Identifying a measure for inflating guideline tariffs for medical services in South Africa

A study conducted by Econex on behalf of

South African Private Practitioners Forum (Pty) Ltd ("SAPPF")

March 2013
Table of Contents

1 Introduction ........................................................................................................................................... 4

2 Different measures to inflate guideline tariffs ..................................................................................... 5
   2.1 Why is headline inflation (CPI) not always sufficient? ................................................................... 5
   2.2 Is the basket of healthcare goods and services in the CPI a better alternative? ......................... 7
   2.3 What if we consider out-patient medical services in the CPI basket and develop it further? ...... 9
   2.4 Designing a new index based on input costs .................................................................................. 10

3 Final recommendations ....................................................................................................................... 13

4 Appendix: Medical product inflation ................................................................................................. 14
Table of Figures

Figure 1: Average annual headline and medical inflation in South Africa, 2001-2012.......................... 7
Figure 2: Health goods and services included in the CPI................................................................. 8
Figure 3: Growth in prices of medical products and medical services captured in the CPI, 2003-2012 .... 14

List of Tables

Table 1: Contributions of the different groups to the annual percentage change in the CPI...................... 6
Table 2: Disciplines included in two broad groups of specialties.......................................................... 12
1 Introduction

Price regulation is the typical response to market failure, where markets – due to structural features – are unable to determine optimal prices through a competitive process. Regulatory price control is a highly specialised field, with tariff design as an important component that requires a high level of expertise and sector-specific knowledge. Regulatory tariffs are designed to provide a return in industries which are usually characterised by large upfront investments (network industries), such as telecommunications, electricity and transport networks.

While the same principles – i.e. large upfront investment in a network industry – do not apply to the tariffs that GPs and specialists (from here on, ‘doctors’) charge, the medical services sector is also characterised by certain market failures. These include asymmetric information, moral hazard and third party payment mechanisms. In essence, due to the insurance feature of these markets, the consumer does not ultimately pay for the service he receives and therefore the price mechanism does not work well. Related to this is the fact that the doctor knows more about the service than the consumer (the patient) and this asymmetric information can lead to oversupply of the service. In SA an added feature is that doctors represent a scarce good as the supply of doctors cannot keep up with the growing demand for healthcare in South Africa. International experience illustrates that as economies grow, a demand for higher quality healthcare develops. In South Africa, the demand for private healthcare is further augmented by the poor quality of public health services. Economic theory suggests that growth in the demand for private healthcare services in the absence of increases in supply of the same magnitude, could lead to more market power on the side of the suppliers (in this case, doctors) and a consequent rise in prices.

The aim of institutionalising guideline tariffs in the healthcare sector is to ensure that price increases in the sector remain moderate in spite of the market power of doctors. Regulatory tariffs are typically based on the cost of production, asset depreciation and a reasonable rate of return, and we expect that guideline tariffs for medical services will be estimated in a similar manner. A recent report by HealthMan stipulates how the Reference Item Price is estimated\(^1\). We assume that a similar logic will be used to determine guideline tariffs.

\[
\text{Reference Item Price} = \text{Item Cost} + \text{Return on Investment}
\]

\[
\text{Item cost} = \text{Direct Labour} + \text{Direct Material} + \text{Allocated Overhead Costs}
\]

\(^1\) We use the terms Item costs and Input costs interchangeably throughout the document.
The challenge is to identify the correct item cost component and rate of return\textsuperscript{2} that will align the supply and demand for doctors in a manner that provides the most efficient outcome. The regulator should continuously be mindful of any perverse incentives that might be created in the process of designing and implementing such tariffs.

In order for doctors to remain solvent and competitive, guideline tariffs will have to be annually adjusted to account for the changing value of money. Assuming that it is too costly to re-calculate each of the guideline tariffs from first principles on an annual basis – given the extensive data collection process and in-depth statistical analysis it entails – this brief analysis provides insight into the annual rate at which these tariffs will need to be adjusted.

It is important to note that the goal of inflating the tariffs is to ensure that doctors are adequately reimbursed for their ‘cost of production’ (input factors) and can maintain their rate of return in spite of the changing value of money. It is not to re-evaluate whether the rate of return should be adjusted due to market changes that might have occurred during the past year.

