PRIVATE WARDS IN PUBLIC HOSPITALS: WHAT ARE THE POLICY AND GOVERNANCE IMPLICATIONS?

A case study of Tygerberg Academic Hospital

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November 2007
Acknowledgements

This study would not have been possible without funding from the Alliance for Health Policy and Systems Research (under project grant GEH ID06).

In addition the following people played an integral role in supporting the study:

- Dr Craig Househam of the Provincial Government of the Western Cape (PGWC) who granted permission for the study to be undertaken; and
- Dr Japie Du Toit, Ms Kim Lowenherz and Mr Andries Van Niekerk of the PGWC who provided support throughout the process

Without the constant support of the following staff at Tygerberg Hospital the study would not have been possible:

- Dr Terence Carter;
- Dr Japie ‘Koos’ Muller;
- Dr Paul Ciaparelli;
- the TEXCO who supported the study;
- Pam Macgregor who showed endless patience in providing vital data;
- Louise Lahner who shared insights into the financial management systems;
- all members of staff who assisted in interviews and provided data and support throughout the research process;
- Professor Barbara McPake and Dr Kara Hanson of the London School of Hygiene for technical input provided during the proposal development and data analysis stages of the project.
- Dr Jonathan Broomberg for technical assistance provided at various stages of the project.
- Dr Nika Raphaely for assisting in the design of the resource use data-collection tool;
- Dr Muir and Dr Mokete of Johannesburg hospital who assisted in the design of the data-collection tool for cardio-thoracic and orthopaedics respectively;
• colleagues at the Centre for Health Policy for providing support and critical input throughout the research process; and
• Jane Doherty for her relevant, timely and critical comments made in the finalisation of this document.
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<td>The accounting software package used at Tygerberg Hospital</td>
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<td>CABG</td>
<td>Coronary by-pass surger</td>
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<td>CEO</td>
<td>Chief Executive Officer</td>
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<td>CLINICOM</td>
<td>System capturing patient administration data at Tygerberg Hospital</td>
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<td>CPIX</td>
<td>Consumer Price Index</td>
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<td>D3/D4</td>
<td>The names of the two private wards at Tygerberg Hospital</td>
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<td>DSP</td>
<td>Designated service provider</td>
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<td>GEMS</td>
<td>Government Employee Medical Scheme</td>
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<td>HO</td>
<td>Coding for indigent patients in UPFS</td>
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<td>ICD-10</td>
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<td>ICU</td>
<td>Intensive Care Unit</td>
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<td>Low-income medical schemes</td>
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<td>NHLS</td>
<td>National Health Laboratory Service</td>
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<td>OPD</td>
<td>Outpatient Department</td>
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<td>PERSAL</td>
<td>The personnel information system</td>
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<td>PGWC</td>
<td>Provincial Government of the Western Cape</td>
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<td>PMBs</td>
<td>Prescribed minimum benefits</td>
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<td>PPI</td>
<td>Public-private interaction</td>
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<td>RWOPS</td>
<td>Remunerated work outside of the public sector</td>
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<td>SYSPRO</td>
<td>System capturing procurement by different cost-centres at Tygerberg Hospital</td>
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<td>TBH</td>
<td>Tygerberg Academic Hospital</td>
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<td>TEXCO</td>
<td>Tygerberg Executive Committee</td>
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<td>UEC</td>
<td>Urea, Electrolytes and Creatine</td>
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<td>UPFS</td>
<td>Uniform Patient Fee Schedule</td>
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EXECUTIVE SUMMARY

INTRODUCTION

Over the last few years, private wards have been implemented on a small scale within South African public hospitals. In the main, these ‘differentiated amenities’ involve the provision of better hotel services to higher-income patients who, under a fee-for-service reimbursement mechanism, pay out-of-pocket or through medical insurance. The public sector objectives for these wards include revenue generation as well as wider benefits to the public health system, leading to better access for disadvantaged population groups, retention of health personnel and development of new models of service delivery.

There has been little evaluation of the impacts of this type of public-private interaction and so it is unclear how well private wards are working and what factors influence their performance. Unfortunately, the limited international experience of private ward arrangements in public hospitals suggests that there is a strong potential for these wards to promote inequity. Two key problems are the failure to generate sufficient revenue to sustain hospital-wide quality improvements, and the skewing of resource allocations towards private wards. These problems are driven by a series of policy design and governance weaknesses.

AIM AND OBJECTIVES

The aim of this study is, through the use of a case study approach, to assess the equity impacts of market-led public hospital reform in South Africa, and the design and governance factors influencing these impacts. The specific objectives are to:

1. determine whether private wards raise sufficient revenue to generate a surplus and subsidy flow to public wards;
2. assess whether, and why, public ward patients benefit from any use of surplus revenue generated through private wards;
3. determine whether, and why, hospital resources are diverted from public to private wards, and whether this affects the quality of care offered in public wards;
4. identify the main actors whose actions might undermine the attainment of equity objectives, and the factors influencing their actions;
5. assess the operation of existing governance mechanisms in terms of their potential to prevent inequity resulting from the private ward operation; and
6. assist policy-makers in developing appropriate governance mechanisms to ensure that private wards achieve their revenue generation and equity goals.

The hospital selected as the case study was Tygerberg Hospital, an academic, tertiary facility in the Western Cape that implemented the first of what eventually became two private wards in 2003/04.

**METHODS**

Existing hospital information systems do not allow the costs of individual private patients to be tracked directly. The study therefore adopted a step-down approach whereby costs falling under different cost centres were allocated downwards towards the private wards and selected private patients, using appropriate allocation criteria. This step-down analysis was complemented by a ‘bottom-up’ estimation of the costs of some inputs for which information derived from patient records was required. Given data limitations as well as the complexity of both the step-down and bottom-up analyses, cost information could only be calculated for two tracer interventions, namely coronary by-pass and hip replacement surgery, of which there were 46 and 18 respectively during the year of interest (2003/04). Revenue collected from these patients was also calculated. Lastly, some simple indicators of service quality, for these patients as well as for a comparable sample of public patients, were assessed. Qualitative information was derived through interviews with key actors.

**FINDINGS**

*Do private wards raise sufficient revenue to generate a surplus and subsidy flow to public wards?*

On average, each coronary by-pass and hip replacement in the private wards cost R37,980 and R51,091 respectively in 2003/04. Private bypass surgery has the potential to generate a surplus for the hospital as, in 2003/04, the average invoice was around R6,000
(or 16 percent) higher than the average cost of the intervention. In fact, fees raised from bypass surgery represented 11 percent of total fees raised from private wards, although these patients account for only 3.7 percent of patient days in the private ward. However, only 88 percent of the value billed for this type of surgery was actually received. This reduced the surplus raised per intervention to around R650 (which is only 2 percent of the cost). This percentage could be even lower, given that some costs are missing from the costing analysis.

The potential to generate a surplus with hip replacements is much lower with the average invoice in 2003/04 only around R1,400 (or 3 percent) higher than the average cost of the intervention. As there were similar problems around ensuring that bills for this intervention were actually paid, it transpires that the hospital did not recover costs for this intervention: on average there was a deficit of around R4,200 (or 8 percent) per intervention.

The data support the views of management officials that some surgical interventions have surplus-generating potential. This surplus is not necessarily large, however, and problems with collecting revenue can turn a potential surplus into an actual deficit, leading to the cross-subsidy of private wards by the public sector. A major limitation of the study was the inability to conduct a cost-recovery analysis for the entire D3/D4 set of private activities at TBH. A detailed study comparing a range of interventions could conceivably reveal different levels of subsidy flow across interventions and clinical sub-departments given the variations detected in the tracers included in this study. It is therefore difficult to conclude whether, overall, the private wards generate a surplus or receive a net subsidy from the public sector.

**Do public ward patients benefit from any use of surplus revenue generated through private wards?**

While it is unclear whether private wards generate a surplus, they do bring in revenue that was not previously available to the hospital and province. With the full implementation of private wards by 2003/04, total hospital revenue increased by 31 percent compared to the previous year (in real terms). In that year, 30 percent of total hospital fees were accounted for by fees raised from the private wards. This suggests that the increase in revenue is mainly attributable to the development of private wards even though they only account for 2.5 percent of total admissions.
The revenue generated by the private wards is not retained directly by the hospital. Instead, it is returned to the provincial Treasury which then, through annual budget negotiations, allows any over-recovery of fees above a predetermined amount to be allocated back to the hospital for expenditure on capital items. Through a consultative resource allocation process, the hospital spends the funds on a prioritized list of purchases. Thus, there are visible benefits to the hospital as a whole resulting from the revenue-raising potential of the private wards.

**Are hospital resources diverted from public to private wards, and does this affect the quality of care offered in public wards?**

At least for the tracer interventions examined by this study, there were no fundamental differences between care provided to public and private patients. A key explanatory factor seems to be the private ward model adopted at TBH. The model does not allow public sector doctors and specialists to perform private practice in the hospital so doctors treat private patients as part of their normal hospital duties. This removes incentives to deliver more services to private patients that could result from the fee-for-service reimbursement system. In addition, given the limited number of private wards and beds relative to the rest of the hospital and the workload in the rest of the hospital, very little incentive exists to divert resources towards the somewhat limited private ward set-up. Different behaviours could be introduced over time, however, if the current model were changed. Given management’s cautious approach to the private ward policy the transition towards a private ward bias is still not – at this juncture – likely.

