



Experience of a medicines reference-pricing model

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Objective. To measure the impact of a medicines reference-pricing programme covering items for which appropriate generic equivalents are available.

Design. The list of covered items was continuously monitored and updated by clinicians and pharmacists employed by Medscheme, and was published as the Medscheme Price List (MPL). Prospective and retrospective analyses of prices of medicines covered by the MPL were carried out and the effect of the programme on expenditure by medical schemes was measured.

Results. The programme had an immediate effect on the rate of medicines inflation after implementation as a result of

switching from original or branded products to generic medicines or switching from higher-priced to lower-priced generic equivalents.

Conclusion. Over the past few years Managed Care has focused on strategies aimed at reducing utilisation of health care services and/or benefits by members of medical schemes. These strategies have largely been directed at members and health care providers, with little attention paid to suppliers (e.g. the pharmaceutical industry). This study has shown that a supplier-directed strategy has merit and is capable of substantially reducing expenditure on medicines.

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While post-apartheid South Africa has enjoyed single-digit inflation for most of the past 8 years, so-called medical inflation in the private sector has generally been around 10% each year. This is shown for the period 2000 - 2002 in Fig. 1.

The increase in medical inflation over consumer price index (CPI) has been evident in most benefit categories, but mainly in

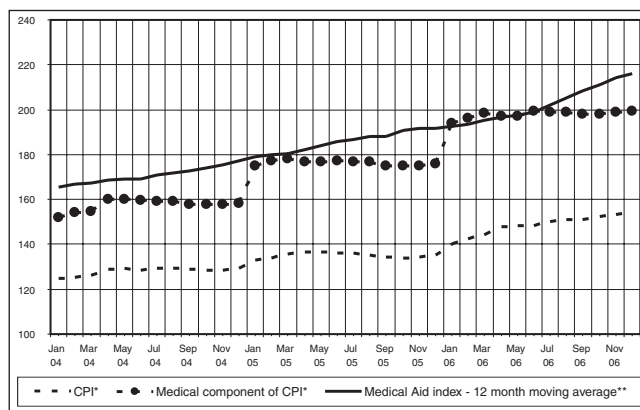


Fig. 1. Measures and magnitude of medical inflation v. consumer price index (CPI) 2000 - 2002.

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the areas of medicines, hospitalisation and specialist care. The inflation statistics may be expressed as a figure for all categories or for specific categories, e.g. in the case of medicines, as the administrator's overall annual increase in expenditure on medicines, as the average annual increase at member level, as the increase in cost of a standardised 'basket' of drugs, or as the cost increase of the drugs most abundantly or commonly used each year. These different measures of medicines inflation as measured in the Medscheme environment (and therefore not necessarily representative of the industry) are summarised in Table I (data from Medscheme Data Warehouse).

This phenomenon of medical inflation is not peculiar to South Africa, and as has happened in other countries, national, regional and local strategies have been devised to contain the cost increases. Kanavos¹ has categorised these strategies as being targeted at manufacturers (supply-side measures), physicians and pharmacies (proxy demand-side measures) and patients (demand-side measures). Table II provides detail of the possible components at each level, and for followers of the developments in managed care in this country since the early-to-mid 1990s, it will be obvious that while demand-side and proxy demand-side control measures have been in place, little has been done in terms of targeting manufacturers.

This gap in supply-side management was addressed by Medscheme's Medicines Management and Interpharm teams in 2001, and was followed by the introduction of a reference-pricing model in mid-2002. The model, known as the Medscheme Price List (MPL), recognises that the South African Medicines Control Council takes responsibility for maintenance of generic medicines standards, and given that registered generic medicines are regarded as bio-equivalent to the original

**Table I. Alternatives for reporting on medicines inflation**

Inflation measure	Year-on-year change (%)		Source	Limitations
	2000 - 2001	2001 - 2002		
Administrator's total annual expenditure	-12.4	6.5	Medscheme Data Warehouse	This figure will change according to changes in membership numbers
Annual expenditure per member per month	11.5	12.9	Medscheme Data Warehouse	Most reliable, but influenced by benefit design changes and by members changing to lower options between years
Cost of common basket of medicines	9.6	5.7	Medscheme Data Warehouse	Theoretical exercise that does not track what is actually used, instead tracks what happened to last year's basket
Cost of most commonly used medicines	14.6	9.7	Medscheme Data Warehouse	Tracks cost of medicines actually used but does not take volumes into account; tracks each year's top basket