It is important that guideline tariffs should not be inflated in a manner that will disrupt the market for medical services. Tariff adjustments that reduce the rate of return of doctors (through an inflationary measure that underestimates item cost increases) would lead to a reduction in the supply of doctors practicing in South Africa, since many would be unable to cover their operational costs and/or unwilling to practice at the lower rate of return. Given that South Africa already has a scarcity of doctors,\textsuperscript{3} a further decrease in supply could be detrimental to the industry. In contrast, tariff adjustments that are too high would lead to unnecessary price increases. Section 2 compares the appropriateness of different measures for annually inflating guideline tariffs.

2 Different measures to inflate guideline tariffs

2.1 Why is headline inflation (CPI) not always sufficient?

The Consumer Price Index (CPI) is the most common measure used to estimate the annual increase of prices in South Africa (known as headline inflation). The increase in price levels is estimated by comparing the cost of a basket of goods and services representative of the average South African

\textsuperscript{2} There appears to be some confusion about the use of the terms ‘margin’ and ‘return on investment’ in determining guideline tariffs. We decided to use the term ‘rate of return’ to incorporate both these concepts. The inflationary measure that we suggest (see section 2.4) will remain valid if either or both of these measures are included in the final tariffs.

household in a given year with the cost of the same basket in a base year – South Africa’s official annual inflation rate for 2012 was 5.6%.  

Each product or service included in the CPI is weighted according to its relative contribution to the overall index. The most recent weighting indicates that the health component of the CPI accounts for 1.39% of the entire basket. The latest CPI release of February 2013, with year-on-year headline inflation of 5.9%, shows that expenditure on health added 0.1 percentage points to the overall price increase during this period. Since the exclusion of health insurance from the health component in 2008, health consistently made a relatively small contribution to the overall CPI. The contributions of the different components are listed in Table 1.

Table 1: Contributions of the different groups to the annual percentage change in the CPI

<table>
<thead>
<tr>
<th>Group</th>
<th>Contribution: February 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and non-alcoholic beverages</td>
<td>0.9</td>
</tr>
<tr>
<td>Alcoholic beverages and tobacco</td>
<td>0.4</td>
</tr>
<tr>
<td>Clothing and footwear</td>
<td>0.1</td>
</tr>
<tr>
<td>Housing and utilities</td>
<td>1.4</td>
</tr>
<tr>
<td>Household contents and services</td>
<td>0.2</td>
</tr>
<tr>
<td>Health</td>
<td>0.1</td>
</tr>
<tr>
<td>Transport</td>
<td>0.9</td>
</tr>
<tr>
<td>Recreation and culture</td>
<td>0.1</td>
</tr>
<tr>
<td>Education</td>
<td>0.3</td>
</tr>
<tr>
<td>Restaurants and hotels</td>
<td>0.2</td>
</tr>
<tr>
<td>Miscellaneous goods and services</td>
<td>1.1</td>
</tr>
<tr>
<td>Residual</td>
<td>0.2</td>
</tr>
<tr>
<td>All items</td>
<td>5.9</td>
</tr>
</tbody>
</table>

Although headline inflation measures the weighted average upward adjustment of prices in the economy, it is not representative of the basket of goods and services that make out the operational expenditures of medical service providers. It does not account for many of the input costs specific to doctors, such as medical equipment or malpractice insurance. If these components increase at a faster rate than headline inflation, tariff adjustments based on headline inflation would effectively result in smaller rate of returns for medical practitioners.

---

6 From 2008 onwards health insurance has been excluded from the health component of the CPI and is instead captured under miscellaneous items, the reason being that changes in medical scheme contributions are affected by a variety of determinants (such as administration costs, benefit changes and changing utilisation patterns) other than pure price changes.
2.2 Is the basket of healthcare goods and services in the CPI a better alternative?

Price increases specific to the medical sector (generally known as medical inflation) are usually estimated by examining changes in the health component of the CPI. In line with international experience, the medical inflation rate in South Africa has historically been in excess of headline inflation, although exceptions do occur (as from 2007 to 2009, as well as in 2012 – see Figure 1). However, from 2001 to 2012, medical inflation exceeded headline inflation by an average of 2.1 percentage points. The average annual medical inflation rate for 2012 was 5.3%.