**What are the design and governance factors that influence private ward operations and impacts?**

Review of the (limited) international literature on the experience of private wards in public facilities generates six propositions as to why such wards lead to inequity. It is useful to reflect on why this study supports some propositions and contradicts others, in order to preserve the positive features – and mitigate the negative features - of such public-private interactions, where they exist in South Africa and elsewhere in the world.
Proposition 1: Inappropriate price levels, resulting from poor cost data and weak assessment of likely demand, will undermine revenue-generation levels
This study supports this proposition to some extent. Tygerberg Hospital charges its private patients fees that have been set at the national level and are not tailored specifically to the changing costs of inputs faced by the hospital year by year. Indeed, current information systems at the hospital are not able to determine exactly what these costs are and there are some problems with billing patients accurately for services rendered and recovering bad debt. Mechanisms to improve billing are themselves expensive and vulnerable to the migration of skilled staff from the public sector. These problems with pricing and cost-recovery, together with uncertain demand from private patients and medical schemes for care based in public facilities, makes the hospital vulnerable to under-recovery.

Proposition 2: The incentives inherent in the fee-for-service mechanism will promote a private ward bias in resource allocation within the hospital
There is little evidence from this study to support this proposition. In practice, the influence of the fee-for-service system at Tygerberg is contained by two factors. First, although patients are billed on a fee-for-service basis, staff are not paid on this basis. Second, at the hospital level there is no direct link between revenue collection from private wards and additional revenue allocated to the hospital.

Proposition 3: Revenue retention arrangements will have a strong influence over the potential for revenue use to result in equity gains
This study supports this proposition as it suggests that the particular revenue retention arrangements at Tygerberg Hospital do influence the potential for equity gains, in this case positively. Respondents also believed that the private wards have the potential to act as a catalyst towards improving overall service delivery by becoming the benchmark upon which future service delivery is to be modelled, and by improving morale. However, the extent and nature of those gains is less clear.
Proposition 4: Weak actor management skills will allow medical professionals to influence the design in ways that benefit themselves personally, and at the expense of revenue generation

There is little evidence from this study to confirm this proposition. There has been little or no resistance to the policy from the various groups of health professionals within the hospital. This has been partly because of management’s stance in insisting that benefits do not accruing directly to specific individuals or clinical departments. The overall support from doctors is sustained as private ward activity constitutes a relatively miniscule share of overall hospital activity. Senior clinicians have the opportunity to engage in transparent processes of allocation of revenue accruing from over-recovery. Although not benefiting directly, the fact that revenue benefits the entire facility helps to facilitate the buy-in of senior clinicians.

Proposition 5: A lack of clear guidelines on revenue use and resource allocation will undermine the use of revenue in ways that benefit public ward users

This study does not support this proposition strongly. There are clear guidelines in place on how to allocate revenue over-recovery. However, the process of decision-making is a cumbersome one that has the potential to create tension affecting buy-in to the policy by senior clinicians. Perhaps a more important influence over the allocation of revenue is the strong managerial concern about the potential for private ward bias. Management and clinicians both highlight the primary importance of service delivery to public sector dependants.

Proposition 6: Poor accountability over budgetary allocations within the hospital will encourage a private ward bias

Under current arrangements at the hospital, the evidence does not support this proposition. Provincial and senior management concerns around reverse subsidy suggest that policymakers and senior management alike are keen to ensure that the focus of service delivery is on public sector dependents and that the revenue-generating ability of private wards does not drive service delivery.
CONCLUSIONS

1. Tygerberg hospital does generate revenue from private wards but, at least in the case of coronary by-pass surgery and hip replacements, it seems unlikely to be covering costs, especially if one were to add in the costs that could not be determined by this study. Accurate billing and reducing bad debt are two immediate ways to minimise this reverse subsidy.

2. Even though it is not covering the costs of private ward activity, TBH is getting extra revenue for the hospital as a result of these activities. The revenue that the hospital is allowed to retain as a result is being used for wider hospital benefit.

3. Governance arrangements for the TBH private wards are very different from experience elsewhere in low- and middle-income countries, explaining the lack of a private ward bias.

4. There is some suggestion that the very existence of private wards under these sorts of arrangements is having a positive impact on service delivery in public wards.

Given that the private wards at Tygerberg Hospital are unlikely to be rolled back, the challenge rests with the hospital management and provincial government to ensure that a system is in place that ensures that costs are tracked and that a surplus is generated to the overall benefit of the facility. It is important to protect arrangements that guard against a private ward bias and prevent an erosion of the positive aspects of the Tygerberg experience. The complexity of the private ward policy, and the high levels of uncertainty around its impact, highlight the multiple health system challenges to unifying the public and private sectors.
1. INTRODUCTION

Since 1994, much has been done within the South African public sector to promote greater health system equity. The policy changes include removing user fees for primary care, improving geographical access to facilities, implementing rational drug policies and re-allocating resources geographically to reflect population needs (McIntyre and Gilson, 2002). However, the central equity problem of the health system has remained largely untouched by policy: the spending of over 50% of total national health resources on the private health sector which services less than one-fifth of the population (Doherty et al., 2002). Given this pattern of spending, the challenge remains to improve the flow of resources to the public health sector without undermining the overall level of health sector financing.

In this light, private wards have been implemented on a small scale within public hospitals in South Africa over the last few years, with different governance arrangements in different provinces (Wadee and Gilson, 2005). The dominant approach to such arrangements is that of ‘differentiated amenities,’ involving the provision to higher-income patients of better hotel services than usually available in public hospitals. Fee-for-service is the reimbursement mechanism, with patients paying either out-of-pocket or through medical insurance. The public sector objectives for these wards include revenue generation as well as wider community benefit. The latter is understood to mean gains such as better access for disadvantaged population groups, health personnel retention and new models of service delivery (National Department of Health, 2001).

Unfortunately, the limited international experience of private ward arrangements in public hospitals suggests that there is a strong potential for these wards to promote inequity. Two key problems are the failure to generate sufficient revenue to sustain hospital-wide quality improvements, and the likelihood of resource allocations within the hospital becoming biased towards private wards. These problems are driven by a series of policy design and governance weaknesses.

In the South African context, there has been little evaluation of the impacts of this type of public-private interaction and so it is unclear how well it is working and what factors
influence its performance. To contribute to continuing policy discussions and developments, this report presents a case study of one hospital’s private ward experience, that of Tygerberg Academic Hospital, located in the Western Cape Province. The hospital was selected because, at the time of the study, it was one of the few hospitals that had a sufficiently long experience to allow examination.

The report describes the background to private ward development in Tygerberg Academic Hospital, presents some evidence in terms of costs and revenue generation, and discusses the potential of private wards to either generate a revenue surplus or divert resources from the operating budget for public wards.

2. AIMS AND OBJECTIVES OF THE STUDY

The general project aim was, through the use of a case study approach, to assess the equity impacts of market-led public hospital reform in South Africa, and the design and governance factors influencing these impacts. The specific objectives were to:

7. determine whether private wards raise sufficient revenue to generate a surplus and subsidy flow to public wards;
8. assess whether, and why, public ward patients benefit from any use of surplus revenue generated through private wards;
9. determine whether, and why, hospital resources are diverted from public to private wards, and whether this affects the quality of care offered in public wards;
10. identify the main actors whose actions might undermine the attainment of equity objectives, and the factors influencing their actions;
11. assess the operation of existing governance mechanisms in terms of their potential to prevent inequity resulting from the private ward operation; and
12. assist policy-makers in developing appropriate governance mechanisms to ensure that private wards achieve their revenue generation and equity goals.
3. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Hospital reform can take several forms including increased managerial autonomy as well as separating the ‘purchaser’ and ‘provider’ to increase the degree of market pressure on public hospitals (McPake et al., 2003; McPake, 1996). Although hospital reform has been on the international agenda for several years, as part of the wave of new public management reforms, there remains very little published on the experience of its implementation. Indeed, some analysts suggest that there has been only a very limited degree of implementation of this type of reform (Mills et al., 2001). The main aspect of hospital reform for which at least some international evidence from low and middle income countries exists, is that of establishing private wards within public hospitals as a mechanism for generating revenue with which to improve overall hospital quality.

As already indicated, this evidence suggests that there is strong potential for negative equity impacts. Low levels of revenue generation inevitably limit the possibilities of securing a subsidy from private to public wards for the benefit of public users (Suwandono et al., 2001; Nakamba et al., 2002a). Some aspects of design may even generate a private ward bias in resource allocation (Hanson et al., 2002; Nakamba et al., 2002a; Nakamba et al., 2002b; Suwandono et al., 2001; Hanson et al., 2001). Such a bias may not only affect the net revenue generated from the wards but also, and more dangerous for equity, lead to the consumption of general budgetary resources in the hospital for private purposes (Phua, 2003; Suwandono et al., 2001).