Table II. Strategies to control medicine prices and costs¹

Category	Strategies
Supply-side management	Free pricing, direct price controls, cost-plus, cost pricing, average pricing, internal price comparisons, profit control, reference pricing, positive or negative lists
Proxy demand management	Budgets for doctors, generic policies, practice guidelines, monitoring and authorising behaviour, disease management programmes
Demand management	Co-payments, health promotion programmes, patient-initiated therapy

product, Medscheme introduced a programme whereby trustees of medical schemes could elect to pay up to a specified price per group of 'genericised' medicines, provided that at least two equivalents were freely available below that price, unless only one generic equivalent for the brand existed or the price differential between two available generics was too large. The system allows some interchanges, e.g. between tablets and capsules, and between salt forms of ingredients. Members would always be free to purchase more expensive generic, original or branded products, but such purchases would be subject to a co-payment. After a period of member and provider education (doctors and pharmacies) for schemes that had signed up, the programme 'went live' on 1 May 2002. The following review and analysis represents the results of the programme after 1 year.

Subjects and methods

The relevant time frames for the study were January to end-April 2002 (T1), May to December 2002 (T2) and May 2002

until end-April 2003 (T3). The first period did not extend further back than January 2002 to minimise the confounding effect of new-year price increases on measurement of pre-MPL medicines inflation in 2002. The second time period (May-December 2002) was necessary because of the two-phased enrolment of medical schemes onto the MPL programme (because certain schemes chose an initial wait-and-see approach before signing up). The third time period covered the 12-month period of major interest, i.e. 1 year from the time of MPL implementation (MPLI).

The Medicines Management Team (MMT) identified the range of products eligible for inclusion in the programme: All medicines for which generic equivalents existed were considered for inclusion in the MPL, with the exception of products listed by the Medicines Control Council as non-substitutable. The primary principle applied in grouping products was 'generic similarity', as opposed to 'generic equivalence'. This principle requires the following.

1. That all products in the same group be exactly the same in terms of all active ingredients.



2. That all products in the same group have the same strength and amount of active ingredients, with permissible variation in terms of: (i) salts/esters of the active ingredients; (ii) inactive ingredients; (iii) the formulation of the product (i.e. capsules versus tablets); and (iv) the dosage regimen (i.e. twice a day versus once a day).

Sustained- or modified-release formulations were grouped separately from instantaneous formulations only if clinical evidence supported a significantly improved or different clinical outcome.

The initial MPL list at the time of MPLI included 2 165 product lines, which was increased to 2 273 during T3 as new products entered the market.

Medicines inflation in 2002 was measured for the initial basket of products and divided into two time periods covering T1 and T2 to measure the impact of MPL on the pricing of medicines. The average cost per unit of drug was measured for both MPL-eligible and 'non-eligible' drugs. The 'non-eligible' group included all medicines other than the 2 165 ultimately covered by the MPL. Price movement of each product was also calculated based on prices at MPLI versus those at the end of T3. In order to adjust for both new products launched and product discontinuations, only those product lines listed on the MPL throughout the T3 period (1 530 product lines), were taken into consideration in the overall inflation study.

The agreement with medical schemes was to calculate savings on the basis of the difference between the published list price of the prescribed drug and the MPL reference price for the relevant group of products. For schemes that had previously made use of the MMAP (Maximum Medical Aid Price — MediKredit) reimbursement threshold, the MPL savings were reflected as the additional savings gained. Implicit in the latter statement is the difference between MMAP and MPL — the former largely tracks medicines prices and sets a reimbursement threshold, while the latter more aggressively recognises lowest prices and promotes competition around that price. MPL savings were therefore calculated as the difference between the MPL reference price and the MMAP reference price for the product at the time of treatment. This method of calculating savings underestimates the full impact of the programme since greater compliance at member and provider level will eventually result in less 're-pricing' to MPL and therefore lower savings. Savings were expressed on a per-member-per-month (pmpm) basis where 'member' applies to the principal member. This convention is due to schemes buying services on a pmpm basis and wanting to offset any managed care savings against this fee.

It should be noted that the MPL process is an extremely dynamic one. The MMT is required to monitor price movement of all products and continually adjust the MPL threshold to conform to the original criteria for coverage. The

team also engages in meetings with manufacturers of generic, branded and original products who become concerned about losing market share and request product-specific data. In several cases these meetings become price negotiations which result in significant price reductions.

