

Response to OECD paper: “International
Comparison of South African Private Hospital Price
Levels”

***Prepared for Mediclinic
South Africa (MCSA)***

1 April 2016

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Executive summary

In this report we present a detailed critique of the OECD¹ paper: “International Comparison of South African Private Hospital Price Levels”². The aim of the OECD report is to compare prices in South Africa’s private hospital sector with those of a number of OECD countries. The report finds that South African private hospital prices are on par with those of OECD countries with much higher income levels. The prices are therefore higher than one would expect from the level of development in SA, indicating that they are too expensive. The study finds that the main contributions to private healthcare expenditure in South Africa are hospital costs and specialists fees. Given the finding of high hospital prices the policy recommendation is some form of price control.

We commence our critique with a discussion of the methodological problems around cross-country price comparisons, specifically in a South African setting. We show that some of the specific issues around purchasing power parity (PPP) comparisons in the healthcare sector have simply been ignored by the OECD in their analysis. Apart from methodological issues, we also show that the central thesis of the OECD report is flawed. The point of departure is that too large a portion of the overall health budget (48.1%) is spent on the private sector which comprises only 17% of the population. This is an incorrect reflection of the facts. While only 17% of the population has medical insurance, we know that a much higher percentage (between 28%-38%) of the population accesses the private sector and prefer to pay out of pocket for private sector services. This is a first indication of quality differences between the private and public health sectors, which is expressly excluded from the OECD analysis.

The next incorrect assumption is that human resources are heavily skewed towards the private sector where fees are consequently determined. In fact, it is a notable omission of the OECD report that no data on the distribution of human resources are presented, yet it is assumed that there is a skewed distribution. While we know that more than half the specialists (59%) work in the private sector, the distribution is not the same for general practitioners and nurses. For both these groups, a larger percentage is employed in the public sector. This undermines the whole theory of harm of the OECD report, i.e. that too much money is spent on a small percentage of the population, that this draws the majority of human resources to the private sector and that wages settle at private sector rates which are unaffordable by the public sector.

But even more importantly, the report states that high specialist prices are a driver of hospital prices. This is simply incorrect as hospital prices do not include specialist fees, as they are not employed by the hospitals. This reflects a deep misunderstanding of the institutional realities of the South African healthcare sector.

¹ Please note the full reference in footnote 2, but we use the term ‘OECD report/ paper’ throughout when referring to this working paper.

² Lorenzi, L and T Roubai (2015) “International Comparison of South African Private Hospital Price Levels”. OECD Health Working Papers, No 85, OECD Publishing, Paris.

Next we question whether the finding that South African private hospital prices are high is indeed credible. Firstly, we show that a static comparison of hospital prices and per capita GDP is meaningless. No other determinants of hospital prices are controlled for. Also, private hospital prices in South Africa are compared to public and private prices in OECD countries, and conclusions are drawn in terms of the affordability for the whole South African population, while only a portion use the private sector. Importantly, access to the public sector is (mainly) free of charge and this should be incorporated into the overall affordability analysis.

We then turn (in section 3) to further problems associated with the OECD price comparisons. We point out that it is not informative to compare healthcare price increases to overall inflation, as it is generally accepted that medical inflation increases faster than the consumer price index (CPI). The effect of the volatile exchange rate on imported goods (pharmaceuticals, medical devices etc.) is important in this regard. We then show that any attempt at an international price comparison should at the least control for changes in the beneficiary profile, e.g. an ageing population and burden of disease. The OECD study does not control for these factors (or severity of cases), and the results are therefore not credible.

Having illustrated the fundamental methodological problems in the OECD study, we compare their high level results with evidence from MCSA specific data. We could not replicate the OECD study, as they used funder data, which included specialist, radiology, pathology costs etc.. We present data on some of the same procedures and show that MCSA has experienced an overall increase in admissions over the same period (2011-2013). This cannot be attributed to increases in scheme membership alone. However, where the OECD paper irresponsibly concludes that higher admissions are due to 'weak controls' (without testing what other factors might drive these), we can see from the MCSA data that there are other causes of the higher admission rates. While we find that the OECD average length of stay (ALOS) benchmarks seem in line with other research, we do not agree that this indicates higher prices for hospital stays. The methodology is again deeply flawed.

Importantly, even if one ignores the methodological and sample problems of the OECD comparison, and assumes that they are correct and that South African private hospital prices are high, it is not clear why the OECD policy recommendation is the correct response. The OECD proposes some form of price control to address high private hospital and specialist prices. This will supposedly put downward pressure on prices in the private sector. However, without having established that prices are high, such a policy recommendation does not follow. More importantly, while specialist fees may impact on the total hospital cost, they do not impact on hospital prices/ tariffs. Also, artificially lower specialist prices may have the unintended consequence of further reducing the stock of specialists and increasing fees further. There does not seem to be any credible theory about the spill-over effect of private hospital prices to the public sector. The correct policy response to high specialist fees would be to increase the supply of nurses, general practitioners and specialists, as this would stabilise fees. If the public sector can improve the quality of services, this will improve access for the uninsured

population, whereas the control of private sector prices will not 'free up' resources to be spent in the public sector while large quality differences persist.

We therefore conclude that the finding of high hospital prices is not credible as it is based on incorrect price comparisons and a fundamental misunderstanding of the South African healthcare sector. We also do not agree with the policy conclusions that flow from this flawed analysis, as price controls will not address the problem of scarce human resources.

1 Main points of critique

We commence our review of the OECD paper: “International Comparison of South African Private Hospitals Price Levels”, with a summary of the main points presented in that report and a short response to these points. It is important to understand the aim, methodology and policy conclusions of the report³, before turning to a detailed critique of the methodology and findings.

The OECD report contains three main themes:

- It examines the correlation between a country’s wealth and hospital prices and finds that South African hospital prices are comparable to the average of OECD countries with considerably higher wealth. Private hospital prices are therefore much higher than one would expect from South Africa’s level of development and growth.
- It then analyses the drivers of hospital prices e.g. admissions, length of stay, and prices of specialists. The study finds that the “main components of private hospital prices in South Africa are hospital costs and specialist fees”⁴.
- From these findings flow the policy implications, which are that prices in the private sector should be controlled, as there are spill-over effects from the private to the public sectors, specifically relating to specialists. According to the OECD, such price controls “could help individual South Africans and the country at large get more from their considerable spending on healthcare”⁵.

A few remarks can be made at this stage:

- A direct comparison of prices between countries are fraught with difficulties and in Section 2 we present a detailed critique of the methodology used by the WHO and OECD, e.g. the inappropriate use of PPP, the aspects of the South African market that have not been considered in the analysis, and the correlation with GDP as a means of an affordability analysis and why it is problematic;
- Section 3 contains a detailed critique of the OECD analysis of the drivers of hospital prices. However, it must be emphasised at this early point that hospital prices (assuming this to mean tariffs) cannot be driven by specialists’ fees. Private hospitals in South Africa do not employ specialists and do not know what their fees are. Specialists’ fees will impact on the total hospital bill (or cost of the event), but this is not what is ultimately analysed here as the study focuses on ‘Private Hospital Price Levels’.⁶ The following statement is therefore incorrect: “Pharmaceuticals and medical devices are important components of hospital prices

³ In this section we rely heavily on the OECD’s summary documents: “OECD, International Comparison of South African Private Hospital Price Levels: A Summary” and “10 Frequently Asked Questions”.

⁴ OECD, International Comparison of South African Private Hospital Price Levels: A Summary, p. 2

⁵ OECD, International Comparison of South African Private Hospital Price Levels: A Summary, p. 2

⁶ The OECD paper exhibits significant disjoint between event costs and hospital prices. Whilst the former is empirically analysed in the OECD report, the policy implications are largely around hospital prices. These are two vastly different points of discussion, and yet the OECD appears undecided as to which is the subject of their report.

– in addition to operational costs, human resources (i.e. nurses, support and administrative staff, specialists fees, and hospital capital and profits)” [own emphasis]⁷.

- The policy implications therefore follow from a flawed analysis and a fundamental misunderstanding of the private healthcare sector. The transmission mechanism between (alleged) high private sector prices and the public sector is assumed to work as follows: “For example, the wages in the private sector have an impact on the ability of the public sector to attract health workers”⁸. The implication of this is that high specialist fees set by private hospitals causes a shortage of specialists (or increases the contract price) in the public sector.

Again this reflects a fundamental misunderstanding of the private healthcare system. The reported high specialist fees are *inter alia* caused by a shortage of supply, as government is not training enough specialists and private training of doctors is prohibited⁹. Specialist fees do not contribute to private hospital prices (tariffs) and cannot form the rationale for the control of hospital prices. The main findings and policy implications of the OECD report are dealt with in Section 4.

We expand on these main points in the rest of the report.

⁷ OECD, International Comparison of South African Private Hospital Price Levels: 10 Frequently Asked Questions, p. 2

⁸ OECD, International Comparison of South African Private Hospital Price Levels: 10 Frequently Asked Questions, p. 1

⁹ Econex (28 August 2015). “Identifying the determinants and solutions to the shortage of doctors in South Africa: Is there a role for the private sector in medical education?”

2 Section 2: Critique of OECD international cross-country comparisons and correlation findings

In this section we illustrate why the methodology used by the OECD in comparing South African prices with OECD countries is flawed. We firstly comment on the complexity of doing such international comparisons, before showing why some of the statements about the South African healthcare sector are incorrect and the policy implications inappropriate.

2.1 Complexity of international comparisons

When comparing any international data, the first important factor is to ensure that one is comparing like with like. This is especially true for the healthcare sector where almost all aspects thereof are heterogeneous in nature.

2.1.1 Purchasing Power Parity (PPP)

Comparing prices across countries implies the use of some conversion factor or exchange rate to ensure all prices are presented in the same currency. PPP values are used by the OECD. PPP values adjust for national price levels. Any difference in the converted values of a common good/service or bundle of goods/services implies pricing differences between the countries which are unrelated to differences in the respective national price levels (for instance, it could be related to differences in productivity).

Comparison of prices in the health sector however presents difficulties, which include:

- **Comparability of the health service or product** – Health products in different countries are not identical and differ in ways which affect pricing even after adjustments have been made for PPP. Quality, relative scarcity and the bundling of products and services differ across countries, as well as whether value added tax is included in the price. Exchange rate effects may also already be included in the local prices as many medical products (e.g. equipment, drugs) – as in South Africa – may be imported, further driving prices (upward).