Figure 1 highlights the key policy design and governance factors that are likely to influence the impacts of private wards, as derived from the literature. The key design elements are pricing practices, reimbursement mechanisms and revenue-retention arrangements: these have a strong influence over the levels of revenue generation achieved and the way in which resources are used. Three common design weaknesses are:

1. Inappropriate pricing strategies and inefficient billing systems for private wards, which can undermine revenue generation levels (Nakamba et al., 2002a; Nakamba et al., 2002b; Monitor Company et al., 1996). For instance, in Zambia the use of poor cost
data to inform pricing undermined cost recovery levels. In addition, in the face of alternative providers, setting private ward prices too high may discourage utilisation of the private wards in public hospitals and shift demand towards competitors as was the case in Indonesia (Lieberman et al., 2003).

2. The use of a provider reimbursement mechanism that encourages inefficient provision of care within private wards. This is likely to result in higher than necessary costs of provision, again undermining revenue generation levels (Hanson et al., 2002). For example, the dominant fee-for-service reimbursement mechanism used within the South African private sector provides a clear incentive to over-service patients, with significant cost implications (Macleod, 2003). Over-servicing may even bias resource allocation patterns within the hospital, attracting clinical resources (such as staff, drugs and clinical procedures) into servicing the needs of private ward patients at the expense of public ward patients (Nakamba et al., 2002b).

3. Revenue-retention arrangements that limit the benefits for public ward users resulting from revenue generation from private wards. In Indonesia, for example, revenue retention levels are undermined by the high proportion of total revenue retained by physicians and surgeons (Suwandono et al., 2001). In contrast, in Singapore (Phua, 2003) the revenue from private wards is taxed, again reducing levels of revenue generation, but ensuring that that a portion of the revenue is returned to the Treasury for wider allocation through the public sector.

Figure 1: Conceptual Framework Guiding the Study

Key Design Elements
• Price
• Re-imbursement mechanism

Revenue generation

Factors influencing revenue management capacity in:
• Price setting
• Analysing demand
• Managing actors (funders, providers)

Governance & Management Mechanisms

Factors influencing equitable resource-use
• Clear guidelines on resource use
• Managing actors (providers, managers)
• Accountability mechanisms

Public hospital
Private Wards

Resource flows

Public Wards

Public hospital

Equity Gain

Resource-use

Revenue-retention

Surplus

Re-imbursement guidelines

Revenue-generation

Key Design Elements

Public hospital

Private Wards

Resource flows

Public Wards

Public hospital
In addition to the design influences, Figure 1 indicates that a range of governance issues influence the equity impacts of private wards. In some instances, governance factors work through design details to have an indirect influence over impacts; in other instances, governance factors have a more direct influence. The two sets of governance issues that are important are management capacity and accountability mechanisms.

1. International experience highlights the importance of three particular forms of managerial capacity:
   - the capacity to conduct costing analyses: in Zambia, for example, poor cost information led to poor pricing practices (Nakamba et al., 2002a) and, in Indonesia, weak management capacity undermined price-setting, as financial data recording was insufficient to perform comprehensive and routine analyses comparing revenue with costs (Suwandono et al., 2001);
   - the ability to make reasonable judgements about the likely levels of demand for the new wards in the face of alternative suppliers (Hawkins and Ham, 2003; Suwandono et al., 2001);
   - the ability to manage actors, given that opposition or resistance from key actors can undermine implementation: in Indonesia, for example, the physicians’ refusal to accept lower levels of personal fee retention undermined revenue generation levels (Suwandono et al., 2001) and, in Singapore, conflicts between health professionals over which groups were allowed to retain at least some portion of fees, undermined morale (Phua, 2003).

2. With respect to accountability mechanisms, the evidence suggests that the following issues are important:
   - There need to be clear and appropriate guidelines on revenue use practices to support equity gains. For instance, in Indonesia (Lieberman et al., 2003) and Singapore (Phua, 2003) there are guidelines on the types of items that can be purchased with the revenue generated from private wards, whereas in Zambia (Nakamba et al., 2003b) no such guidelines are available. Nonetheless, in Singapore the application of these guidelines generated problems. The use of revenue to support medical technology purchases undermined cost containment efforts across the health
system, whilst the financial incentives funded through the revenue were not sufficient to allow personnel retention but did cause conflict between health staff.

- Guidelines can also help guard against a private ward bias in resource allocation. For example, in Singapore there are caps on the proportion of revenue that can be generated from private wards (Phua, 2003). Similarly, in Indonesia there are caps on the proportion of revenue that can be used for personnel incentives as well as on the proportion of private beds allowed within a hospital (Suwandono et al., 2003). However, such guidelines need to be backed up by effective capacity to manage actors, as guidelines by themselves do not prevent problems from arising. Thus, in Indonesia, despite caps on the number of private beds allowed, the proportion of public sector beds actually fell over time.

- Finally, there also need to be clear processes of accountability for how the general budgetary allocations to public and private wards are used. Given the danger that a private ward bias will undermine the anticipated wider benefits of private wards, there needs to be strong accountability over budgeting practices between the implementing hospital and its line managers, as well as between the implementing hospital and community representatives and other stakeholders, such as trade unions.

From this brief review of international experience the following main hypotheses have been identified for consideration in South Africa:

- inappropriate price levels, resulting from poor cost data and weak assessment of likely demand, will undermine revenue generation levels;
- the incentives inherent in the fee-for-service mechanism will promote a private ward bias in resource allocation within the hospital;
- revenue retention arrangements will have a strong influence over the potential for revenue use to result in equity gains;
- weak actor management skills will allow medical professionals to influence the design in ways that benefit themselves personally, at the expense of revenue generation;
- a lack of clear guidelines on revenue use and resource allocation will undermine the use of revenue in ways that benefit public ward users; and
- poor accountability over allocation of revenue within the hospital will encourage a private ward bias.
4. PRIVATE WARDS AT TYGERBERG ACADEMIC HOSPITAL

4.1 Background information

Tygerberg Academic Hospital (TBH) is located in Cape Town’s northern suburbs (Belville and Parow) (see Figure 2). It was opened in 1976 as a high-level and high-profile facility, originally with a 1,899 bed capacity (see Photograph 1). It is the largest hospital in the Western Cape and the second largest in the country, even though it presently runs only 1,285 beds due to the financial constraints of recent years. In 2003 its annual budget was around R770 million.

Photograph 1: Tygerberg Academic Hospital

TBH is the lead academic facility for the University of Stellenbosch’s Faculty of Health Sciences. The hospital caters for all specialities appropriate to a large academic hospital such as General Surgery, Internal Medicine and Obstetrics and Gynaecology (but excluding heart and bone-marrow transplants). Sixty percent of its services are at a secondary level and 40 percent are tertiary. This is in line with the 2010 Provincial Health Plan (Provincial Government of the Western Cape, 2003). TBH is the leading health facility in the Western Cape for care of trauma and acute cases. Specialised and unique services such as Renal Dialysis and Treatment, and the Cranio-Facial Unit, provide advanced care
to all patients, as well as training for large numbers of doctors (both under- and post-graduate) and all types of clinical staff.

Figure 2: Map of Cape Town and Surrounds

There are around 4,000 people employed at the hospital including 1,715 nurses, 536 doctors, 673 domestic and 686 administrative staff. However, the shortage of nursing staff due to attrition, which is in the area of around 17 per month, is met by the employment of staff from a private agency (interview material, senior TBH official).

Over 2 million people receive healthcare from TBH, either directly or via referrals from secondary hospitals such as Paarl, Worcester and Karl Bremmer. During 2003, 55,088 inpatients were admitted and 588,334 outpatients visited the hospital. There was an average of 1,006 inpatients per night in 2003 with an average length of stay of 6.64 days.

4.2 The decision to establish private wards at TBH

By the turn of this century, the number of private patients coming to TBH had declined to almost zero. This was due to two key reasons: (1) the hospital did not have the capacity to see private patients in terms of the sheer volume of state patients (as witnessed by 100-150 outpatients per day and long waiting lists) and (2) the physical infrastructure had not

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1 The following section on methods clarifies how interview material was obtained.
been well-maintained over the previous 15 years, making the hospital unattractive to private patients.

To remedy this situation, the hospital management decided, in the early 2000s, to work towards attracting the employed - but as yet uninsured – market by opening up private wards. The idea driving management was not to run a fully-fledged private hospital but to find an alternative for the middle-income group that was acceptable to this section of the population and which would raise additional revenue for the hospital. TBH management hold the view that the revenue generated by private wards can translate into improved service delivery overall (Interview material, TBH Management). To quote a senior manager, ‘It makes business sense’ (interview material, TBH manager).

Around the same time as TBH managers were reaching this conclusion, the Provincial Cabinet made a decision that revenue retention and ‘business’ could be conducted at state hospitals in order to promote revenue generation (interview material, senior TBH manager). Interview material and policy documents (PGWC, 2001, 2003) confirm that this revenue generation policy has the support of senior provincial policy-makers. However, policy-makers are concerned about the ability of private wards to both recover costs and generate a surplus. Their support is thus cautious, seeming to prefer incremental rather than rapid change. If tertiary hospital budgets are to be cut as reported in the media,\(^2\) then the potential revenue from private wards might address the shortfall and allow uninterrupted service delivery. In a context of increased decentralisation of hospital management to the facility level, with greater autonomy and financial accountability to the Chief Executive Officer, imminent budget cuts are likely to entrench the private ward policy.