Finally, during the member and provider education phases it was made clear that any adverse events considered to be a consequence of the programme could be reported to the MMT, and where necessary, appropriate steps would be taken. This would include the provision to override the co-payment for a non-MPL drug based on clinical justification.

Results

Thirteen of Medscheme's schemes (representing 982 883 lives) took the decision to apply the MPL as of 1 May 2002. Several others delayed the decision until 2003, preferring to wait for an indication of the impact of the programme. At this stage, results can be expressed in terms of savings impact on all medical schemes, and for 2002 also subdivided into impact on contracted and non-contracted schemes.

The MPL as introduced in 2002 covered 2 165 product lines. The first indication of impact was noted in the medicines inflation rate pre- and post-implementation for the group of MPL-eligible drugs (Fig. 2).

Whereas the inflationary increase for products on the MPL was 7.5% during T1, the rate fell to 1.05% during T2. Analysis of price movement for the total group of MPL-eligible products for the 12-month period after MPLI (i.e. T3) showed that 19.6% of products dropped prices (mostly in the 0 - 10% range), 16.8% increased by up to 10%, 19.5% by 11 - 15%, 7.8% by 16 - 50%, 1.7% up to 100% and 1.0% by more than 100%. However, most notable was that 33.7% of products held their price constant between the months of May 2002 and end-April 2003.

Most of the downward price movements were related to

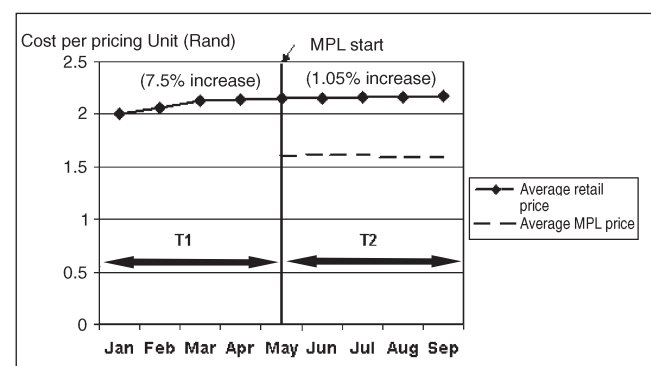


Fig. 2. Cost increases in the MPL-eligible group of medicines before and after MPL implementation. (The solid line represents the full group of medicines for which generics were available, while the dashed line represents the lowest-priced MPL set as defined in the text.)



generic products 'jockeying' for position and lowering price in order to be covered fully by the MPL without additional cost to members. However there were some notable cases in which an original product that had steadfastly held its price even after patent expiry, dropped in price after MPLI (Fig. 3).

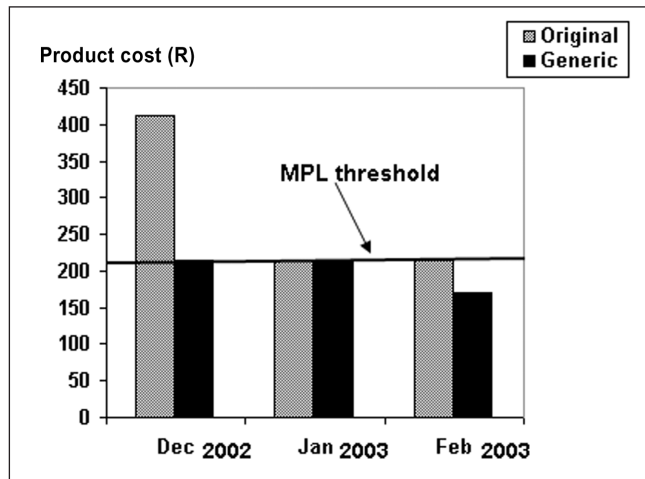


Fig. 3. Influence of the MPL on simvastatin. (The figure shows how the original product dropped in price to the MPL level, followed by a reduction in the price of the generic equivalent to below MPL threshold.)

One year after MPLI the average reference unit price for all groups on the MPL as determined by the MMT had increased by only 2.18% from R3.21 to R3.28 whereas the average unit price for all products affected by the MPL had increased by 3.63% from R4.40 to R4.56 (Fig. 4).