The higher quality of service provided by private healthcare compared to public healthcare in South Africa is discussed in 2.2.1. Comparing South Africa's high quality of private hospital services to the various levels of quality provided across the OECD countries' public and private sectors results in the comparison of very different products. Similarly, comparing South Africa's private hospitals to both the private and public sector hospitals in the OECD countries is not an accurate comparison: private hospitals in South Africa are accessed only by a portion of the population, whereas the private and public hospitals in the OECD countries, when combined, serve each respective country's whole population. The subset of

the population accessing private healthcare in South Africa is also likely to have a different demographic and health risk profile relative to the national population. In addition, the private medical scheme market is particularly prone to anti-selection and therefore a higher prevalence of certain disease conditions. These dynamics also play a role in the provision and utilisation of products and services accessed in the private sector as opposed to those utilised and provided to a national population. These two groups are therefore not comparable.

- **Different price determination mechanisms** – Price determination in healthcare is influenced by numerous factors. These include the extent to which products and services are provided by market participants and non-markets participants (i.e. government), the type of care provided by the health sector (i.e. preventative or curative and “catastrophic”), the extent to which the private and public systems complement or substitute each other, and the extent to which prices are determined by the relationship between payers and providers.

In South Africa, prices in private hospitals are set according to market forces whereas the study states that some OECD countries have measures to prescribe, cap or signal prices, with many public sectors having some form of price setting that provides a benchmark for the private sector. Comparing only South African private hospital costs to the OECD countries’ private and public hospitals is therefore inappropriate.

- **Different input/output methods of PPP adjustment** – There is some concern as to the use of input or output measures to calculate PPP values in the health sector, as also in calculations for the rest of the economy. Generally speaking, the comparative values used in PPP comparisons are final expenditure output figures, such as selling prices; the reason being that PPPs, besides playing a role as currency converters, are also price deflators which take varying inflation rates into account. The prices used should thus be consistent with the methods of valuation used to estimate the final expenditures on GDP. There are some cases, however, where values have been determined using input costs, such as hospital services for example, where final prices may be artificially regulated.¹⁰

Eurostat and the OECD changed its approach to calculating health expenditures in 2013 from an input-based approach to an output-based approach. The reason for the change is the use of input prices and proxies for input prices in the former approach, as well as the inability of the approach to take productivity differences across countries into account, unlike the latter approach.¹¹ While the 2016 OECD study in question does not explicitly state whether it uses revised data based on the output-based approach for the years 2011 and 2012, its use of quasi prices implies that only data based on the output-based approach were used in the

¹⁰ Amerini, G. (1999) "Purchasing Power Parities for Medical Care and Health Expenses: An Informal Report," NBER Chapters, in: *International and Inter-area Comparisons of Income, Output, and Prices*, pp. 233-238 National Bureau of Economic Research, Inc.

¹¹ Eurostat & OECD, 2012. "Eurostat-OECD Methodological Manual on Purchasing Power Parities" (p.164) (p.158)

study. The distinction in the methodology used to calculate the prices is important since the South African prices are based on final prices (whether it be the actual prices or reimbursement rates). PPP comparisons require that hospital price calculations use the same valuation methods, also with respect to the valuation method used to calculate the GDP against which the hospital costs are measured.

2.1.2 Quasi prices

In the study 'price' refers to the amount paid to the healthcare providers from the risk pools of medical schemes, patients' savings accounts at their schemes, and out-of-pocket payments, rather than the amount claimed. It must be noted that the exact amount of out-of-pocket spending in South Africa is uncertain. While the South African data reflect the actual average prices as provided by the medical schemes, the data for the OECD in fact reflect quasi prices collected as part of the OECD-Eurostat Purchasing Power Parities survey. The study describes 'quasi prices' as the unobserved prices that would have been charged in a competitive market, equal to the average cost per product. Quasi prices are taken from the databases of health administrators and national insurance funds. These may be the prices negotiated between hospital service providers and purchasers (third party payers), or the administered prices regulated to typically reflect the average cost of providing the services. This is in contrast to the prices charged by the private hospitals in South Africa which are determined by market forces.

The average quasi prices are determined for each case type and include direct costs, capital costs and overhead costs. Importantly, this should cover the same costs in all the countries concerned. It is unlikely that the South African data reflect the same costs. One would e.g. expect capital costs to differ based on different interest rates. Even in the OECD data, however, not all prices are available at the individual patient level, but instead only at the category level of Diagnosis Related Groups (DRGs).¹² Some case types may correspond to more than one DRG, while some DRGs may include more than one case type. The average quasi price is then calculated by weighting the quasi-price per DRG by the number of cases in the first instance.¹³ It is not stated what weighting is applied in the second instance. It must be noted that the output-based approach used in the Eurostat-OECD Purchasing Power Parities study since 2013 takes into account productivity differences between the countries surveyed.¹⁴ However, there is no mention in the 2016 study of adjusting the South African data to reflect productivity differences.

¹² A clinically coherent set of patient classes based on the diagnosis, surgical procedure, age, sex and discharge status of the patients.

¹³ Eurostat & OECD, 2012. "Eurostat-OECD Methodological Manual on Purchasing Power Parities" (p.164)

¹⁴ See footnote 13 (p.158)

2.2 Further complicating factors specific to South Africa

2.2.1 Population accessing the private sector

The OECD study begins with a chapter entitled '*Why South Africa is unique*'. This section's main contention is that the relative size of private health insurance is too big. More specifically, it is stated that "Private voluntary health insurance accounts for 41.8% of total health spending, which is more than 6 times the 2013 OECD average of 6.3%... Despite high levels of expenditure (41.8%), voluntary health insurance serves a smaller share of the population (17%) compared to OECD countries"¹⁵.

The paper also acknowledges that: "The South African constitution guarantees universal access to health services, which enables 83% of the population [to] access public health services at no or little cost to patients... Nearly 60% of total health expenditures are channelled through the public health system"¹⁶. It is important to point out at this stage that the OECD study did not take quality differences into account. This is expressly stated: "The study did not measure quality of patient care and, therefore, we cannot interpret the impact of significantly lower length of stay on patient outcomes".

The quality differences between the public and private healthcare sectors are well known. This has been acknowledged by the Minister of Health, stating, that access to the public health sector is constrained by the lack of quality services and that this is one of South Africa's major health reform challenges.¹⁷ It is therefore not surprising that South Africa's private healthcare system is both supplementary and duplicative. In fact, the private health sector plays a pivotal role in assisting the government in the provision of quality health services to South African citizens.

The high level figures quoted in the OECD report, i.e. 41.8% of healthcare expenditure being spent on 17% of the population, must therefore be put in context. Our previous research¹⁸ found that the richest 20% of the population contribute more than 80% to total health financing in South Africa, via different forms of taxes and health expenditure. This richest quintile in turn receives only 36% of total health benefits, indicating significant cross-subsidy in the health sector as a whole. Also, if one takes into account those who access the private healthcare sector (predominantly accessing practitioners such as GPs and dentists) by means of out-of-pocket spending (i.e. who are uninsured), it is estimated that (in 2012) the private sector provided primary healthcare services to 28%–38% of the South African population.¹⁹ This again shows that there is a demand for quality care outside of the public sector.

¹⁵ OECD, 2016: para 12,13

¹⁶ OECD, 2016: para 14

¹⁷ Motsoaledi, A., 2013. Health Budget speech, National Assembly, 15 May 2013.

¹⁸ Econex Research Article 12, 2009. "Financing and Benefit Incidence Analysis in the South African Health System: An Alternative View Finding Significant Cross Subsidisation in the Health System from Rich to Poor." Available at: www.econex.co.za

¹⁹ In the 2012/13 CMS report it was recorded that there were 8.679 million medical scheme beneficiaries in South Africa at the end of 2012. In the 2012 General Household Survey (GHS) it was recorded that the total population was 52.275 million. These two figures together imply that 16.60% of the population is served by the private healthcare sector. This however does not account for those individuals who are not medical scheme beneficiaries but still utilise the private healthcare sector. Up until 2008 the GHS surveyed people who were sick/injured in the month prior to the interview and consulted a healthcare worker,

2.2.2 Human resource distribution between public and private sectors

In terms of the distribution of human resources, estimates from the data show that the majority of GPs (63%) work in the public sector, whereas more specialists (59%) work in the private sector. This sectoral distribution has remained constant over 2011-2013 for specialists, whilst data show that between 2011 and 2013, the distribution of GPs in the public sector actually increased by 3% points.²⁰ Medical scheme estimates also indicate that at least 5-10% of specialists work in both the private and public sectors²¹, which needs to be taken into account in order to avoid double counting. With regard to nurses, estimates from the data show that 38% and 62% of nurses work in the private and public sectors respectively.²² Following the “PERSAL clean-up” in 2012 by the Department of Health, vacancies for public sector GPs and specialists in 2013 were 2,290 and 815 respectively.²³ The private sector has proposed many means whereby they could assist in the training of doctors for South Africa’s healthcare sector, but this has not been considered by the OECD.

These figures show that the picture is more nuanced than the one presented in the OECD report.

2.2.3 Price control recommendations

The OECD report concludes that the spending on private healthcare is disproportional to the population that it serves, relative to the public sector. The distribution of human resources between sectors follows this trend, with an additional layer of skewed distribution between rural and urban areas. This causes prices in the private sector to be ‘too high’ and has ‘significant spill-over impact on

questioning whether they were medical scheme beneficiaries or not and whether they consulted the public or private healthcare sector. By this method, it was found that, in 2008, 25.83% of non-medical scheme beneficiaries utilised the private healthcare sector (it is expected that this is largely for primary healthcare services). This percentage is closely aligned with GHS reports before 2008. For 2012, if one is to multiply 25.83% by those who are not medical scheme beneficiaries and then add this to those who are medical scheme beneficiaries, the percentage of the population served by the private healthcare sector rises from 16.60% to 38.14%. After the 2008 GHS, the frame of questioning was changed to ask whether the *household’s normal place of healthcare consultation* was in the public or private healthcare sector and whether *at least 1 member of the household* was a medical scheme member. By this method, it is implied that, in 2012, 13.20% of non-medical beneficiaries utilised the private healthcare sector (it is again expected that this is largely for primary healthcare services). This percentage is closely aligned with the 2009 – 2011 GHS reports. For 2012, if one is to multiply 13.20% by those who are not medical scheme beneficiaries and then add this to those who are medical scheme beneficiaries, the percentage of the population served by the private healthcare sector rises from 16.60% to 27.61%. According to these two calculations (prepared with the available data) we have no reason not to believe that the percentage of the population served by the private healthcare sector is at least 27.61% (28% rounded) and plausibly up to 38.14% (38% rounded).