Broader contextual factors may also play a central role in the paradigm shift towards more market-oriented reforms, entrenching both national and provincial support for private wards. National legislation in the form of the Medical Schemes Act of 1998 (Republic of South Africa, 1998) introduced the notion of Prescribed Minimum Benefits (PMBs) and the provincial health department states that the Act ‘presents various opportunities for the public sector. These include competing with the private sector for health care delivery to

\(^2\) The Mail & Guardian cites a Business Day Report on 7 March 2007 in which Craig Househam, the head of the health department, states that R30-million would be cut from TBH and Groote Schuur.
insured patients, and in so doing generating income from services rendered to insured patients’ (PGWC, 2003:114). As private hospitals already consume the lion’s share of medical aid expenditure (BHF, 2005, 2006; Council for Medical Schemes, 2005, 2006) and with medical aid administrators keen to curtail costs, there is likely to be more support for public provision of services to insured patients. In addition, the growing membership of the new, state-sponsored Government Employee Medical Scheme (GEMS) makes the notion of private wards in public hospitals even more attractive, given that within GEMS there are low-cost options that favour affordable public sector hospital provision. A wider set of debates around the creation of new medical schemes for the low-income market, and eventually of mandatory Social Health Insurance, also offer potential for private ward arrangements, with the prospect of public hospitals entering into designated service provider (DSP) arrangements with medical schemes. This is especially so given the recommendation by the Taylor Report (cited in PGWC, 2003: 86) that social health insurance ‘benefits would include hospitalisation offered in a differentiated amenity in a public hospital.’

4.3 The implementation of private wards

In line with the decision of the Provincial Cabinet in the early 2000s institutions such as TBH were expected to submit business plans for private wards for approval by the health department and Treasury. Accordingly, a business plan for TBH was developed by an EU consultant (Interview material and TBH, 2003). It included an overview of project requirements, implementation plans and projected costs and revenue. A fairly lengthy process ensued involving a number of drafts before final acceptance of the plan. The plan was informed by an important decision made at the national level that, although private wards could be implemented, there should be no differentiation between the clinical care provided to state and private patients within a state facility. Both the services provided and their technical quality should be uniform across both public and private wards (interview material, senior TBH manager).

Accordingly, in 2002/03, TBH created a private ward called D4 (with 29 beds) and later a second ward, D3 (with 33 beds). These wards utilised existing unused space in the hospital. The development of the wards involved upgrading through painting, tiling, refurbishing bathrooms and installing televisions in each room.
There is currently a variety of private rooms, including 10 single rooms and a number of 4- to 6-bed rooms. Some rooms have private en-suite facilities, but most patients are in 4- to 6-bed rooms sharing bathrooms located on the opposite side of the passage. The bathrooms have shower and bath-tub facilities, are cleaned frequently and are well-stocked with sanitary towels, toilet rolls and soap. All the rooms are north-facing and have sunshine and lots of natural light for most of the day. The single-bed rooms are usually used for infection control, especially for oncology or joint-replacement patients who are most susceptible to infection.

Catering is provided in-house with slight variations in the menu compared to that offered to public ward patients, the key difference being that private patients have greater choice. The cleaning function for the private wards is outsourced.

### 4.4 Admission to private wards

Until 2005, both public and private patients reported to the same Outpatient Department (OPD). It is there that a decision is made to admit a patient. A means test based on income is used to distinguish public patients from private patients, as prescribed by the Uniform Patient Fee Schedule or UPFS (National Department of Health, 2002). Patients are classified into three main groups: (1) full-paying patients; (2) subsidised patients and (3) free services (National Department of Health, 2002) (see Table 1). The first category refers to patients who are not funded by the facility. The latter two categories refer primarily to public or state patients treated in public wards within the hospital. However, there are ‘subsidised patients’ that may be admitted to the private wards. These are those patients that are able to pay a two-thirds deposit which allows admission to the private wards. In summary, then, a patient is directed to the private ward if classified as ‘private,’ that is, if the patient has medical aid, a hospital insurance plan or is able to pay a two-thirds deposit on a basic fee. In 2003, 1,406 patients were admitted to private wards, equivalent to 2.5% of TBH admissions (TBH data).
Table 1: Overview of patient categories in the UPFS classification system

<table>
<thead>
<tr>
<th>Category</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-paying patients</td>
<td>Externally-funded patients – workmen’s compensation, RAF and medical</td>
</tr>
<tr>
<td></td>
<td>schemes, another government body (local and/or international)</td>
</tr>
<tr>
<td></td>
<td>Patient treated by his/her own private practitioner</td>
</tr>
<tr>
<td></td>
<td>Non-South African citizens</td>
</tr>
<tr>
<td>Fully-subsidised patients – free</td>
<td>Social pensioners</td>
</tr>
<tr>
<td></td>
<td>Formally unemployed</td>
</tr>
<tr>
<td></td>
<td>Persons re-classified as HO (i.e. indigent) by head of health care facility</td>
</tr>
<tr>
<td></td>
<td>Pregnant women and children under age of 6 years – excluding those that are members of medical schemes and non-South African citizens</td>
</tr>
<tr>
<td>Partially-subsidised patients</td>
<td>H1 – Individual: Income less than R36 000 per annum</td>
</tr>
<tr>
<td></td>
<td>H1 - Household: Income less than R50 000 per annum</td>
</tr>
<tr>
<td></td>
<td>H2 – Individual: Income less than R72 000 per annum</td>
</tr>
<tr>
<td></td>
<td>H2 – Household: Income less than R100 000 per annum</td>
</tr>
<tr>
<td></td>
<td>H3 - Individual: Income greater than or equal to R72 000 per annum</td>
</tr>
<tr>
<td></td>
<td>H3 – Household: Income greater than or equal to R100 000 per annum</td>
</tr>
</tbody>
</table>

Source: National Department of Health, 2002

4.5 The organisation of private wards

The two private wards are integrated with the rest of TBH. Initially, the nursing was predominantly in-house and allocated on a rotational basis out of the full staff complement. There were few agency staff. Since 2005, however, the inverse is true, with nursing staff predominantly agency staff. It is important to note that doctors do not spend fixed periods of time on a rotational basis in private wards. They are expected to work throughout the facility and treat private patients as part of their overall hospital duties: as a senior management official put it, doctors ‘float around’ (interview material). Each private ward also has a dedicated clerk and administrator employed on a full-time basis.

Public wards are organised by clinical sub-department or specialty. For instance, there is an orthopaedics ward, a cardio-thoracic ward and the like. By way of contrast, in the case of the private ward model at TBH, private patients admitted for different conditions – and requiring the services of different specialties – are placed in the same ward. That is,
different specialists visit the same ward, with all specialties catered for except for paediatrics. Figure 3 illustrates these arrangements graphically.

**Figure 3: Overview of the private ward model at TBH**

For doctors employed by the Provincial Government of the Western Cape (PGWC), remunerated work outside of the public sector (RWOPS), is not allowed within the public facility (and hence not in the private wards within TBH). There is therefore no financial incentive attached to service delivery in private wards for clinicians. Nonetheless, doctors on joint PGWC-University posts are allowed to charge a professional fee. In this instance, the professional fee is not charged by the hospital, but by the doctor in his/her personal capacity.

In 2005, the hospital opened a dedicated OPD for private patients as it did not make 'business sense' to have both public (state) and private patients together (interview material, senior TBH manager). In addition, there are two designated beds in the Intensive
Care Unit (ICU) for private ward patients. Plans are under way to develop a designated operating theatre for private patients.

4.6 Capturing private patient data

With respect to data management, private ward information is captured on four different systems, CLINICOM, SYSPRO, BAS and JAC.

1. CLINICOM is the patient administration system that was introduced in 2002. It is used for both state and private ward patients and captures everything that happens to the patient while he/she is in hospital. As the patient enters the hospital, he/she is registered by the OPD or ward clerks on the system. What the patient is charged only becomes available once the patient sees a doctor and notes are made. These notes are entered into CLINICOM post facto with perhaps a three-day lag (interview material, TBH official).

It is important to note that, although the system is able to track patients, it is not linked directly to the billing system. There is a separate billing system based on UPFS rates that does not automatically distinguish state from private ward patients: all the revenue goes into one pot. However, from discussions with the staff from the revenue directorate, it became apparent that patients can be mapped against cost centres, thereby making it possible to identify patients in the private wards, D3 and D4, which form a single cost centre called ‘differentiated amenities.’

2. SYSPRO is the programme used to capture procurement by different cost centres. SYSPRO captures items issued directly to each cost-centre, namely consumables, goods and services. It does not capture big-ticket capital items.

3. Pharmaceuticals that are bought and issued by the pharmacy are not captured on SYSPRO. Instead, they are captured by the pharmacy management system JAC. The data are highly aggregated.

4. Information on staff, including numbers and salaries, appears on the government-wide system, PERSAL.
It is apparent from this list that multiple sources of unlinked expenditure and activity information exist. This has implications for the methods used in determining the costs of private ward service provision.

5. METHODS

**Objective 1: to determine whether private wards raise sufficient revenue to generate a surplus and subsidy flow to public wards**

To meet objective one, the study undertook a detailed costing and revenue analysis for the private wards at TBH in order to compare the costs of care with the revenue raised. The study was conducted in late 205, using data from the financial year 2003/04.