**Figure 1: Average annual headline and medical inflation in South Africa, 2001-2012**

Expenditure on health in the CPI basket is divided into medical products and medical services. With the HPCSA guideline tariff process in mind, the question at hand specifically relates to providers of out-patient medical services (illustrated by the light green area in Figure 2), which account for 47% of the total basket of healthcare goods and services. The proportion that each of the components account for relative to the different categories are shown in brackets.

The basket of out-patient medical services is comprised of the consultation fees for private patients with or without medical aid. Ultrasound obstetrics for private patients is also included. The uniform patient fee of public GPs and medical practitioners is used to reflect the price of medical services in the public

---

8 Statistics South Africa data, Econex calculations
sector. Dental services include oral examination fees and amalgam restorations for private patients with and without medical aid.

**Figure 2: Health goods and services included in the CPI**

![Health goods and services included in the CPI](image)

Although medical inflation (derived from the entire basket of healthcare goods and services in the CPI basket) captures the effect of higher input costs, three reasons suggest that using medical inflation in the CPI basket is not an appropriate measure by which to inflate guideline tariffs:

---

9 The inclusion of medical services provided by the public sector is a recent addition to the CPI basket (February 2013). Prescription medicine, dispensing fees and eye drops were added to the basket of pharmaceutical products. A final change is the removal of consumables from the basket of hospital services (Statistics South Africa, 2013).


11 Ibid.


13 We expect that doctors incorporate raising input costs into their fee structure, and add a rate of return which they deem appropriate.
Firstly, it casts the net too widely by including price increases of medical products\(^{14}\) (pharmaceuticals) and hospital services. Given that it is the patient’s responsibility to pay for pharmaceuticals, doctors do not incorporate the costs of medical products (as defined in this instance – see Figure 2) included in the CPI into their fee structure. Yet, by accounting for half of the health component in the CPI basket, medical products significantly impact on medical inflation. (See the appendix for a comparison between price changes in medical products and medical services.)

Secondly, medical inflation in the CPI basket also includes hospital services. Although hospital services account for less than 2% of healthcare goods and services included in the basket, the increased ward and theatre fees through which hospital services are captured in the CPI do not directly affect the input costs of doctors. Increasing nursing salaries, that account for up to 50% of hospital expenditure, is a key driver of increasing hospital costs.

Finally, the recent inclusion of the public sector in the CPI basket of health products and services further limits the appropriateness of using medical inflation. Public medical practitioners are subject to a completely different cost structure and a different set of input costs than private practitioners. They are also not free to determine their own fees as there are salaried and their fees determined by the Uniform Patient Fee Schedule (UPFS). Changes to the fees in the public sector should thus not be imposed on the guideline tariffs.

2.3 What if we use out-patient medical services in the CPI basket and develop it further?

As mentioned earlier, the purpose of the guideline tariffs is to ensure that doctors’ fees remain moderate and on par with salary increases in the rest of the economy. The consultation fee increases of GPs and specialists included in the CPI (i.e. medical services inflation) was 6.4% in 2012. As a comparative measure, the latest available data for South Africa suggest that year-on-year inflation of general salaries (i.e. remuneration per worker, excluding the agricultural sector) was 5.9% in September 2012.\(^{15,16}\) Medical services inflation was thus 0.5 percentage points higher than general salary increases over the same period. Whether the divergence in salary increases is appropriate, is a judgement call that lies beyond the scope of this analysis, but two issues nevertheless raise concern that the basket of out-patient medical services in the CPI might not be suitable for inflating guideline tariffs:

\(^{14}\) Pharmaceuticals appear to be the only medical products included in the CPI basket. The basket does not include medical equipment. We assume that this is because medical equipment would not form part of the expenditure of a typical household.


\(^{16}\) Data for remuneration per worker for 2012Q4 are not yet available.
Firstly, besides ultrasound obstetrics and amalgam restorations, the basket accounts for no other procedures. It only consists of consultation fees, and does not include any procedural fees.