²⁰ In order to attain absolute and relative (to the public sector) estimates of the numbers of GPs and specialists working in the private health sector, the following methodology was used. Data were received for all GPs and specialists (per speciality) that billed two of the largest medical scheme administrators in South Africa. The counts for each speciality reported by each of these two sources were then compared and the maximum reported by either one was used. Information was requested from the various specialist associations/ societies to verify such figures. Figures derived in this way were then reduced by 2.5% for GPs and 5% for specialists to account for practitioners working both in the private and public sectors. Such figures for private sector doctors were then compared with figures for public sector doctors from the 2013 PERSAL database. Please note that the assumption of only 5% of specialists working in both sectors is modest; some private sector researchers believe that the percentage of private sector specialists working in both sectors may be up to 30%.

²¹ Econex: Updated GP and Specialist Numbers for South Africa. Please note that this is a very modest estimate.

²² First an estimate is obtained to compute total nurses actively working in South Africa. This is achieved by looking at how many are registered with SANC, less those who are assumed to not be practising (based on previous research). The number of new nurses trained less an assumed attrition rate of 40% who do not register after qualifying, is then added to the first figure. This provides one with an estimate of total nurses. To arrive at an estimate for the public/private split we then subtract the public sector nurses (recorded by PERSAL) from the total and arrive at the private sector portion. This private sector portion includes those formally employed by the hospitals, as well as those employed by agencies and working in areas other than hospitals (pharmacies, NGOs, private practices, etc).

²³ Department of Health, 2013. Human Resource Strategy for the Health Sector, 2012/13 – 2016/17.

the functioning of public healthcare system²⁴. A careful reading of the OECD analysis does not seem to suggest that high hospital prices have spill-over effects, i.e. that high private sector hospital prices will impact on public sector prices. The spill-over effect works as follows: a large proportion of healthcare spending goes to the private sector and their facilities (hospitals). This plays a major role in attracting specialists and labour market prices are thus set in the private sector. The OECD concludes as follows on this aspect: “The competition for human resources with the economically significant private health sector can lead to competition on wages with the public sector. In this way, benchmarks established in the private sector for doctors’ remuneration could constrain the public sector’s expansion efforts”²⁵.

The solution proposed for this problem is some type of price control: “Other OECD countries have measures to prescribe, cap or signal prices – often in a collective way – that South Africa lacks. In OECD countries with health insurance systems, the public sector tends to have some form of price setting for hospitals and specialist medical services, and this often provides benchmarks for the private sector”²⁶.

Again, the pricing solution has to be seen against the background of the flawed assumptions of the distribution of funds and patients between the public and private sector, as well as the assumed skewed distribution of human resources and comparability (or substitutive quality) between public and private hospital services. We have shown above that the OECD analysis does not reflect the full picture of the distribution of resources. In addition, the pricing proposal is mainly aimed at correcting for specialists prices. It is also strange that a solution is proposed for hospital prices, as the spill-over effects are not clear. The OECD states that: “This means that negotiations between a handful of medical schemes (or their administrators) and private hospitals determine how a large section of the country’s funds are spent”²⁷.

In terms of this statement, research on negotiations between hospital groups and funders has found that these negotiations have become more competitive over time²⁸. Negotiating power is now well balanced between the buyers and sellers of healthcare. Funders have implemented hospital networks, promoted efficiencies through large administrators and progressively developed managed care. Alongside this, hospitals have implemented careful cost management programs and shared in the funder’s risk *via* alternative reimbursement models. It is therefore not clear that a price setting mechanism will help.

With regards to specialist prices, the use and publication of a reference price list in the private health sector has a long, contentious history. Reference prices are again being considered in great detail by the HPCSA. Following the removal of reference tariffs in 2008, these were again reviewed in 2010

²⁴ OECD, 2016: para 17

²⁵ OECD, 2016: para 17

²⁶ OECD, 2016: para 19

²⁷ OECD, 2016: para 19.

²⁸ Erasmus, M & Theron, N.M. (2016) “Market concentration trends in South Africa’s Private Healthcare sector”. SAJEMS. No 1:1-13

and were subsequently declared invalid and set aside by the Gauteng North High Court following a successful challenge by SAPPF, HASA, Netcare 911 and ER 24. While it is true that specialists' prices are set in the private sector, we have shown above that the human resource distribution between the public and private sectors is not as skewed as assumed by the OECD. In fact, nurse prices are set in the public sector, as the shortage of nurses has forced the private sector to match public sector prices.

We have therefore shown in this section that:

- The OECD is incorrect in their assumptions that only insured people access the private health sector for care.
- The OECD is incorrect in their assumptions of the distribution of human resources between the public and private sectors. In fact more GPs and nurses work in the public than in the private sectors. While more specialists work in the private sector, the distribution is not as skewed as implicated by the OECD (59%). It is difficult to see how all human resource prices can be set in the private sector if the distribution is not as skewed as assumed by the OECD. In fact, the OECD paper presents no data on the distribution of human resources, and seems to simply assume these are skewed heavily towards the private sector. This is incorrect and leads to a flawed analysis.
- The OECD's proposal of a price control mechanism is similarly flawed. Private hospital prices do not influence public hospital prices as there is no competition between them (mainly due to quality differences). It is unclear what the aim would be of controlling private hospital prices. Prices set in the private hospital sector are the result of robust negotiations between strong buyers (medical aid funds) and individual hospital groups. Controlling specialist prices will not impact on hospital prices, as the hospital tariffs are not influenced at all by specialist prices. Where the private sector does compete for human resources with the state, prices are at times determined by the state (e.g. for nurses), as the general shortage affects everyone equally. In fact, the correct policy response would be to train more doctors (and nurses), not to artificially control prices.

2.3 Correlation with GDP as a means of affordability analysis

The OECD study analyses the correlation of healthcare prices²⁹ with country income. This correlation analysis is carried out with the intention of predicting the relationship between healthcare prices and country income in order to determine the affordability of healthcare across various countries.

²⁹ The OECD report discusses the South African sample in section 6, and in section 7 prices are aggregated and compared to the OECD aggregated prices. The precise methodology of aggregation is not provided, making it impossible to comment on the accuracy of the aggregate level comparisons. Footnote 19 of the OECD report explains that a Paasche index is used, but the relative weightings are not provided. This aggregation underlies the OECD's central results, but as is, cannot be validated. Furthermore, the samples used in the case by case analyses presented by the OECD in section 7 of their report are significantly different, and these differences are not taken into account in their methodology.

This analysis is problematic for the following reasons (beyond the aggregation of price as discussed in footnote 29):

- The measure of income over the entire South African population is not relevant to the affordability of private healthcare in South Africa;
- Comparison of South Africa with OECD countries is, without the correct controls, problematic;
- The OECD's choice of variables for analysis is inadequate; and
- Correlation analysis is not a predictive technique.

2.3.1 The measure of income over the entire South African population is not relevant to the affordability of private healthcare in South Africa

In the OECD study the affordability of private hospitals in South Africa is seen in the context of the whole population. The OECD explains this choice of methodology in one of the accompanying documents: "Most OECD countries have established pricing mechanisms, whereby the public sector payer (i.e. government) defines the prices based on actual costs and service provision attributes. This price is then used to contract either public or private healthcare providers, and serves broadly as a benchmark. Thus we would not expect to see large price differences among public and private sectors in most OECD countries"³⁰. This is clearly not applicable to South Africa as there is no price setting mechanism in the public sector. Most services are accessed free of charge. This is mainly due to the larger quality difference, which is not taken into account by the OECD study.

Furthermore, income inequality³¹ in South Africa is high which makes private sector prices an inappropriate measure of affordability. For example, the unemployed would not seek private hospital care, and with an unemployment rate of around 25% (narrowly defined), it is inappropriate to use an income measure for the population as a whole. The study notes that households that purchase private medical cover could have a higher income than the overall South African average household income (as measured by GDP per capita), but this is not taken into account when drawing conclusions about the affordability of private hospitals. An income measure restricted to those that use private healthcare would be more appropriate for the purpose of the OECD analysis.

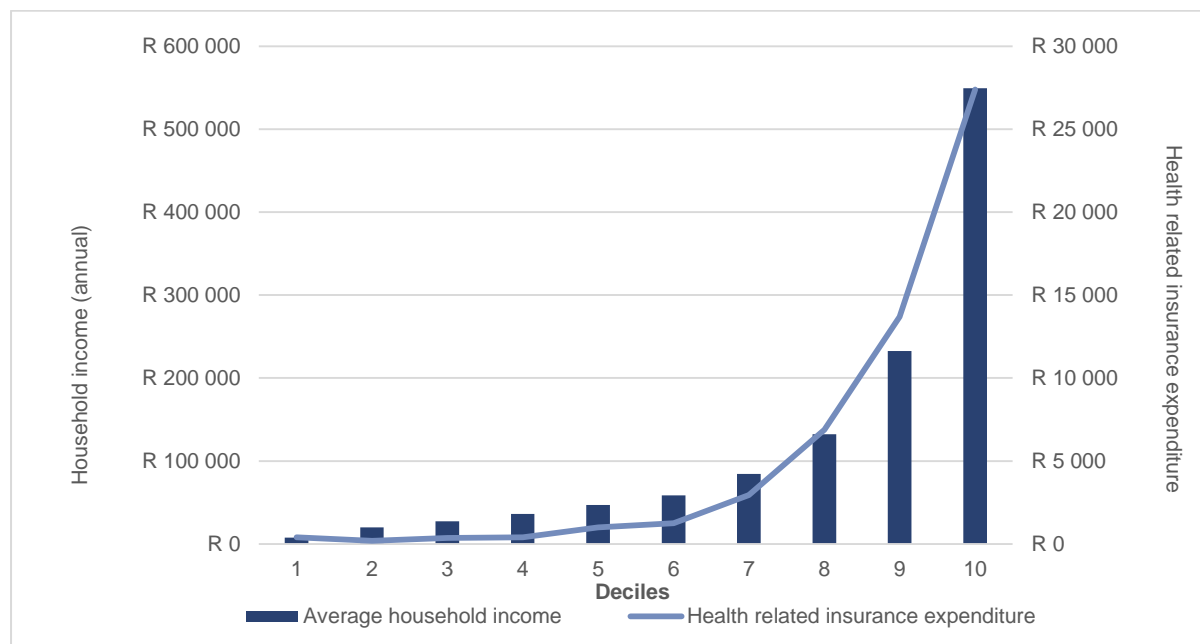
Figure 1 illustrates the correlation between the average annual household income in South Africa and the average annual household expenditure on health related insurance.³² It is clear that households in the higher income deciles spend much more on medical insurance. This is therefore the relevant population to consider when calculating the affordability of private hospital costs.