5.1 Cost analysis

The first step of the cost analysis involved key informant interviews with the financial and clinical manager responsible for the private ward portfolio in the hospital. These interviews sought to clarify the organisation of the hospital and the private ward arrangements, as well as identify data sources and availability to inform the cost analysis approach. An initial scrutiny of the data available from the different information systems was also undertaken. Three important issues emerged from this initial process that shaped the way the cost analysis was performed.

First, the hospital has adopted a cost-centred approach within its financial management system. The private wards (D3/D4) form one cost centre (termed the ‘final cost centre’ by this report and ‘differentiated amenities’ by the SYSPRO information system). However, they also incur costs that are recorded under other cost centres through the use of services and goods provided by these cost centres (termed the ‘indirect,’ ‘intermediate’ and ‘direct’ cost centres). To determine the full costs attributable to wards D3/D4 it is therefore necessary to find a way to apportion and add the relevant costs from other cost centres. Given the cost-centred approach, and drawing on common practice (Conteh and Walker, 2004; Flessa and Dung, 2004), the study therefore decided to conduct a step-
down cost analysis, using data from the SYSPO system for the 2003/04 financial year. The cost centres that are relevant to this study are summarised in Table 2; for each cost centre, financial information is available by line item as summarised in Box 1.

### Table 2: Cost centre categorisation

<table>
<thead>
<tr>
<th>Indirect cost centres</th>
<th>Intermediate cost centres</th>
<th>Direct cost centres</th>
<th>Final cost centre (private wards D3/D4 or ‘differentiated amenities’)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Included goods and services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>These are largely global hospital costs such as overall management and administration, electricity and water etc.</td>
<td>These are a variety of clinical and non-clinical support services such as physiotherapy, radiology, laundry, catering etc.</td>
<td>These are the clinical medical specialties directly linked to tracer conditions (hip-replacement and coronary bypass surgery), that is, orthopaedic joint replacement and cardiothoracic surgery (including theatres).</td>
<td>These are costs such as the salaries of staff employed directly by the wards and the consumption of goods that fall directly under the budget of the wards.</td>
</tr>
<tr>
<td>Excluded goods and services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Big-ticket capital expenditure items</td>
<td>The costs of drugs are not included in these cost centres (although the other costs of running the pharmacy are included). General theatre costs were excluded by the study because specific theatre costs were available for orthopaedics and cardiothoracic surgery, the two disciplines of particular interest, as indicated in the next column.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Box 1: Line items available by cost centre

- Consumables
- Medical consumables
- Stationery
- Services
- Staff
- Equipment
- Medical equipment
Second, there are some costs that cannot be attributed to wards D3/D4 by using cost centre information. Most notable are the costs of drugs (which, as already mentioned, appear under a different information system) and blood products (which are provided by an institution external to the hospital): these costs do not appear under any cost centre. Records on these costs are not differentiated for public and private patients: the only way to allocate these costs is to examine patient records. It was therefore necessary to supplement the ‘step-down’ analysis with a ‘bottom-up’ approach, making use of patient records.

Third, it transpired that reviewing patient records would be an enormous task because of the volume of patients, the fact that patient records were not computerised for the year of interest and were only in paper form, the fact that public and patient records were not stored separately, and the complexity of the records themselves. The study therefore decided to examine only a sample of patient records. As variations in case-mix can cause large variations in the consumption of services and goods (such as theatre time and drugs), therefore influencing both expenditure and revenue collected, it was decided to draw the sample from two tracer procedures.

The procedures were restricted to surgical interventions because patient record numbers are needed to distinguish public from private patients, and these numbers could only be identified from theatre books. Selection within this category of procedures was based on: a) the relative importance of specialties within total private ward activity for the year of focus as determined by the relative share of patient days (see Table 3) and b) identifying specific surgical procedures within these specialities which were fairly frequent, accounting for a reasonable share of private ward activity. The two procedures finally selected were coronary by-pass (CABG) and hip replacement surgery, of which there were 46 and 18 respectively during the year of interest.
Table 3: Private ward activity by clinical specialty/sub-specialty (2003/4)\(^3\)

<table>
<thead>
<tr>
<th>Clinical specialty/sub-specialty</th>
<th>Total patient days</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Orthopaedics</td>
<td>1945</td>
<td>19.09</td>
</tr>
<tr>
<td>2 General Medicine</td>
<td>1416</td>
<td>13.90</td>
</tr>
<tr>
<td>3 General Surgery Abdominal</td>
<td>1201</td>
<td>11.79</td>
</tr>
<tr>
<td>4 Vascular Surgery</td>
<td>849</td>
<td>8.33</td>
</tr>
<tr>
<td>5 Orthopaedic Joint Replacement</td>
<td>751</td>
<td>7.37</td>
</tr>
<tr>
<td>6 Thoracic Surgery</td>
<td>544</td>
<td>5.34</td>
</tr>
<tr>
<td>7 Gynaecology</td>
<td>391</td>
<td>3.84</td>
</tr>
<tr>
<td>8 Cardio Thoracic Surgery</td>
<td>378</td>
<td>3.71</td>
</tr>
<tr>
<td>9 Urology</td>
<td>340</td>
<td>3.34</td>
</tr>
<tr>
<td>10 Head Neck and Breast Surgery</td>
<td>269</td>
<td>2.64</td>
</tr>
<tr>
<td>11 Respiratory Medicine</td>
<td>256</td>
<td>2.51</td>
</tr>
<tr>
<td>12 Cardiology</td>
<td>250</td>
<td>2.45</td>
</tr>
<tr>
<td>13 Emergency Medicine</td>
<td>246</td>
<td>2.41</td>
</tr>
<tr>
<td>14 Neurosurgery</td>
<td>241</td>
<td>2.37</td>
</tr>
<tr>
<td>15 Ophthalmology</td>
<td>194</td>
<td>1.90</td>
</tr>
<tr>
<td>16 Trauma</td>
<td>182</td>
<td>1.79</td>
</tr>
<tr>
<td>17 Ear Nose and Throat</td>
<td>156</td>
<td>1.53</td>
</tr>
<tr>
<td>18 Dermatology</td>
<td>119</td>
<td>1.17</td>
</tr>
<tr>
<td>19 Clinical Haematology</td>
<td>100</td>
<td>0.98</td>
</tr>
<tr>
<td>20 Gynaecological Oncology</td>
<td>85</td>
<td>0.83</td>
</tr>
<tr>
<td>21 Neurology</td>
<td>77</td>
<td>0.76</td>
</tr>
<tr>
<td>22 Rheumatology</td>
<td>43</td>
<td>0.42</td>
</tr>
<tr>
<td>23 Obstetrics</td>
<td>42</td>
<td>0.41</td>
</tr>
<tr>
<td>24 Radiation Oncology</td>
<td>35</td>
<td>0.34</td>
</tr>
<tr>
<td>25 Plastic Reconstructive Surgery</td>
<td>32</td>
<td>0.31</td>
</tr>
<tr>
<td>26 Orthopaedics Hands</td>
<td>18</td>
<td>0.18</td>
</tr>
<tr>
<td>27 Nephrology</td>
<td>13</td>
<td>0.13</td>
</tr>
<tr>
<td>28 Gastroenterology</td>
<td>11</td>
<td>0.11</td>
</tr>
<tr>
<td>29 General Surgery</td>
<td>2</td>
<td>0.02</td>
</tr>
<tr>
<td>30 Gynaecological Endocrinology</td>
<td>2</td>
<td>0.02</td>
</tr>
<tr>
<td>31 Medical Oncology</td>
<td>2</td>
<td>0.02</td>
</tr>
<tr>
<td>32 Nuclear Medicine</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>33 Paediatric Ophthalmology</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>34 Paediatric Urology</td>
<td>0</td>
<td>0.00</td>
</tr>
</tbody>
</table>

\(^3\) The clinical sub-departments that are highlighted are those from which the tracer interventions were selected for the bottom-up costing, namely hip-replacements and coronary-bypass surgery.
Step-down cost analysis

This involved the following key steps:

1. Allocating expenditure by indirect cost centres. The expenditure by each indirect cost centre was distributed between the different intermediate and direct cost centres in proportion to their share of total expenditure on full-time staff (as obtained from PERSAL, the personnel information system). The rationale for this was that expenditure of this sort should be roughly proportional to the number of staff. Expenditure on part-time staff was not included when calculating relative shares because this expenditure seemed to vary considerably month by month and, in any case, it represented a small percentage of total staff expenditure.

2. Allocating expenditure by intermediate cost centres. Expenditure by each intermediate cost centre was first added to the allocation it had received from each of the indirect cost centres. The resulting total for each intermediate cost centre was then distributed between the direct cost centres in proportion to their specialty’s share of the total patient days for the whole hospital as presented in the second column of Table 3. The assumption was that both clinical and non-clinical support services are rendered roughly in proportion to patient days.