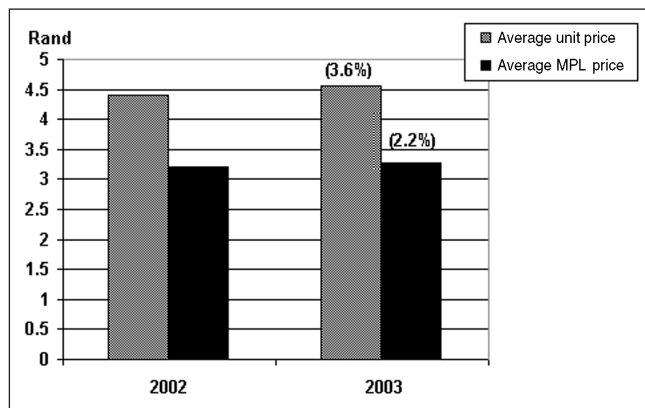


Fig. 4. Increase in MPL reference price v. all MPL-eligible products: 2003 v. 2002. (Note the small year-on-year increase for both groups but the even smaller increase in the MPL group of medicines.)

When one examines the implications of these changes at medical scheme level it becomes clear that MPL had an immediate and significant impact (Fig. 5).

Subdividing schemes' medicine expenditure into acute and chronic components for 2002 presents an additional and convincing picture of a steady decline during T2 after the usual

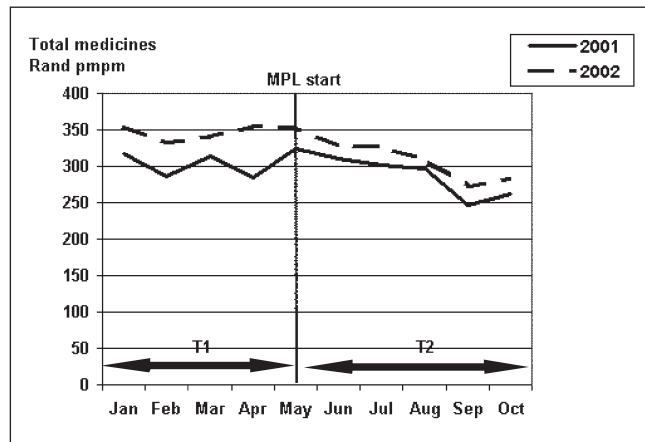


Fig. 5. Average acute and chronic medicines expenditure (Rand pmpm) for all Medscheme schemes before and after MPL implementation. (Note the approximation of the 2002 and 2001 lines after MPL implementation.)

and expected annual increase in medicine costs during T1 (Fig. 6). The cumulative savings for contracted schemes were substantial and considerably more than they had enjoyed previously using only the MMAP model (Fig. 7).

In considering other reasons for the decline in medicines expenditure after MPLI in May one should note that May is too early in the year to invoke seasonality or benefit exhaustion as causes. Converting all of the above to a pmpm figure for overall medicines inflation within the Medscheme group of schemes for the periods January - April 2002 v. January - April 2003 yields a result of only 4.85%, substantially below that experienced in previous years.

Finally, in accordance with the undertaking to remove any

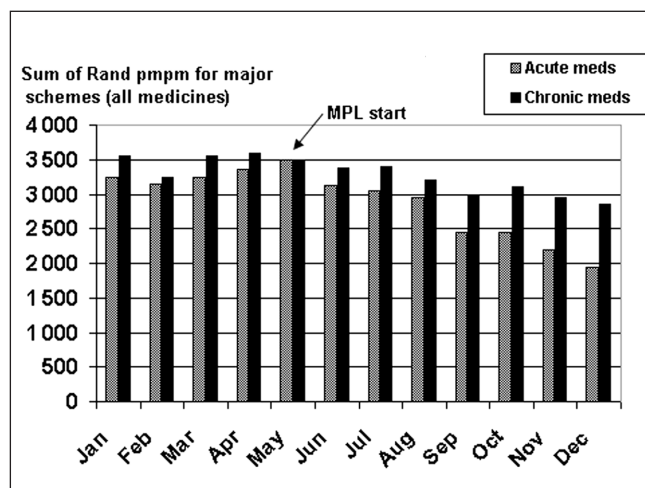


Fig. 6. Acute and chronic medicine expenditure before and after MPL implementation (cumulative Rand pmpm, i.e. summed for the schemes in the sample). (Note the decrease in pmpm spent after MPL implementation. Savings are greater for acute medicines than for chronic.)