³⁰ OECD, 10 Frequently Asked Questions, p. 2

³¹ According to World Bank estimates, South Africa's Gini-coefficient was 63.4 in 2011, where 0 indicates that income is distributed perfectly equally between all citizens and 100 indicates perfect inequality in the distribution. The Gini coefficients for other countries included in the study range from 24.9 (Slovenia) to 36.3 (Portugal).

³² The deciles are calculated according to income per capita.

Figure 1: South African household income and health related insurance expenditure



Source: *Income and Expenditure of Households 2010/2011*

The OECD also addresses this point by stating the following: “It would not be a valid analysis of affordability to use only the incomes of people who can already afford private healthcare in South Africa. Affordability and prices are relevant for all South Africans”³³. This does not follow logically. All citizens can access public healthcare at no charge. The decision to access healthcare in the private sector is a voluntary decision and the price paid for this service does not impact at all on the price of accessing the public sector. The private hospital prices should therefore be compared to the income of the population (insured) that access the private sector.

2.3.2 Comparison of South Africa to OECD countries

In the accompanying document (10 Frequently Asked Questions), the OECD explains why South Africa is compared to OECD countries, as opposed to more relevant BRICS countries. The reason seems to be simply that OECD data were available. It is stated that: “The WHO is currently investigating the possibility to expand this work to BRICS countries”³⁴. It seems therefore that there is an implicit acknowledgement that comparing South Africa to high income OECD countries is not the best methodology, but this was merely done based on data availability.

³³ OECD, 10 Frequently Asked Questions, p. 2

³⁴ OECD, 10 Frequently Asked Questions, p. 1

2.3.3 The OECD's choice of variables for analysis may be refined

GDP per capita is the measure of country income against which healthcare prices are compared in order to measure healthcare affordability. The choice of GDP per capita is however not justified in the report.³⁵ Other measures may better capture country income. For example, Insight Actuaries³⁶ suggests GNI per capita as a more appropriate measure of income in the measurement of healthcare affordability. GNI includes receipts of primary income (compensation of employees and property income) from abroad and may be a more accurate and complete measure of income, especially for the portion of the population covered by medical schemes.

2.3.4 This correlation analysis does not constitute a reputable predictive model

This analysis simply draws static correlation between two variables – healthcare prices and country income – using a sample of 22 countries. This would usually constitute an initial exploratory analysis. It is however not a predictive model from which econometric or statistical inference may be drawn. An econometric model which controls for multiple factors would be a more suitable means by which to analyse the relationship between various macro- and microeconomic factors and healthcare prices.

In summary, the healthcare affordability analysis carried out by the OECD requires more accurate and complete samples and measures. Measuring income over the relevant portion of the South African population is also important. In order to make conclusive statements about healthcare affordability, a more sophisticated analysis controlling for multiple factors (as opposed to a correlation analysis) is required.

2.4 Summary

In this section we have shown that cross-country comparisons are complex and should be approached with care. There is no evidence in the OECD report that the factors important for PPP adjustments in the healthcare sector, have been taken into account. The use of quasi prices is also problematic because those prices are in fact fictitious – calculated to reflect the average cost of providing the service/ product – and not comparable to South African prices that are determined by market forces. More importantly, we have shown that the OECD analysis is based on an inaccurate picture of the South African healthcare sector. While only 17% of the population is insured, a much higher percentage of people access care in the private sector, preferring to pay out of pocket to receive quality care. The distribution of human resources between the private and public sectors is also painted as very skewed, where in reality there are more nurses and general practitioners in the public than in the private sector. We therefore argue that price controls on hospital prices or

³⁵ It is stated in the document: 10 Frequently Asked Questions that: GDP per capita is consistently used in most international comparisons, and reflects the level of development of a country", p.2.

³⁶ Insight Actuaries, 2014. International Benchmarking of Hospital Utilisation. HASA report, 2014.

specialists are not the appropriate policy response. Finally, we explain that a simple comparison of hospital prices and GDP per capita does not yield any conclusive evidence of high hospital prices.

3 Section 3: Critique of the OECD analysis of hospital price drivers

In this section we provide a detailed critique of the OECD analysis of hospital price drivers. We firstly focus on issues specific to the healthcare sector in South Africa that have not been adequately accounted for by the OECD (such as an ageing population, burden of disease, etc.). We then turn our attention to an analysis of the specific cost drivers, using MCSA data to test the results of the OECD comparisons.

3.1 The OECD approach to evaluation of hospital price drivers and general shortcomings thereof

The point of departure for the OECD's analysis of cost drivers of hospital prices is the following:

- South African hospital price levels are the least affordable in the sample included in the study;
- South African hospitals are becoming more expensive relative to other goods and services in the country; and
- The significant and rapid increase in high volume procedures are not fully explained by changes in medical aid membership.

The OECD's evaluation of cost drivers compares admission rates and lengths of stay between South Africa and the OECD countries, by case type (for the 28 case types in question) and in aggregate (split by inpatients and outpatients). In the case-level analysis, age is controlled for in only two cases (out of the total 28), and beneficiary numbers are controlled for in six cases. The OECD then goes on to analyse components of the price; including hospitals, family practitioners and specialists, radiology and pathology. Here it is not clear what the aim is as no comparison is drawn with similar cost components in the OECD countries, limiting the inference that one can make from this part of the analysis. And as there is minimal time variation in the components, this constitutes more of a snapshot of price components in aggregate and by case type.

The OECD report draws the following conclusions about admissions and length of stay:

- Relatively high admission rates resulting potentially from supplier-induced demand (OECD report, par. 70);
- Lower average lengths of stay thought to result from medical schemes' cost control measures (OECD report, par. 71); and

- Increases in inpatient surgical prices by 6.9% points and 6% points between 2011 and 2012, and 2012 and 2013, respectively. The main driver of this is payment to specialists³⁷ (OECD report, par. 71).

It was already shown in section 2 that cross-country comparisons are difficult, especially in the healthcare sector. In what follows we focus on the healthcare specific issues that the OECD report has not taken into account in their analysis. More specifically, we consider the following to be the major shortcomings of the OECD analysis:

- General price inflation is not a suitable measure against which to measure hospital price inflation;
- Beneficiary numbers are not controlled for in all analyses of admissions data; and
- Patient profiles are not controlled for in all analyses of admissions data.

We discuss each of these before turning to similar analyses using MCSA data.

3.1.1 General price inflation is not a suitable measure against which to compare hospital price inflation

Comparing private hospital price increases to South Africa's overall inflation is problematic. The "health" proportion of the South African CPI basket makes up only 1.39% (1.46% in the CPI basket for urban areas). Of this, hospital services make up only 3% because the majority of South Africans receive free healthcare from public health facilities.³⁸ In any event, it is well documented that medical inflation is higher than general inflation. Hospital inflation is driven by prices of hospital input items (e.g. nurse wages) which increase at rates higher than the headline CPI basket. This may be due to macro- and microeconomic factors such as skills shortage, unionised labour, power supply constraints, basic services, exchange rates, etc.

New and improved medical technology facilitates new and improved treatments. Where these technologies have been linked to improved health outcomes, they are expected to influence both demand for and supply of private hospital services, and also to influence expenditure on private hospitals through both price and utilisation (with the direction of influence for each being specific to each technology). Pharmaceuticals in South Africa are sourced both locally and internationally, whereas medical devices, prostheses and surgical items ("surgicals") used in private hospital wards and theatres are largely sourced through imports, via wholesalers or distributors. The cost thereof is therefore closely linked with the prevailing exchange rate. As a result, the healthcare industry is more exposed to the volatile (and depreciating) exchange rate than the goods included in the general price index basket. The general price level (CPI) is therefore not a good comparator measure.

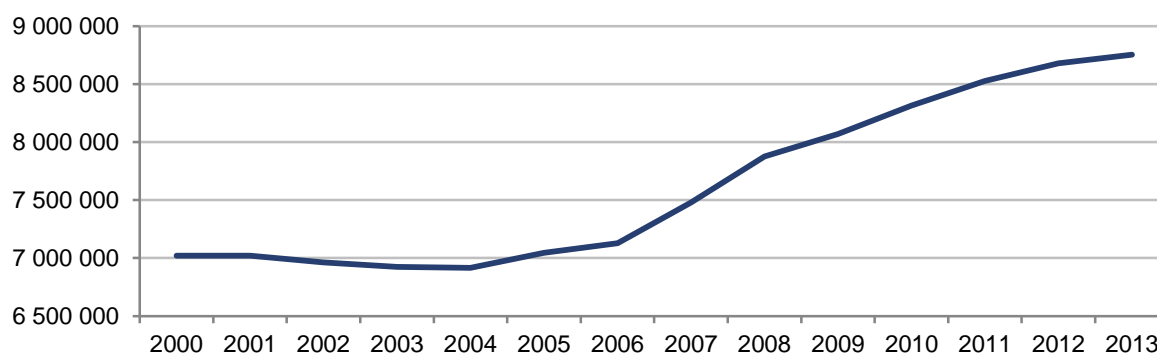
³⁷ It is not clear but this statement by the OECD appears to relate to an increase in 'family practitioner/specialist' costs for surgical procedures from 31.6% in 2011 to 32.3% of total 'price' on 2013. However, "family practitioner" is included in the table in the graphs in the report, but is not discussed in the summary.