3. Allocating expenditure by direct cost centres. Expenditure by each of the direct cost centres relevant to the tracer interventions (that is, orthopaedics, orthopaedic joint replacement and thoracic surgery) was first added to the allocations it had received from each of the indirect and intermediate cost centres. The resulting total for each of the three direct cost centres of interest was then distributed to the final cost centre (wards D3/D4) in proportion to its specialty’s share of the private ward patient days as a percentage of the total patient days for the whole hospital as presented in the third column of Table 3.
4. Allocating expenditure by the final cost centre (that is, the ‘differentiated amenities’ or wards D3/D4). Expenditure by the final cost centre was apportioned to the tracer procedures (hip replacement and coronary by-pass) in proportion to their relative share of patient days in D3/D4. This final step of the step-down process therefore yielded an estimate of total expenditure attributable to private patients receiving these procedures, excluding some items as detailed in later paragraphs.

The allocation criteria for the above steps are summarised in Table 4. It is important to recognise that, although cost centre managers were approached to identify cost-centre specific data with which to allocate joint costs, only a limited set of common data were available for the whole hospital, resulting in the choice of criteria presented in Table 4.

**Table 4: Allocation criteria used in the step-down cost analysis**

<table>
<thead>
<tr>
<th>Indirect cost centres</th>
<th>Intermediate cost centres</th>
<th>Direct cost centres (orthopaedics, orthopaedic joint replacement and thoracic surgery only)</th>
<th>Final cost centre (private wards D3/D4 or ‘differentiated amenities’)</th>
</tr>
</thead>
<tbody>
<tr>
<td>in proportion to percentage share of total expenditure on full-time staff</td>
<td>in proportion to each specialty’s percentage share of the total patient days for the whole hospital</td>
<td>in proportion to each specialty’s share of private ward patient days as a percentage of the total patient days for the whole hospital</td>
<td>in proportion to each intervention’s relative share of patient days in D3/D4</td>
</tr>
</tbody>
</table>

Figure 4 presents the step-down process graphically: it is important to note that this process was followed separately for each line item within each cost centre. For example, the salary costs of each one of the indirect cost centres was added to the salary costs of each one of the intermediate cost centres; the resulting total salary costs were then added to the salary costs of each of the relevant direct cost centres, and so on.
As mentioned earlier, some expenditure items could not be allocated using the step-down approach. Blood products are provided by an off-site facility and charged to TBH in undifferentiated way. Drug costs appear as a global amount in the JAC system and are not differentiated by public and private patients. Both these costs therefore had to be identified through the bottom-up approach described below.

Big-ticket capital items (such as physical space) were not estimated by this study at all. First, some of these costs (such as expenditure on physical infrastructure) are ad hoc, distributed over several years and tend not to be captured by the routine financial management system. Second, it would have been difficult and time-consuming to apportion costs to the interventions under consideration, as this would have necessitated estimating the space used by these patients in relation to the rest of the hospital. The
implications of this omission are discussed later. However, it should be noted that expenditure on equipment that occurred within the year under review was captured: this expenditure was annualised to reflect an estimated life-span of the equipment of five years.

Laboratory costs were also not determined. This was because tests are performed by the National Health Laboratory Service (NHLS) and billed to the private patient/medical aid directly. These costs are therefore not borne by TBH and are not relevant to the study.

Lastly, the costs of providing improved information technology systems and training to support and monitor the introduction of private wards has not been included. These systems benefit the entire hospital but also have a bearing on the overall costs of private ward provision. However, they are difficult to estimate.

**Bottom-up cost analysis**

The bottom-up cost analysis involved trying to determine the exact inputs per patient receiving the tracer interventions, especially for the inputs that could not be derived from the step-down process (blood products and drugs):

1. **Blood products.** Blood products are bought by TBH from the Western Cape Blood Transfusion Services (WCBTS). WCBTS furnished the study with the costs of the types of blood products used by patients included in the study. It was then possible to allocate the total costs of blood products for relevant patients using their patient numbers.

2. **Drugs.** Drugs consumed by each patient were identified by reviewing patient records (the process of selecting patient records is presented in Box 2 below). As the pharmacy at TBH was unable to provide the prices for the drugs prescribed, drug price data were obtained from the National Department of Health’s Pharmacy Economic Evaluation Unit. As the available price data were 2005 state tender prices, these were adjusted downwards to the year 2003 using the Consumer Price Index (CPIX). The drugs were matched with drugs in the state tender price list using the *South African Formulary* (South African Medical Association, 2005), an updated text containing the majority of drugs used in South Africa (including branded, generic and active...
ingredients). Of the 143 drugs used across the sampled patients, prices for 30 could not be found in the state tender lists, and could not be mapped in the Formulary, so had to be excluded from the final costs.

The study initially hoped to determine inputs for which specific data appeared on patient records\(^4\) but which also had been captured by the (cruder) step-down approach, in an attempt to provide more accurate data. These included theatre time, physiotherapy time and clinician time:

3. **Theatre time.** All public and private patients undergoing tracer procedures in the year of focus were identified and theatre time calculated from the theatre record books that were available.\(^5\) As patient record numbers were available for private patients, total private patient theatre time could then be calculated as a percentage of theatre time for these procedures. In addition, patient records captured the date in theatre and differentiated the time of anaesthetic and the time of the operation providing a more comprehensive timing than provided in the theatre books alone, allowing verification of data.

4. **Physiotherapy time.** Data provided by the department of physiotherapy from an internal workflow assessment estimated average time per visit per patient at 30 minutes, whilst data from the PERSAL system provided gross physiotherapy salary costs. Together this information allowed the calculation of the gross salary cost per physiotherapist visit. This was multiplied by the number of physiotherapy visits for private ward tracer procedure patients (as indicated in patient records) to determine annual physiotherapy costs for these patient groups.

5. **Clinician time.** To determine clinician personnel costs for the two tracer procedures, two senior registrars (one each from Orthopaedics and Cardio-Thoracics) were interviewed to estimate the average time spent by registrars and consultants in treating an average patient in each grouping. The interview guideline was developed by consulting with relevant specialists, and from review of the billing and theatre book data

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\(^4\) See ethics section for a discussion of handling of patient records.

\(^5\) Because a full set of theatre books was not available for the financial year being studied, it was only possible to identify the public and private patient sample from a 10-month period for orthopaedics and a 9-month period for coronary-bypass surgery.
to get a sense of the process involved in receiving each surgical intervention. Interviewees were then asked to estimate time per task and person within these processes. Total personnel costs per procedure were then calculated as time per consultant or registrar multiplied by average gross salary times the number of patients.

Although data on these last three categories (theatre time, physiotherapy time and clinician time) were collected, the cost analysis did eventually not draw on this data because it was impossible to disaggregate the step-down data sufficiently. Addition of these costs (derived through the bottom-up method) to the costs derived from the step-down method would have led to some double-counting. On the other hand, using the bottom-up data and cutting out physiotherapy and clinician salary costs from the step-down method would underestimate costs, as the costs of personnel time, apart from direct clinical care, are accounted for within the step-down process.

5.2 Revenue analysis

Data were collected on the total amount billed and the total revenue collected for all private ward patients in 2003/4 (data were also collected for 2004/5 but eventually not used). In addition, the total billed amount and total revenue collected from the two tracer procedures was calculated. Finally, as revenue from private wards goes into a single revenue pot for TBH, the study mapped patient numbers to invoices and payments in order to distinguish the total revenue from D3 and D4. This made it possible to determine the private ward share of total revenue raised by TBH.

5.3 Cost-recovery analysis

It had initially been intended to conduct a cost-recovery analysis for the entire private ward. However, given the difficulties of determining total private ward costs, the cost-recovery analysis was only able to compare the costs to revenue ratios for the tracer procedures.
5.4 Resource-use analysis

**Objective 2:** to assess whether, and why, public ward patients benefit from any use of surplus revenue generated through private wards

**Objective 3:** to determine whether, and why, hospital resources are diverted from public to private wards, and whether this affects the quality of care offered in public wards.

A series of semi-structured interviews was conducted with provincial and hospital actors to address Objective 2 and provide input in addressing Objective 3. In addition, using the tracer procedures selected for use in the cost analysis, data were collected from private patient records and a comparable sample of public patient records to allow assessment and comparison of some very simple quality criteria (see Box 2). As the process of sampling patient records for this process was quite complex, it is described in some detail in Box 3. Further data on the grouping of records appear in Tables 5, 6 and 7.

**Box 2: quality criteria**

- Average patient days
- Average anaesthetic time (hh:mm)
- Average operating time (hh:mm)
- Average no. of physiotherapy visits
- Proportion with > 1 physiotherapy visit/day
- Average no. of chest X-rays (for coronary bypass patients)
- Average no. of pelvic X-rays (for hip-replacement patients)
- Average No. of drug items prescribed
Box 3: The process of identifying and sampling relevant patient records

A cross-check of patient record numbers for all patients undergoing coronary bypass surgery and hip replacement surgery against private patient billing data allowed private ward patients to be separated out from public patients. All private ward patient records undergoing these surgical interventions were included in the assessment. Similarly, all comparable public ward records were selected. Data from patient records were extracted by trained fieldworkers, with supervision from the main researcher, using a uniform record extraction sheet. Extracted data were then compared across patient groups.