A second concern is the ambiguous reference to physicians and the limited number of specialties included in the basket. No information could be found to suggest whether ‘physicians’ refer to the broad category of professionals who practice medicine, or, more specifically, to the specialty of practicing *internal* medicine. If Statistics South Africa collects their data on the basis of the latter definition, out-patient medical services included in the CPI basket will not sufficiently illustrate price changes.

One alternative option would be to develop a new basket of services that relies on *consultation- and procedure fees*, which includes all fields of medicine and not just the specialties included in the CPI. However, inflating guideline tariffs according to changes in the previous year’s fees is based on the assumption that guideline tariffs would only serve as a measure to identify instances of overcharge, and that the actual increase in tariffs will still be based on factors such as increased input costs and market changes. It is also assumed that doctors would not let the guideline tariff influence their fee structure, and they would still be free to charge tariffs that are higher or lower than the guideline tariff (ignoring any network agreements for the moment). However, doctors have market power which enables them to increase their prices with minimal risk of losing consumers. There is a concern that if guideline tariff increases in year \( n \) are based on consultation and procedure fee increases in year \( n-1 \), self-perpetuating fee increases will be built into the system. Doctors will soon realise that the more they increase their fees, the more the guideline tariff will be raised in the following year. While an index based on changing fees would provide the most accurate reflection of changes to input costs as well as general supply and demand factors in a competitive market, we have to accept the fact that, if this were the case, guideline tariffs would not have been necessary in the first place.

### 2.4 Designing a new index based on input costs

Since neither headline inflation, nor the health component in the CPI basket, or out-patient medical services inflation (nor a variant thereof) can adequately be used to inflate guideline tariffs, we suggest developing a new index based on a representative basket of input costs. As mentioned earlier, it is important to understand that the purpose of the inflationary measure is to compensate doctors for changes in input costs and to ensure that doctors can maintain their rate of return in spite of headline inflation and other rising costs. In line with how regulatory tariffs are designed in other sectors, we assume that the guideline tariff will also consist of an input cost component plus an acceptable rate of return.\(^{17}\) Identifying the appropriate rate of return for doctors lies beyond the scope of this paper, but we expect that characteristics such as ability to use specialised equipment, the level of experience of the

\(^{17}\) Depending on how the guideline tariffs are designed, the rate of return is likely to vary between fields of specialisation.
doctor, the location of the medical practice, and whether the doctor is a sole practitioner or in a partnership will be taken into account. As long as the guideline tariffs are adjusted for changes in the price of input costs, doctors will be able to maintain the appropriate rate of return.

Input costs associated with running a healthcare practice include:

- Staff salaries;
- Equipment costs;
- Rent and utilities;
- Practice management and administration;
- Finance and insurance; and
- A selection of other costs.

Fields of medicine differ in their dependence on input costs. Costs such as malpractice insurance and equipment costs vary greatly between fields of specialisation. For instance, the equipment costs of a psychiatrist are much lower than that of an ophthalmologist. Similarly, the malpractice insurance of a gynaecologist is much higher than the malpractice insurance of a psychiatrist. In addition, some specialties rely heavily on importing equipment and could be more affected by international price and exchange rate fluctuations than other fields of medicine.

Although an index of the whole basket of input costs for each specialty would provide the most accurate reflection of input cost increases, annually collecting prices for all the input costs associated with different specialties would be a timeous and expensive process. We suggest that a more cost-effective and practical approach is to divide specialties into two groupings – surgical specialties and consulting specialties – and to construct a basket of the most prominent input costs for each grouping with costs collected from a sample of doctors.

We expect that the change in input costs of disciplines included under each grouping will be comparable: while surgical specialties are more capital intensive in the medical equipment that they use, consulting specialties tend to be more labour intensive as a proportion of total inputs. Indices based on these two baskets will provide a cost-effective way of minimising the effect of over- and underestimating changes in input costs for different fields of specialisation.