³⁸ Econex, 2014. "Rising Prices in the Healthcare Sector: Unpacking Health Inflation," Available: <http://econex.co.za/publication/research-note-36/> (p.3,4)

3.1.2 Beneficiary numbers are not controlled for in all analyses of admissions data

Admissions data can only be interpreted in terms of beneficiary numbers. Figure 2 shows the increase in South African medical scheme beneficiaries between 2000 and 2015.

Figure 2: Medical scheme beneficiaries, 2000–2015 (end of year numbers)



Source: CMS Annual Reports

Beneficiary profiles have changed over time. The Medical Scheme environment in South Africa is characterised by open enrolment and community rating, but not mandatory membership. A risk equalisation mechanism between medical schemes is also lacking. Therefore it can be expected that some degree of anti-selection is exercised by medical scheme beneficiaries, which impacts on the private hospital admission rate. There is a growing body of research to support the existence of adverse or anti-selection in the South Africa medical scheme population. This is evident in studies that consider the age distribution of the medical scheme population relative to the age distribution of the South African population as a whole.³⁹ These studies find that there is in fact a significant difference, with the medical scheme population showing peaks around maternity years and again around more disease prevalent, older years. Studies regarding the inflation of contribution trends between open and closed medical schemes⁴⁰ also offer support for the existence of adverse and anti-selection. These find that inflation is significantly higher for open schemes, indicating the fact that these schemes are more widely exposed to risk-seeking individuals. In line with this and if one is to contrast South Africa's private healthcare trends to those of other countries, account should be made (at minimum) for ageing and disease profile of patients.

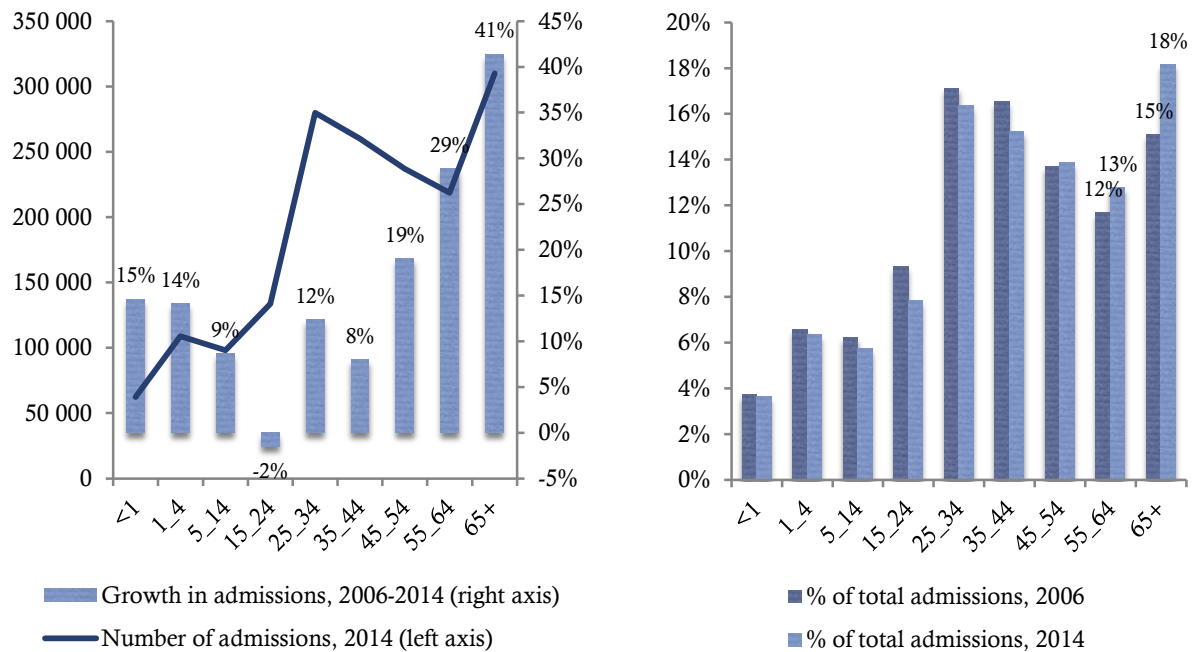
Population ageing is expected to have an influence on utilisation as older beneficiaries are generally expected to require more care relative to younger individuals. This is expected due to higher prevalence of various acute and chronic health conditions in older age groups – a global phenomenon.

³⁹ E.g. McLeod, H. & Grobler, P., 2009. The Role of Risk Equalisation in Moving from Health Voluntary Private Insurance to mandatory Coverage: The Experience in South Africa.

⁴⁰ E.g. Oxera, 2012. Private Healthcare Market in South Africa, p. 20.

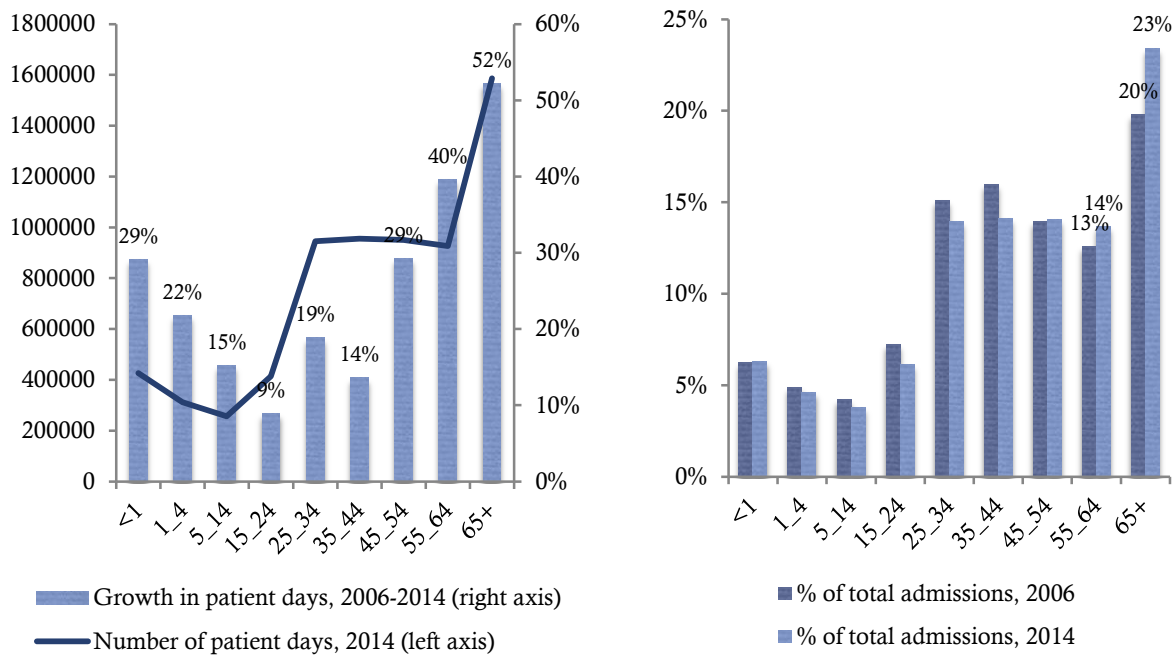
The age and disease profile of patients should therefore be taken into account when explaining changes in the type and frequency of admissions. Figure 3 shows South African private hospital admissions by age between 2006 and 2014. Figure 4 replicates this but with patient days, and Figure 5 illustrates how extensively this impacts on cost. Utilisation is higher and more expensive for older patients. Importantly, while the OECD acknowledges South Africa's ageing medical schemes population in figure 2 of their report, they only incorporate this in two of their analyses. This is a major shortcoming of their work.

Figure 3: HASA data: Admissions per age band, 2006–2014



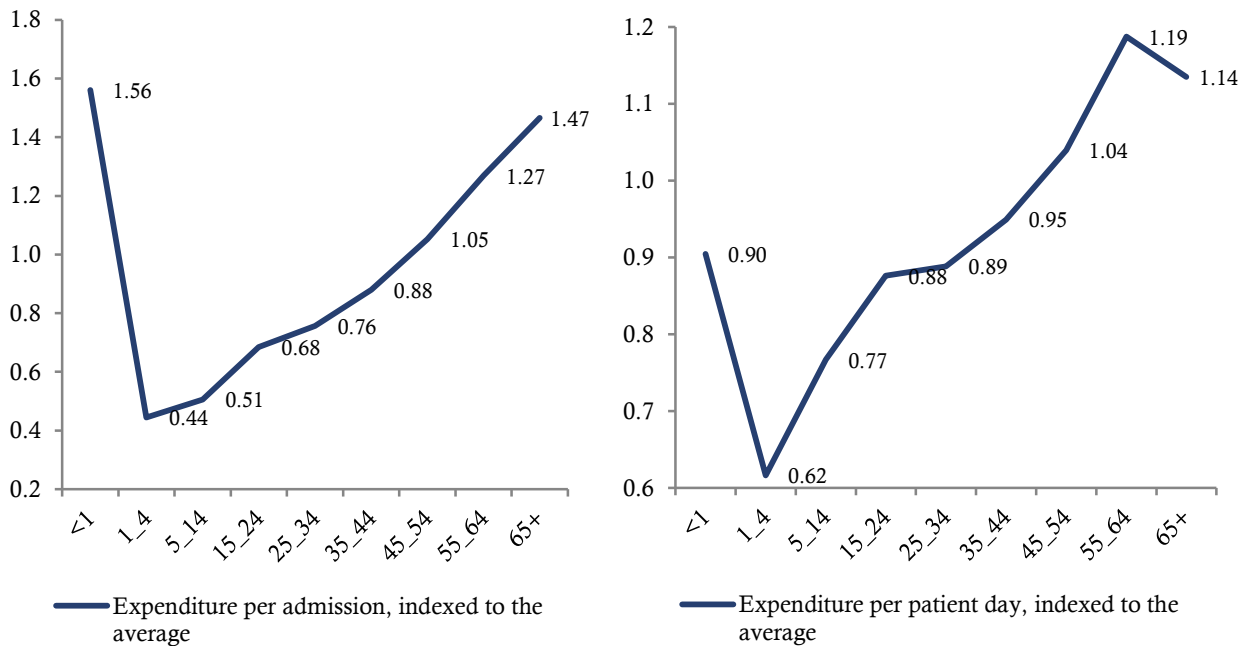
Source: Private hospital data, Econex calculations