In order to conduct a resource use analysis appropriately it was important to match the public and private records as far as possible by co-morbidity. Following discussions with clinical specialists, private patient records for the coronary bypass cases were initially categorised into four groups on the basis of indications of co-morbidity (see Table 6). With respect to by-pass cases, there were only sufficiently large numbers of records in two of these groups (‘cardio’ and ‘cardio & diabetic’) to make comparison with public patient records possible and some of these had to be excluded as inadequate data were available from these records (see Table 7). For hip-replacement cases, the key inclusion criterion was whether or not the hip replacement was a total hip replacement, as opposed to a revised hip-replacement, as too few patients had undergone the latter procedure to allow comparison. Consultation with orthopaedic surgeons at Johannesburg General Hospital and Klerksdorp Hospital indicated that, as this is fairly standard procedure, there is little variation across cases.

Table 5: Co-morbidity groups

<table>
<thead>
<tr>
<th>Co-morbidity groups</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardio</td>
<td>2 or more of the following: poor left ventricular function; high blood</td>
</tr>
<tr>
<td></td>
<td>pressure; smoking; high cholesterol; other vascular disease</td>
</tr>
<tr>
<td>Cardio &amp; diabetic</td>
<td>Cardio (see above) and history of diabetes</td>
</tr>
<tr>
<td>Cardio &amp; respiratory</td>
<td>Cardio (see above) and respiratory problems (e.g. asthma, chronic</td>
</tr>
<tr>
<td></td>
<td>obstructive pulmonary disease)</td>
</tr>
<tr>
<td>Cardio &amp; renal</td>
<td>Cardio (see above) and renal problems (history or UEC (Urea, Electrolytes</td>
</tr>
<tr>
<td></td>
<td>and Creatine) &gt;200 ever or UEC rise over 150)</td>
</tr>
</tbody>
</table>
Table 6: Total number of patient records initially reviewed

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Private</th>
<th>Public</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary Bypass Surgery</td>
<td>36</td>
<td>43</td>
</tr>
<tr>
<td>Hip Replacements</td>
<td>18</td>
<td>23</td>
</tr>
</tbody>
</table>

Table 7: Patient record numbers by co-morbidity groups finally used in the resource-use analysis

<table>
<thead>
<tr>
<th></th>
<th>Private</th>
<th>Public</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardio group</td>
<td>9 (other 3 excluded due to missing microfilm &amp; incomplete data)</td>
<td>21 (other 4 excluded due to missing microfilm &amp; incomplete data)</td>
</tr>
<tr>
<td>Cardio &amp; diabetic group</td>
<td>7</td>
<td>11 (other 7 excluded due to missing microfilm &amp; incomplete data)</td>
</tr>
<tr>
<td>Total hip replacement</td>
<td>17 (other 1 excluded because hip replacement revision)</td>
<td>18 (other 5 excluded because hip-replacement revisions and those where records fail to state whether primary or revised)</td>
</tr>
</tbody>
</table>

Two other data collection approaches initially intended for use in addressing Objective 3 were, however, abandoned due to a number of problems. First, semi-structured interviews with randomly selected clinical staff engaged in both public and private ward activity were intended to gauge staff availability and time spent in private ward activity. However, TBH officials felt that previous interviewing efforts of this kind had failed. Second, use of an observation checklist was intended to allow comparison between private and public wards of the availability of key items of medical equipment vital to the provision of good quality of care. However, as it turned out that the range of private ward patients is much more diverse than those in public wards (as public wards are organised by speciality e.g. orthopaedics, medical, surgery, etc.), it was felt that case-mix differences would influence equipment needs and hinder comparison. In addition, as much private ward support activity is integrated with the rest of TBH activities, little difference in clinical equipment availability by ward was identifiable.
5.5 Interviews and document reviews

| Objective 4: to identify the main actors whose actions might undermine the attainment of equity objectives |
| Objective 5: to assess the operation of existing governance mechanisms in terms of potential to prevent greater inequity from private ward operation |

To address objectives 2, 4 and 5 (as well as Objective 3 to some extent), the main method of investigation used was key informant interviews. Ten interviews were conducted with senior provincial policymakers, senior TBH management officials and TBH clinicians. Themes explored included: challenges, constraints, supporting factors, actor management approaches, decision-making processes, policy rationales, accountability mechanisms and resource use. Notes were made during the interviews and double-checked against tape-recordings for clarification.

In addition, relevant policy documents were accessed via stakeholders and sources such as government websites were reviewed.

Both interviews and documents were analysed using the same set of open codes drawn from the study aims, objectives and hypotheses. Interview data were triangulated with each other and with document reviews.

6. ETHICAL ISSUES

The research proposal and data-collection tools were approved by the ethics committee at the University of Witwatersrand. Permission to conduct the research was also secured from the relevant provincial and hospital authorities.

Written informed consent was acquired from individuals interviewed in the study, and anonymity was protected in analysing these data.
The Wits ethics committee stated that consent for patient records was not required as they were retrospective. Senior hospital management gave approval to access patient records. The records were accessed by TBH staff, furnished to the team, reviewed on site in the presence of TBH officials, and returned immediately upon completion. The same applied to the theatre books. At no time did researchers have access to patient names and only historical patient record data were used in this study.

Finally, as part of good ethical and analytical practice, findings will shortly be fed back to key stakeholders.

7. LIMITATIONS

In devising its methods, the study has drawn on internationally accepted approaches. However, the data available to the study were sometimes incomplete, difficult to access (especially when only available in hand-written form) and not disaggregated sufficiently. In addressing these limitations, the study has had to make a number of assumptions that it has been careful to describe explicitly and justify. However, it has not been possible to do a full costing of private ward activities, hence the selection of two tracer interventions.

As argued in the concluding section, the study has been able to generate informative findings of which the authors are reasonably confident. Where there is uncertainty around findings, this is highlighted. The process of feed-back will allow these findings to be tested amongst stakeholders.

8. DO PRIVATE WARDS RAISE SUFFICIENT REVENUE TO GENERATE A SURPLUS AND SUBSIDY FLOW TO PUBLIC WARDS? (OBJECTIVE 1)

Table 8 shows the total costs incurred by the hospital in providing hip replacements and coronary bypass surgery to private ward patients in 2003/04. Almost 5 percent of the costs were derived through the bottom-up method.
On average, each coronary by-pass and hip replacement in the private wards cost R37,980 and R51,091 respectively in 2003/04. The main cost driver in wards D3 and D4 was personnel (including clinical and non-clinical staff) which accounted for over two-thirds of total costs incurred in 2003/04. The equipment requirements for hip replacement and coronary bypass surgery accounted for 20 percent of the costs incurred. Drugs accounted for only 1.4 percent which is surprisingly low, probably reflecting discrepancies in the available data that do not allow for a full estimation of drug costs. This suggests that the cost analysis possibly under-estimates the costs of service delivery.

### Table 8: The total cost of hip replacements and coronary bypass surgery in private wards at Tygerberg Hospital in 2003/04 (nominal prices)

<table>
<thead>
<tr>
<th>Cost Item</th>
<th>Cost of coronary bypass surgery (R)</th>
<th>Cost of hip-replacement surgery (R)</th>
<th>Total (R)</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECURRENT COSTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stepped-down</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumables</td>
<td>39,184</td>
<td>21,099</td>
<td>60,284</td>
<td>2.3</td>
</tr>
<tr>
<td>Medical consumables</td>
<td>105,040</td>
<td>56,560</td>
<td>161,600</td>
<td>6.1</td>
</tr>
<tr>
<td>Stationery</td>
<td>25,180</td>
<td>13,558</td>
<td>38,738</td>
<td>1.5</td>
</tr>
<tr>
<td>Services</td>
<td>16,749</td>
<td>9,018</td>
<td>25,767</td>
<td>1.0</td>
</tr>
<tr>
<td>Staff</td>
<td>1,208,380</td>
<td>650,666</td>
<td>1,859,046</td>
<td>69.7</td>
</tr>
<tr>
<td>Bottom-up</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drugs</td>
<td>28,613</td>
<td>9,161</td>
<td>37,774</td>
<td>1.4</td>
</tr>
<tr>
<td>Blood products</td>
<td>14,144</td>
<td>6,360</td>
<td>20,504</td>
<td>0.8</td>
</tr>
<tr>
<td>Total recurrent costs</td>
<td>1,394,533</td>
<td>729,803</td>
<td>2,124,336</td>
<td>79.7</td>
</tr>
<tr>
<td>ANNUALISED CAPITAL COSTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td>180,510</td>
<td>97,198</td>
<td>277,708</td>
<td>10.4</td>
</tr>
<tr>
<td>Medical Equipment</td>
<td>172,056</td>
<td>92,646</td>
<td>264,702</td>
<td>9.9</td>
</tr>
<tr>
<td>Total capital costs</td>
<td>352,566</td>
<td>189,843</td>
<td>542,409</td>
<td>20.3</td>
</tr>
<tr>
<td>TOTAL COSTS</td>
<td>1,747,099</td>
<td>919,646</td>
<td>2,666,745</td>
<td>100.0</td>
</tr>
<tr>
<td>Cost per intervention</td>
<td>37,980</td>
<td>51,091</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 9 compares total costs with the amounts billed by the hospital and the amounts actually received. As the table shows, private bypass surgery has the potential to generate a surplus for the hospital as, in 2003/04, the average invoice was around R6,000 (or 16 percent) higher than the average cost of the intervention. In fact, fees raised from bypass surgery represented 11 percent of total fees raised from private wards, although these patients account for only 3.7 percent of patient days in the private ward. However,
only 88 percent of the value billed for this type of surgery was actually received. This reduced the surplus raised per intervention to around R650 (which is only 2 percent of the cost). This percentage could be even lower, given the difficulty of performing the costing analysis.