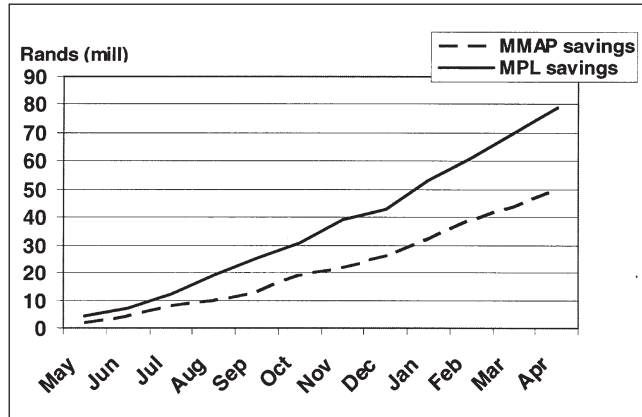


Fig. 7. Cumulative savings for contracted schemes, including the MMAP component where relevant. (The bars compare the savings that would have been achieved with MMAP alone v. enhanced savings provided by the MPL programme.)

MPL products consistently found to be associated with any adverse events or effects, following a small series of consistent reports from members and providers it was necessary to remove one single item from the diuretic category.

Discussion

The views of health economists who have experience of interventions targeted at containing medicines inflation are quite varied. Whereas British Columbia has seen substantial savings since the introduction of reference pricing in 1997,^{2,4} some European analysts are concerned about the sustainability of supply-side, price-related interventions,^{5,7} especially if they are introduced in isolation (i.e. without also addressing the demand side). Authors refer to the unintended consequences of reference pricing^{8,9} and violation of market principles,⁵ and urge health policy makers to avoid forfeiting quality care for the sake of short-term savings and to evaluate fully cost effectiveness of competing products.^{8,10,11} Yet these and other reviews^{12,13} also indicate that the Medscheme experience as presented in this report is not unique; for example de Vos¹² in a report on the impact of reference pricing in the Netherlands showed that lowering of Dutch prices to the mean of pharmacy-buying prices in the UK, France, Belgium and Germany had an extremely positive effect, improved discounts for pharmacists, enhanced opportunities for companies to compete on the basis of price, created a cost-conscious demand side, and made it easier for new participants to enter the system. Ioannides-Demos and colleagues⁷ state quite simply that reference pricing appears to be one of the few strategies likely to be effective in getting doctors to use the least expensive drugs as first choice. Darba and Rovira's¹⁴ view is that for Europe, discount and reference pricing could be the most feasible options, and Grootendorst *et al.*² endorse the view that savings are mostly due to better prices.

Table II provides a summary of strategies that managed care organisations and/or administration companies might bring into play to influence the price and utilisation of services or benefits. Medical schemes administered by Medscheme have made use of several of the strategies in the 'demand' and 'proxy demand' categories, but until development and implementation of the MPL had not engaged in any supply-side interventions. The present review was undertaken to evaluate the additional impact of the MPL, and certainly after this initial assessment there is little doubt about the success of the initiative.

In the first instance it is obvious that the MPL has had a significant effect on medicines prices, and even though there are 'only' about 1 500 products on the list, there is a clear impact on total medicines expenditure, irrespective of whether or not a scheme had registered for implementation of MPL (Figs 5 and 6). For the most part these results were achieved despite some expectations of prescribing of non-substitutable products by providers to avoid MPL 'interference', and/or concerns about orchestrated and sustained challenges from manufacturers and providers.

Schemes that did not register for the MPL programme nevertheless enjoyed the benefit of lower medicine prices (and this would have applied to all medical schemes and their members, whether administered by Medscheme or by other entities), while MPL-registered schemes gained the additional advantage through awareness at member and provider level that use of a non-eligible product would attract a co-payment.

The willingness of manufacturers to drop prices is most likely an indication of how much 'fat' there has been in the system, but it is also an indication of the ability of a major player such as Medscheme to exert influence to the advantage and benefit of consumers both within and outside of the medical schemes environment. What is even more exciting has been the willingness of some manufacturers of original and branded products to drop prices to meet or at least approximate MPL levels.

No article of this nature can be complete without some comment on quality of care, and no programme of this nature can be implemented without some concern about the views of the manufacturers, providers and consumers. Consequently, everything was done to reassure scheme trustees as well as the other stakeholders that call centres would be ready, willing and able to note and then forward concerns to the appropriate parties within the organisation. Suffice to say that the volume of negative responses has been extremely low, and as previously stated, in the single instance of adverse effects of MPL substitution, the MMT had no hesitation in removing the product from the list.

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