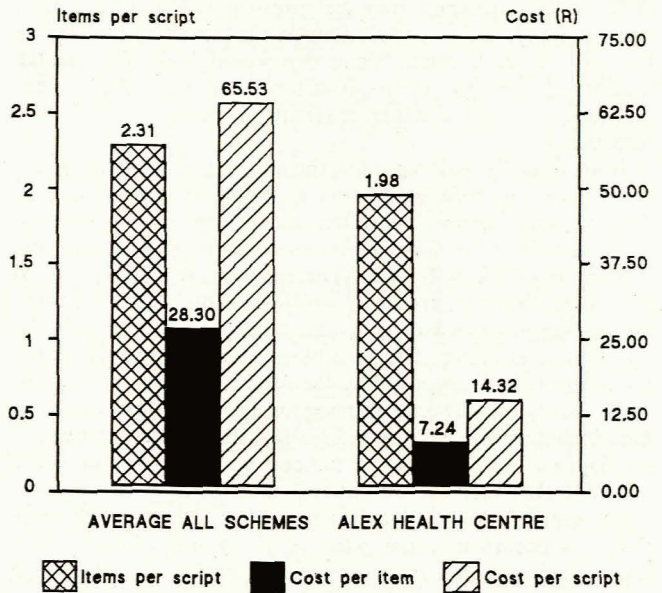
Fig. 1 shows the comparison between the AHC and the medical aid scheme members. Fee-for-service patients receive on average 17% more items on each script than AHC patients (2,31 v. 1,98 items per script;  $P < 0,001$ ). The cost per item dispensed is 4 times higher in the fee-for-service sector than at AHC and the cost per script is 4,6 times higher.

**Discussion**

Aside from the prescribing and generic substitution policies

**TABLE II. PRESCRIBING PATTERNS AND COSTS BASED ON SCRIPTS CLAIMED FROM MEDICAL AIDS AND FROM THE AHC STUDY**

	Average items/script	Average cost/item	Average cost/script
Average all schemes (> 50)	2,31	R28,30	R65,53
Predominantly black schemes (2)	2,42	R22,96	R55,79



**Fig. 1. Prescribing patterns and costs — medical aid schemes v. AHC, 1988.**

described above, there are a number of other possible explanations for these differences, which could not be controlled for in this preliminary study.

The higher number of items per script may be due to one or more of the following factors. Firstly, if the private sector treated a different case-mix of patients to AHC — older patients, and more chronic illness and multiple disorders — this could contribute to the difference observed.

Secondly, it might be argued that the quality of care is different. More specifically, it is possible that patients at AHC are undertreated. This would be difficult to assess. The main evidence against this proposition is the standardised treatment protocols established by specialist clinicians according to accepted medical standards. AHC is also used as a training facility for University of the Witwatersrand medical students and, as such, obvious problems with quality of treatment

**TABLE I. PRESCRIBING PATTERNS AND COSTS FROM AHC STUDY BY CATEGORY OF PATIENT AND GENDER**

	No. of patients	Average items/script (95% CI)	Average cost/item	Average cost/script
Male adults	68	2,21 (1,98 - 2,43)	R9,36	R16,87
Female adults	101	1,8 (1,65 - 1,95)	R7,54	R14,57
Children	116	2,0 (1,87 - 2,13)	R5,70	R11,40
All patients	285	1,98 (1,88 - 2,08)	R7,24	R14,32

CI = confidence interval.



would be brought to the attention of the senior AHC and medical school staff concerned.

A third factor contributing to the higher number of items per script in the private sector may be that private practitioners are more thorough in screening patients who present with one problem for other problems, leading to a higher detection rate of multiple disorders, especially chronic, 'sub-clinical' disease.

Given all the above factors that might push up the number of items per script in the private sector, it is perhaps surprising that it was only 17% higher than at AHC — considerably less than the difference that might have been expected. One reason for this may be that a substantial proportion of medical aid consultations are repeat visits (which are infrequent in the AHC setting). Doctors may feel pressured to prescribe *something* to validate the consultation in the patients' eyes and so prescribe a single item. While this would lower the average number of items per script, it raises the number of items per patient per year. Further research is needed to test this hypothesis.

It is primarily with regard to the cost per item in the private sector that the difference between the latter and AHC is so dramatic and suggests enormous waste of resources. Here too there may be other factors besides prescribing practices that contribute to the difference. For example, the private sector may face a different profile of morbidity from AHC, requiring on average more expensive drugs, or the drugs used at AHC may be less effective. This is unlikely, since all medicines used or substituted are approved by the Medicines Control Council.

However, even if some of the above factors did contribute to higher costs in the medical aid scripts, they could not account for the fourfold difference in the cost per item. It is therefore probable that medical aid patients are treated with unnecessarily sophisticated and expensive drugs. There is evidence that this occurs in other parts of the world where neither doctors nor patients are aware of the costs of the drugs and where there is no incentive for doctors to prescribe cost-effectively.<sup>8-10</sup>

It is concluded that the major source of cost saving per item derives from the rational prescribing policies implemented at AHC, utilising treatment protocols, restricted medicine lists and generic substitution and prescribing according to the pre-determined quantities.

The medical profession in South Africa has previously opposed such policies on the grounds that they limit doctors' autonomy and clinical freedom, and by implication, compromise patient care.<sup>11</sup> It is worth noting that experience from around the world, as well as locally in the public sector, where such policies have long been implemented, shows that the use of medicine lists, generic prescribing and treatment protocols need not infringe on professional autonomy and can in fact enhance clinical practice.<sup>12-14</sup>

When implemented on a national scale, such policies enhance the savings permitted through bulk buying on tender. The relatively low expenditure on drugs in the UK (12%) and the public sector in South Africa (5 - 10%) are but two examples of the financial benefits of such policies.<sup>15,4,3</sup>

## Conclusion

The possibility of achieving reductions of 75% in the primary care drug bill if these policies were implemented in the private health sector justifies urgent, more detailed research standardising for quality of care and case mix. In addition, the number of scripts and items per capita per year should be examined in order to assess the annual per capita savings.

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