---

21 We suggest that guideline tariffs for GPs should be updated based on the index for consulting specialties.
Table 2: Disciplines included in two broad groups of specialties

<table>
<thead>
<tr>
<th>Surgical Specialties</th>
<th>Consulting Specialties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Otorhinolaryngology</td>
<td>Psychiatry</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>Cardiology</td>
</tr>
<tr>
<td>Gynaecology and Obstetrics</td>
<td>Dermatology</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>Neurology</td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>Paediatrics</td>
</tr>
<tr>
<td>Urology</td>
<td>Pulmonology</td>
</tr>
<tr>
<td>Plastic and Reconstructive Surgery</td>
<td>Rheumatology</td>
</tr>
<tr>
<td>Thoracic Surgery</td>
<td>Specialist Physicians</td>
</tr>
<tr>
<td>General Surgery</td>
<td>Paediatric Cardiology</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>Anaesthesiology</td>
</tr>
<tr>
<td></td>
<td>Oncology</td>
</tr>
</tbody>
</table>


To obtain the inflated guideline tariff, the cost component of the current tariff must be increased and the rate of return added. An example is provided below.

**Example: Inflating guideline tariffs by an index of input costs**

Suppose a guideline tariff $G_1$ for cataract removal in year 1. $G_1$ is composed of input costs $C_1$ and the rate of return $RR$, which is a fixed proportion of $C_1$. For the purpose of the example, assume a $RR$ of 5%.

\[
G_1 = C_1 + RR
\]
\[
G_1 = C_1 + 0.05C_1
\]

For this procedure, the rate of change from year 1 to year 2 in a basket of the most prominent input costs for surgical specialties should be applied. For the purpose of the example, assume that the index value shows that input costs increased by 8% from year 1 to year 2 due to, for instance, more expensive rental fees. Input costs and the guideline tariff in year 2 ($C_2$ and $G_2$, respectively) are thus calculated as follows:

\[
C_2 = C_1 + (C_1 \times 0.08)
\]
\[
G_2 = C_2 + 0.05C_2
\]

Note that the rate of return as a proportion of input costs remains constant.
Specific circumstances, such as when the rate of input cost increases is below headline inflation, or instances when input costs decline (for instance when the cost of imports decrease due to an appreciation of the rand) will have to be further explored in the final design of the inflationary measure.

The proposed indices will not account for changes in the market for medical services, nor include the entire set of input costs of different specialties. We suggest that guideline tariffs will periodically have to be re-estimated from first principles through a ‘practice cost review’ to account for the abovementioned limitations. We understand that it is a costly exercise, but emphasise the need for this adjustment to take place at the highest cost-effective level of frequency.

3 Final recommendations

If guideline tariffs were only to be used as a measure to identify instances of overcharge and not to determine fees, an index of consultation and procedure fees would provide the most accurate reflection of price increases in the market for medical services. However, doctors will take guideline tariffs into account when setting their fees and the perverse incentives that this creates could lead to spiralling tariff increases.

Within this context, we argue that two indices, one for surgical specialties and another for consulting specialties, should be developed based on weighted baskets of the most prominent input costs. Guideline tariffs for services provided by urologists in year \( n \), for instance, should be inflated according to an index of input cost changes in the basket for surgical specialties in year \( n-1 \). Similarly, guideline tariffs for paediatric services should be inflated by the rate of change in input costs in the basket for consulting specialties.

Although these indices will not include the entire set of input costs of doctors, we believe that it will be a sufficient measure by which to account for the impact of rising costs and the changing value of money. However, we emphasise the need for frequent practice cost reviews which re-estimate tariffs from first principles to account for market changes and to evaluate changes in the entire set of input costs.
4 Appendix: Medical product inflation

With reference to the discussion on the health component in the CPI basket, we note that it is broadly divided into medical products (pharmaceuticals) and medical services (see Figure 2). Medical products carry an overall weight of 51% in the basket, while medical services account for the remaining 49%. Over the past three years, the impact of increasing service fees (out-patient and hospital fees) was mitigated by the relatively lower inflation of medical products, and in 2012 the price increase of medical products was 2.9 percentage points below that of medical services. However, from 2007 to 2009 larger price increases in medical products relative to medical services led to an increase in overall medical inflation. For the purpose of inflating guideline tariffs, the inclusion of medical products into the inflationary measure can be expected to overestimate tariff increases in some years, and underestimate them in others.

Figure 3: Growth in prices of medical products and medical services captured in the CPI, 2003-2012

Source: Statistics South Africa

---