Figure 4: HASA data: Patient days per age band, 2006–2014



Source: Private hospital data, Econex calculations

Figure 5: HASA data: Indexed average expenditure of admissions and patient days, 2014



Source: Private hospital data, Econex calculations

No other factors (such as chronic disease prevalence) are controlled for when comparing the OECD and South African samples' admissions data. The disease burden of beneficiaries is expected to impact on utilisation and expenditure. There is a growing body of research that supports that there is an increasing burden of disease evident in the South African medical scheme population, with the

majority of research focusing on chronic disease. Recent research⁴¹ by the CMS indicates that the upward trend in prevalence rates of chronic disease in the South African medical scheme population has, over the past five years, continued to increase at rates more rapid than the medical scheme population growth. In addition it is found that concurrent disease prevalence is becoming an increasing phenomenon. In this regard the following was stated by the CMS:

“The number of medical scheme beneficiaries who were diagnosed and treated for multiple chronic conditions increased by more than 25% between 2012 and 2013, whilst the number of beneficiaries with four or more chronic conditions increased over the same period by 78%.”⁴²

These findings indicate that the South African medical scheme population does suffer from a burden of disease and that this is on the increase. Other stakeholders have also provided insights into the chronic disease burden. For example Discovery Health reports that:

“Over a 5 year period, age and plan mix adjusted chronic disease prevalence in DHMS has increased by 27.3%, or 4.9% per annum. This increase in chronic disease prevalence leads to an expected increase in claims costs of approximately 1.4% per annum, before any other inflation related factors.”⁴³

The above indicates that chronic disease prevalence does impact on overall healthcare expenditure and it is also expected to be the case specifically for medical scheme expenditure on private hospitals. This is due to the medical schemes regulatory environment mandating chronic diseases and other conditions that are specified as included in PMBs to be covered in full by medical schemes, particularly in the case that a designated service provider (DSP) is utilised and the correct protocols are followed for treatment.

In addition to chronic related disease, it is also well documented that South Africa in general is facing many other diseases. As stated by the Competition Commission of South Africa in their terms of reference to the ongoing inquiry into the private healthcare sector:

“South Africans are facing what is referred to as a ‘quadruple burden of disease’: The first burden is the HIV/AIDS pandemic; the second is that of injury, both accidental and non-accidental; the third consists of infectious diseases such as tuberculosis, diarrhoea and pneumonia, and the fourth is the growing prevalence of lifestyle disease related to relative affluence.”⁴⁴

No consideration of this is evident in the OECD report.

⁴¹ CMS, 2015. Prevalence of Chronic Diseases in the Population Covered by Medical Schemes in South Africa. January 2015, published by the Research and Monitoring Unit of the CMS.

⁴² See footnote 41, p. 9.

⁴³ Discovery Health, 2014. Submission to the Private Healthcare Inquiry, pp. 35-37.

⁴⁴ South African Competition Commission, 2013. Terms of Reference for Market Inquiry into the Private Healthcare Sector. Government Gazette, 29 November 2013, Notice 1166 of 2013, p 77.

3.1.3 Summary of differences

Whilst not all of the factors discussed above can be controlled for quantitatively, at an absolute minimum the researcher should control for factors such as:

- Age;
- Gender;
- Burden of disease;
- Severity of treatment, and
- Relevant demand and supply factors in comparing two cross-border samples.

The OECD and South African samples and variables of analysis however appear to differ significantly, and these have not been controlled for in the OECD analysis. Some of the major flaws in the design of the OECD study are listed in the table below.

Table 1: Differences in the South African and OECD samples

Comparability check	South African sample	OECD sample
Is treatment at public or private facilities in question?	Private hospitals	Public/private hospitals
Which type of private coverage is considered?	Supplementary, duplicative	Supplementary, duplicative, complementary; with varying combinations (in addition to, as mentioned above, public healthcare)
How representative are the samples of the respective private healthcare populations?	60% or less of private beneficiaries; one or two administrators' profiles	Participating countries conduct their own surveys, each with a different sample size; Eurostat and the OECD verify the methodologies used
What is the service delivery model of the respective healthcare systems?	Catastrophic based hospital care combined with step down facilities ⁴⁵	This is not considered by the OECD
What do the demographics of each respective population look like?	Ageing medical scheme population, burden of disease (consider regulatory landscape and resultant anti-selection)	This is not considered by the OECD
Which prices are being compared?	Actual prices or reimbursement rates (it is not clear which is used by the OECD in analysing South Africa) Privately determined/negotiated prices	'Quasi prices' – as per section 2.3.2 of this report Publicly and privately determined prices (influenced significantly more by non-market forces)

⁴⁵ Step down facilities will not always be included but do influence the data, as one would expect higher average hospital cost per day but lower length of stay of people are moved to step down facilities.

Having shown that there are major shortcomings of the analyses of hospital price drivers and that factors such as age, burden of disease, etc. have not been controlled for, we now move to a detailed analysis of the same issues studied by the OECD, but using MCSA data.

3.2 Analysis of specific price drivers using MCSA data

Since we do not have access to the OECD data, our best option is to use MCSA data to test empirically the accuracy and findings of the OECD analysis. MCSA (which has approximately a 25% share in the South African private hospital bed market) has provided us with admission data for their hospitals, extracted on the basis of the same criteria⁴⁶ and for the same time period as that used in the OECD report. Whilst this is only a sample, it does provide a basis for a useful reference check of the OECD's figures. We do not distinguish between outpatient and inpatient admissions, as it is not clear that the OECD makes this distinction.⁴⁷

3.2.1 Admissions

We do not attempt to replicate the OECD's analyses of admission rates, as this would require scaling up the MCSA data; an exercise that may be subject to small sample bias. Rather we consider the OECD's Figure 10, which shows admissions annually over three years for six (of 28) cases. The trends in these admissions over time are then juxtaposed with the increase in beneficiaries over time. In the analysis, two of the selected six case types are highlighted (hip and knee replacements). It is stated by the OECD that data from the OECD exist for only these two cases (with admission rates comparable on age-adjusted terms). The OECD concludes that:

“These data point to relatively high admission rates for some services in the study sample that are increasing over time and cannot be fully explained by changes in medical scheme membership... suggesting that the private sector offers weak controls on admissions and easier access to hospital services leading to relatively high rates of admissions in the private sector.”

Against this context Table 2 indexes MCSA admission data in order to observe the trend for *all* case types' admissions over 2011-2014. The data show that in many instances admissions are increasing more rapidly than beneficiaries. Over the four-year period, beneficiaries have increased by 3%, whereas admissions for many of these case types have exceeded that rate. However it is important to understand that each case type has many influencing factors that impact on admissions and should be controlled for if one is to conduct sample comparisons. The OECD has attempted to compare samples but has not controlled for any of the possible influencing factors.

Table 2: MCSA data: admissions, by case type and by age band, 2015

Row Labels	2011	2012	2013	2014
M01 Acute Myocardial Infarction	1,00	1,02	1,11	1,03
M02 Angina Pectoris	1,00	0,90	0,90	0,84
M03 Cholelithiasis	1,00	0,99	1,22	1,30

⁴⁶ The OECD's criteria for primary and secondary CPT codes, as well as related diagnosis codes, are highly specific. This is expected to have decreased many instances where an admission may have been counted. Nevertheless we replicate the extraction criteria of the OECD in order to identify a relevant MCSA sample

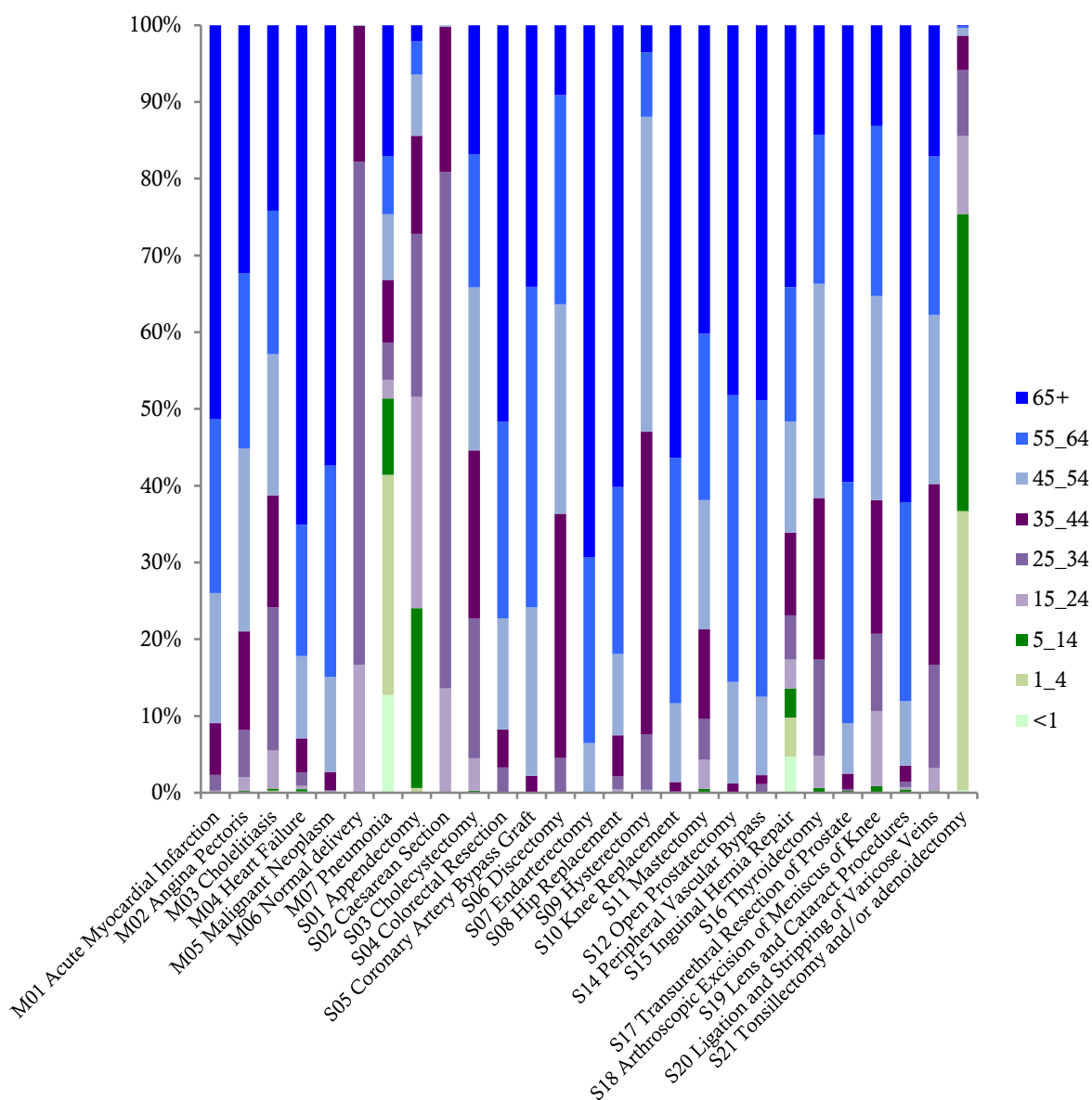
⁴⁷ It appears that the OECD report considers only four (of 28) case types to be possible as either inpatient or outpatient admissions. This may be a function of how the procedures are categorised in the OECD sample

M04 Heart Failure	1,00	0,94	0,98	1,07
M05 Malignant Neoplasm	1,00	1,18	1,28	1,28
M06 Normal delivery	1,00	0,91	0,95	0,89
M07 Pneumonia	1,00	0,97	1,01	0,99
S01 Appendectomy	1,00	1,01	1,01	1,02
S02 Caesarean Section	1,00	1,04	1,05	0,87
S03 Cholecystectomy	1,00	1,08	1,14	1,15
S04 Colorectal Resection	1,00	1,00	1,08	1,08
S05 Coronary Artery Bypass Graft	1,00	0,98	1,55	1,50
S06 Discectomy	1,00	0,73	1,03	0,75
S07 Endarterectomy	1,00	0,91	0,84	1,14
S08 Hip Replacement	1,00	1,05	1,00	1,09
S09 Hysterectomy	1,00	1,07	1,07	1,01
S10 Knee Replacement	1,00	1,11	1,24	1,28
S11 Mastectomy	1,00	1,05	0,95	1,05
S12 Open Prostatectomy	1,00	1,24	1,31	1,47
S13 Percutaneous Transluminal Coronary Angioplasty	1,00	2,08	2,33	0,00
S14 Peripheral Vascular Bypass	1,00	0,93	0,74	0,72
S15 Inguinal Hernia Repair	1,00	1,08	1,05	1,10
S16 Thyroidectomy	1,00	1,00	1,22	1,14
S17 Transurethral Resection of Prostate	1,00	0,79	1,32	1,62
S18 Arthroscopic Excision of Meniscus of Knee	1,00	0,74	1,21	2,10
S19 Lens and Cataract Procedures	1,00	1,15	1,08	1,06
S20 Ligation and Stripping of Varicose Veins	1,00	1,03	0,99	1,00
S21 Tonsillectomy and/or adenoidectomy	1,00	1,01	1,06	0,99
Grand Total	1,00	1,02	1,11	1,03

Source: MCSA data; Econex calculations

As discussed, at an absolute minimum the age and disease profile of beneficiaries should be controlled for. As an illustration of the significance of dismissing these influences (as the OECD has done), Figure 6 shows the age profile of the beneficiaries admitted for the case types in question at MCSA hospitals in 2015. It is clear that in most instances these admissions are strongly composed of older patients.

Figure 6: MCSA data: admissions, by case type and by age band, 2015⁴⁸



Source: MCSA data; Econex calculations

It would be important to examine whether the age and disease profile of admissions in the two samples (South African and OECD), are comparable, before making any inference about the drivers of admission rates and their potential impact on price. As this has not been considered in the OECD's analysis, and in addition to the sample issues discussed in section 2, the analysis of the comparative admissions by the OECD appears to be neither complete, nor accurate. The OECD report concludes that high admission rates are driving hospital prices and that the causes for high admissions rates are weak controls on admissions and easier access to hospital services. However, the data presented in this section show that overall admissions have increased and as explained in earlier sections there

⁴⁸ S13 'Percutaneous Transluminal Coronary Angioplasty' is not reflected in this figure, as there are no admissions for this case type in 2015.

are many contributing factors including an ageing population, burden of disease and case severity. If these are not controlled for then one cannot ascribe increased admissions to ‘weak controls’.

3.2.2 Length of stay

Having presented a comparison of admission rates observed for the South African and the OECD sample, the OECD study turns to an analysis of the average length of stay (ALOS). Here the main aim of the OECD study is to compare the ALOS, in aggregate and by case type, between the two samples and highlight the differences. From this exercise the OECD study finds that the ALOS, in aggregate and for most case types considered separately, is significantly less in the South African sample, relative to that observed in the OECD sample. In aggregate the ALOS for medical services is found to be 3.9 days in South Africa, compared to 5.1 days in the OECD sample; and the ALOS for surgical services is found to be 2.9 days in South Africa, compared to 4.4 days in the OECD sample.⁴⁹

The formula used to determine length of stay (LOS) is reported in the OECD study as the discharge date less the admission date, with the addition of one in the case that these two figures are the same.⁵⁰ This differs slightly to the LOS formula used in other local studies, making it difficult for us to do a reasonability check for the OECD study results regarding ALOS. Nevertheless, Table 3 describes the results of local studies that question the ALOS of private medical scheme patients in South Africa, including the LOS formula used and samples analysed in each study.

Table 3: Summary of studies that investigate length of stay in South Africa

Study	LOS formula	Sample	ALOS found
OECD, 2016	Discharge date – admission date, +1 only in the case that these are the same	7 medical case types and 14 surgical case types, with data derived from 1 or 2 administrators	3.9 days for medical cases 2.9 days for surgical cases
Econex, 2015 ⁵¹	Discharge date - admission date, + 1	Netcare, Life Healthcare and MCSA inpatients; 2013	3.9 days
Insight, 2014 ⁵²	Discharge date – admission date	Netcare, Life Healthcare and MCSA inpatients; 2011-2013. All day cases removed.	Approximately 4 days

Table 3 shows that the ALOS found in other local studies is within a reasonable range of that found by the OECD study. Therefore whilst we cannot validate the OECD’s ALOS values for South Africa because of differing formulas and samples, we do not find their results for South Africa to be vastly out of line. We do however have a serious problem with their calculations which cast doubt on results that they attain for their sample and with their stated methodology.

⁴⁹ OECD report, par. 58.

⁵⁰ OECD report, par. 21.

⁵¹ Econex, 2015. Private Hospital Expenditure and Relation to Utilisation – Observations from the Data. Hasa Report, 2015.

⁵² Insight Actuaries, 2014. International Benchmarking of Hospital Utilisation. HASA report, 2014.

3.2.2.1 The way in which the OECD removes outliers is expected to bias the results

The OECD removes all 'atypical' and 'long stay' cases. Atypical cases are specified as those for which the standard profile of care is not followed due to death, sign-out or transfer to other facilities. Long stay cases are specified as those with days of stay higher than 1,5 standard deviations from the scheme's case-type specific mean.⁵³ By this method, the OECD removes approximately 7% of the South African sample for each year (as shown in table 2 of the OECD report), with the greater proportion of these exclusions due to long stay cases, removed according to deviation from the mean.

The above method of removing long stay cases would be accurate if the LOS distributions were symmetric. But we do not expect that this is the case, nor does the OECD state in any part of their report that they have checked for the distribution before selecting a method to remove outliers. In the case of asymmetry, analysis of the inter-quartile range (IQR) would have provided a much more prudent approach to the removal of outliers. The existent method of removing outliers in the OECD sample may bias results for either sample upward or downward, dependent on the distribution of each scheme's LOS.

3.2.2.2 The way in which the OECD specifies case types removes more complex cases and is expected to bias the results

The OECD defines case types by the specification of certain primary and secondary treatment codes.⁵⁴ The range of secondary codes specified is in most cases limited. This means of case type screening removes a significant number of more complex cases and is expected to bias the resulting ALOS (for both South Africa and the OECD) downward. In addition, if coding practices differ between the countries analysed, this may potentially bias the LOS values found for each sample – upward or downward.

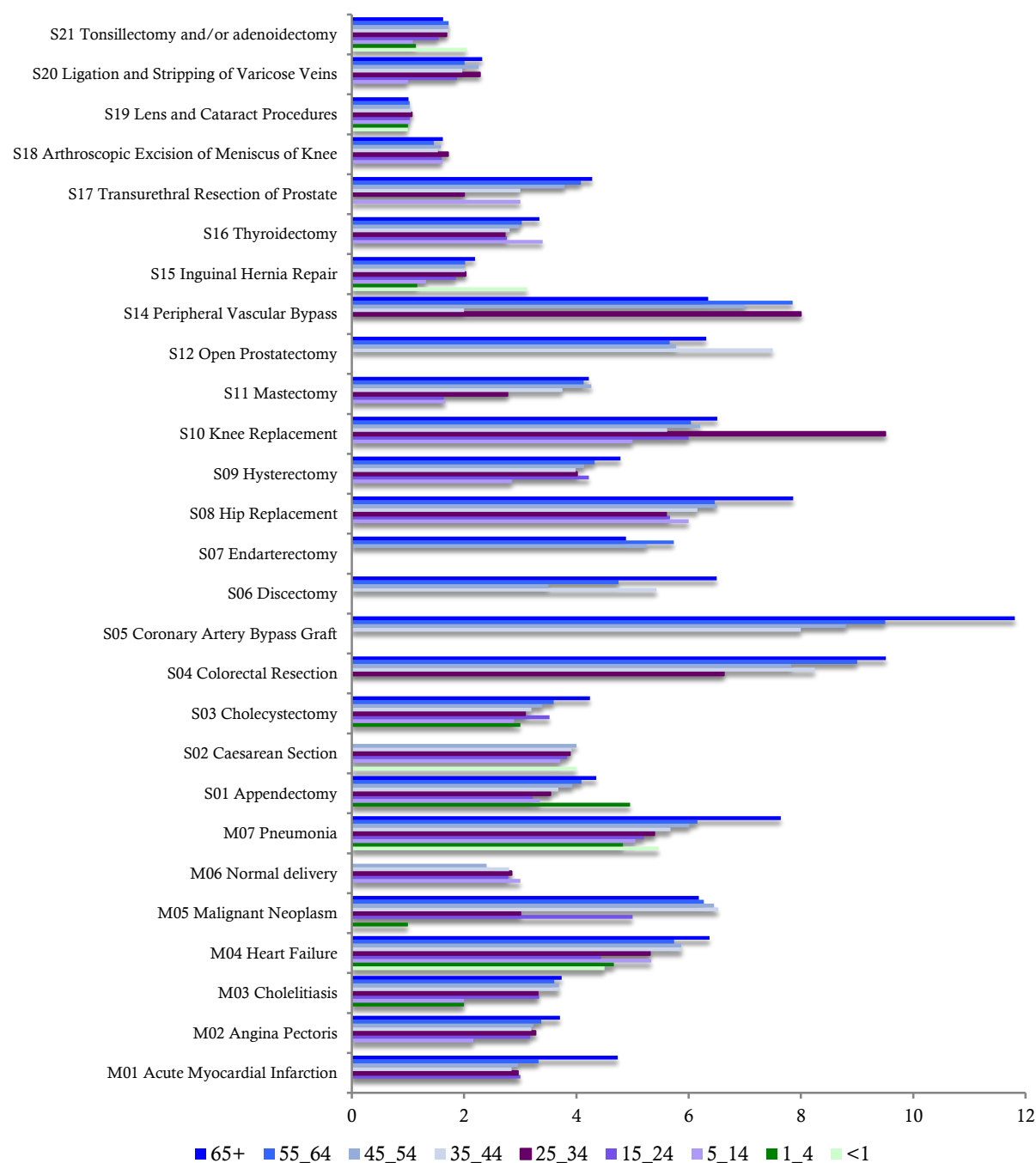
3.2.2.3 That the OECD makes no control for patient profiles is expected to bias the results

It is plausible that the age, disease profile, case severity, and similar factors would all impact on the LOS of a patient, in addition to the service delivery model in each country. As a simple illustration of the significance of controlling for patient profile when viewing two cross-border samples of admissions data, Figure 7 shows, using MCSA data, the ALOS for the 28 case types in question, in 2015, disaggregated by age. Evidently, ALOS is not only case specific, but also patient profile specific. The weighting of case admissions and patient profiles within those case admissions will strongly impact on the ALOS found for each sample. This has however not been at all considered nor controlled for by the OECD in their analysis.

⁵³ OECD report, par. 22.

⁵⁴ OECD report, Appendix 2.

Figure 7: MCSA data: average length of stay, by case type and by age band, 2015⁵⁵



Source: MCSA data; Econex calculations

3.2.2.4 That the OECD makes no control for structural differences is expected to bias the results

⁵⁵ S13 'Percutaneous Transluminal Coronary Angioplasty' is not reflected in this figure, as there are no admissions for this case type in 2015. Additionally, one outlier was removed. This was for S06 'Dissectomy', for age band 25-24, for which two admissions were recorded. Please also note that as the LOS formula used by Mediclinic always adds one after the subtraction of discharge date from admission date, we do not attempt to contrast these numbers in aggregate with those provided by the OECD.

Nothing is stated by the OECD regarding contextual considerations of the facilities in which care is provided in each country analysed. While rehabilitation facilities and services are understood to have been excluded from the OECD sample,⁵⁶ no detail is provided on the predominance of day hospital/surgeries in the different countries and the impact that this would have on the typical length of stay observed across the samples. Many more developed countries (including those OECD members studied) have well-developed infrastructure of day clinics and unattached operating theatres. The equivalent facilities are not as prevalent in the South African private healthcare sector (although day hospitals are more recently attracting investment). As a result of this ambulatory and day cases are generally treated in acute care facilities on a day-case basis. As the OECD has not controlled for these significantly different structural contexts, we expect that in the OECD's measure of the South African sample relative to the OECD sample, admissions are biased upward and ALOS is biased downward. The OECD Eurostat-OECD Methodological Manual also makes a distinction between general and specialist hospitals.⁵⁷ It is unclear against which of these two categories South African private hospitals are benchmarked; or to what degree structural differences in the South African private hospital market may preclude this bifurcation of hospital facilities.

3.2.2.5 That the OECD makes no control for the different samples and the related role that funders play in the various settings is expected to bias the results.

Beyond the OECD's lack of control for patient profile, sample bias issues, as discussed in Table 1, will evidently impact on average lengths of stay observed across different countries. As discussed in that table, South Africa's service delivery model is significantly different to those of the OECD countries, and this has an interdependent relation to financing structures. It would be relevant to consider this in a cross-country comparison of utilisation and cost related to hospital-based care. This has been acknowledged by the OECD, but not applied in their analysis. Efficiency has also been alluded to by the OECD⁵⁸ as an explanation of lower LOS for the South African sample, but no empirical work has been carried out by the OECD in this regard.

Notwithstanding the above-described flaws in the OECD's calculations regarding ALOS, it is plausible that South African private healthcare, when correctly analysed, may exhibit a lower ALOS relative to the OECD countries. Insight Actuaries, using robust measures with suitable controls, has previously also found a lower ALOS for South Africa relative to OECD countries.⁵⁹ As the samples and measurement used in that study differ significantly from that considered by the OECD, this does not serve to validate the OECD analysis, but rather simply to discuss that a lower ALOS, when accurately measured, may indeed exist for South African private healthcare relative to that observed in OECD countries. This, however, should be properly understood and interpreted in the context of South

⁵⁶ See footnote 13 (p.161)

⁵⁷ Ibid.

⁵⁸ OECD report, par. 71.

⁵⁹ Insight Actuaries, 2014. International Benchmarking of Hospital Utilisation. HASA report, 2014, p. 26.

Africa's private healthcare system – with specific understanding of the unique service delivery models and financing mechanisms prevalent in this system.

3.3 Summary

The aim of this section was not to replicate the figures for the OECD sample, as we do not have the same data (the OECD analysed funder data). More importantly though, we also cannot replicate the analysis for the South African sample in the OECD report using the total benefits paid by medical schemes as reported by the Council for Medical Schemes (CMS). The inability to replicate the graphs for a larger sample stems from the fact that it is not known how much of the amount paid for e.g. “pathology” in the CMS data can be attributed to the case types analysed in the OECD report and not to the use of pathology services outside of a hospital setting. Under the current regulatory framework only medical schemes and administrators have data detailed enough to replicate the analysis for a South African sample.

However, we were able to show that where the OECD ascribes higher admissions to ‘weak controls’ that this is not the case. There are many drivers of higher admissions in the private hospital sector, such as age, burden of disease, etc. If a study of this type does not control for these variables, then no conclusive findings can be made as to the reasons for higher admissions compared to the OECD countries. Certainly, ascribing high admissions to weak controls is misleading and irresponsible. In terms of ALOS, we find the data presented by the OECD to be more or less in line with general benchmarks in South Africa. This however does not mean that the conclusion that higher prices and shorter length of stay further increases the price of hospital visits, is correct. These are simplified conclusions which exhibit a clear lack of insight into the complexities of the South African healthcare system.

4 Findings and Policy implications

The aim of the OECD document is to conduct cross-country price comparisons for the healthcare sector, broadly comparing a South African sample to an OECD sample. The process involved the following steps:

- Identifying a sample of services (called ‘case types’) produced by hospitals;
- Collecting information on the number of hospitalisations and average length of stay per case type and in total; and
- Collecting information on the price per case type together with its cost structure.

It is important to understand what the steps in this process are, i.e. similar procedures have to be priced and converted to a comparable benchmark between a basket of countries. The OECD selected a total of 28 procedures for their study. Hospital data were provided by several large medical schemes in South Africa for 2011-2013, covering almost 60% of beneficiaries. The results of the OECD study are that private hospital prices in South Africa were 94% of OECD average hospital prices; and surgical services were 105% of OECD average. Medical services were lower than the OECD averages, representing 75% of the mean. The OECD reports that these are high levels, given the much lower GDP per capital levels of South Africa (compared to the OECD countries). The price comparison of individual procedures shows large variations, ranging from e.g. 52.6% to -46.1% (for inpatient surgical cases). Some prices are higher than the OECD average while some are lower.

Having found that private hospital prices are at similar levels (and sometimes higher) than those in the OECD sample, it is concluded that these levels (and increases) are due to increased admissions over time. The OECD concludes that increased admissions are not caused by increases in medical scheme membership but are caused by ‘weak controls’ in the private sector. Importantly, though the OECD report refers to the influence of age and burden of disease, these are not controlled for in explaining higher admissions. As explained by the OECD in footnote 10: “The case type definitions do not take into account the ‘severity’ of the hospitalisation case as proxied through secondary diagnosis and/ or age”. Given the evidence of anti-selection, an ageing population and increased burden of disease in the South African medical scheme population, this simply means that the OECD price comparison cannot be valid.

We therefore find that the price comparison is fraught with difficulties, including methodological problems as well as institutional differences between the two samples. It must then follow that the policy conclusions are equally invalid, as they are based on an incorrect analysis. Specifically, the OECD paper proposes the implementation of some form of price control on hospital prices as well as specialist prices. This will supposedly put downward pressure on prices in the private sector. However, without having established that prices are high, such a policy recommendation does not

follow. More importantly, as already pointed out above, while specialist fees may impact on the total hospital cost, it does not impact on hospital prices/ tariffs. Also, artificially lower specialist prices may have the unintended consequence of further reducing the stock of specialists and increasing fees further. There does not seem to be any credible theory about the spill-over effect of private hospital prices to the public sector. The correct policy implication of reported high specialist fees would be to increase the supply of nurses, general practitioners and specialists, as this would stabilise fees. If the public sector can improve the quality of services, this will improve access for the uninsured population, whereas the control of private sector prices will not 'free up' resources to be spent in the public sector while large quality differences persist.

In summary, the policy proposal of price controls does not follow from the (flawed) findings of high private hospital prices, and will in any event not have the desired effects given the institutional realities of the South African healthcare sector and quality differences between the two sectors.