The potential to generate a surplus with hip replacements is much lower with the average invoice in 2003/04 only around R1,400 (or 3 percent) higher than the average cost of the intervention. As there were similar problems around ensuring that bills for this intervention were actually paid, it transpires that the hospital did not recover costs for this intervention: on average there was a deficit of around R4,200 (or 8 percent) per intervention.

Table 9: Comparison of the costs incurred by Tygerberg Hospital in providing the tracer interventions in 2003/04 with the amounts billed and revenue raised (nominal prices)

<table>
<thead>
<tr>
<th>Cost Item</th>
<th>Coronary bypass surgery (R)</th>
<th>Hip-replacement surgery (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total per intervention (n=46)</td>
<td>1,747,099</td>
<td>919,646</td>
</tr>
<tr>
<td>Total per intervention (n=18)</td>
<td>37,980</td>
<td>51,091</td>
</tr>
<tr>
<td>Total capital and recurrent costs (stepped-down and bottom-up)</td>
<td>1,747,099</td>
<td>919,646</td>
</tr>
<tr>
<td>Total amount billed</td>
<td>2,024,101</td>
<td>944,989</td>
</tr>
<tr>
<td>Total revenue collected</td>
<td>1,777,032</td>
<td>844,129</td>
</tr>
<tr>
<td>Surplus/deficit based on amount billed</td>
<td>277,002</td>
<td>25,343</td>
</tr>
<tr>
<td>Surplus/deficit based on revenue collected</td>
<td>29,933</td>
<td>-75,517</td>
</tr>
</tbody>
</table>

Note: the total private patient records for these conditions were used for this analysis, as reflected in Table 6.

The data support the views of management officials that some surgical interventions have surplus-generating potential. This surplus is not necessarily large, however, and problems with collecting revenue can turn a potential surplus into an actual deficit, leading to the cross-subsidy of private wards by the public sector. It is encouraging to note that revenue collection improved in the year following the study: with respect to bypass surgery, in

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6 As the data are from several years ago, this reflects ‘bad debt’ rather than simply a lag in billing or receiving payments which could be expected if scrutinising more recent data.
2003/04 there was a shortfall in fees collected of around R250,000 which in 2004/05 was reduced dramatically to around R11,000.

A major limitation of the study was the inability to conduct a cost-recovery analysis for the entire D3/D4 set of private activities at TBH. A detailed study comparing a range of interventions could conceivably reveal different levels of subsidy flow across interventions and clinical sub-departments given the variations detected in the tracers included in this study. It is therefore difficult to conclude whether, overall, the private wards generate a surplus or receive a net subsidy from the public sector.

9. DO PUBLIC WARD PATIENTS BENEFIT FROM ANY USE OF SURPLUS REVENUE GENERATED THROUGH PRIVATE WARDD? (OBJECTIVE 2)

While it is unclear whether private wards generate a surplus, they do bring in revenue that was not available to the hospital and province a few years ago (see Table 10). As the table shows, with the full implementation of private wards by 2003/04, total hospital revenue increased by 31 percent in real terms compared to the previous year, equivalent to R10 million more than had been projected. In 2003/04, 30 percent of total hospital fees were accounted for by fees raised from the private wards. This suggests that the increase in revenue is mainly attributable to the development of private wards even though they only account for 2.5 percent of total admissions.

Table 10: Overview of total revenue raised from private wards at TBH, 2003/04 and 2004/05

<table>
<thead>
<tr>
<th>Type of revenue</th>
<th>2002/03 (R)</th>
<th>2003/4 (R)</th>
<th>% increase (02/03-03/04)</th>
<th>2004/5 (R)</th>
<th>% increase (03/04-04/05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total hospital (nominal prices)</td>
<td>38,914,000</td>
<td>53,401,000</td>
<td>37%</td>
<td>not available</td>
<td>-</td>
</tr>
<tr>
<td>Total hospital (real prices, 2002/03)†</td>
<td>38,914,000</td>
<td>51,158,158</td>
<td>31%</td>
<td>not available</td>
<td>-</td>
</tr>
<tr>
<td>Private wards only</td>
<td>none</td>
<td>15,885,920</td>
<td>-</td>
<td>14,886,825</td>
<td>-6</td>
</tr>
</tbody>
</table>

† The ‘real’ figure is adjusted using a CPIX of 4.2%. CPIX data was accessed via [http://www.statssa.gov.za](http://www.statssa.gov.za)
Although TBH management has advocated for retaining 100 percent of the revenue raised by the hospital, at present revenue generated from the private wards goes straight into a central revenue pot that is returned to the provincial treasury. Each year, Treasury determines the revenue budget for TBH on an historical basis, without reference to a specific formula (Interview material, Senior Hospital Manager). This estimation is then included in the total budgetary allocation from the province to the hospital. Should there be over-recovery – that is, should TBH raise revenue in excess of the estimated revenue target - it is ‘retained’ by the facility. The first over-recovery period was in 2004/5 when TBH managed to generate R7.6 million above target (PGWC, 2005:51 and Interview Material, Senior Hospital Management). It is assumed that the creation of private wards played a significant role in this over-recovery. The over-recovery is not directly retained by the facility, but is advanced in the following budgetary cycle in addition to the ordinary budgetary allocation with clear specifications on how the over-recovery is to be spent. The over-recovery can only be spent on once-off expenditure and cannot be used for recurrent expenditure (Interview Material and PGWC, 2003).

The decision-making around the allocation of the over-recovery is primarily an internal management one (Interview material) involving the Tygerberg Executive Committee (TEXCO) – the senior management body of TBH. TEXCO includes management from deputy-directors upwards (i.e. middle and senior management). There are two members at director level (clinical services and finance) and one member at chief-director level (although the current Director of Finance post is vacant). TEXCO goes through an annual review process beginning in February identifying and reviewing priority areas that could benefit from the injection of once-off revenue. This process involves consultation by each deputy-director and medical superintendent with the heads of clinical departments. This consultation leads to the development of a preliminary ‘wish list.’ Having developed the wish list, each department goes through a prioritising process which they present to TEXCO under the chairpersonship of the CEO or senior clinical executive. This team then consolidates the prioritised lists and develop an institution-wide list by consensus. The consensus-building is assisted by an equipment database that takes into account equipment age, service contracts, availability of parts, service history, frequency of repairs, costs of repairs and the like (interview material, TBH senior manager).
The prioritisation process is thus informed by inputs from clinical departments and as well as technical inputs from the clinical engineering side, with the cut-off for purchases being determined by the available funding. A decision may be made to top-slice the funding available for purchase of a special item. For instance, in 2005 there was a decision to buy a mobile C-arm – a mobile X-ray unit that allows 3-D X-Rays - at a cost of R1.5million. The money left over was then allocated to the prioritised list.

Predictably, the list of priorities tends to be longer than the resources available. Usually there is not enough time to develop new priority lists at the point in time when the additional revenue becomes available. The understanding is that preference is given to capital expenditure as opposed to consumables because of the backlogs that are experienced with respect to infrastructure and equipment (Interview Material, TBH senior manager). This does not imply that there are no backlogs with respect to service delivery: rather, the “framework is determined by the Provincial Treasury and Head-Office” (Interview material, TBH senior manager), meaning that the hospital management is not able to spend the over-recovery on recurrent items.

Following the first over-recovery period in 2004/5, the available revenue was allocated to departments within the hospital for a number of items. These items were not specifically for private wards or high-income patients. For instance, approval was given to purchase a new fire-alarm system (which is of benefit to the entire hospital) and to improve the psychiatric ward (Interview Material, TBH senior management). In addition, revenue was ear-marked to support the implementation of ICD-10 coding through training and furniture for the ICD-10 coding office. ICD-10 coding is the *International Classification of Diseases (10th revision)* designed to promote international comparability in the collection, processing, classification and presentation of mortality statistics (National Center for Health Statistics, 2006). ICD-10 coding is used to report inpatient procedures linked closely to billing, especially with respect to provider payment. This is of benefit to the entire hospital as it speaks to the strengthening of management practice around a core-function – billing. In addition, ICD-10 coding can address the overall efficiency of service delivery as effective coding allows management to analyse morbidity within the facility and to allocate resources where the need is greatest. Lastly, it allows the facility to conduct
comparable analysis both within the country across facilities and internationally to compare performance.

Thus, there are visible benefits to the hospital as a whole resulting from the revenue-raising potential of the private wards. What is unclear is whether this is off-set by some ‘invisible’ negative effects on public sector care in the hospital or elsewhere in the province, given the difficulty of tracking financing flows and expenditure patterns.

10. ARE HOSPITAL RESOURCES DIVERTED FROM PUBLIC TO PRIVATE WARDS, AND DOES THIS AFFECT THE QUALITY OF CARE OFFERED IN PUBLIC WARDS? (OBJECTIVE 3)

The resource-use analysis was used to address this question. Table 11 shows the results of this analysis for the ‘cardio’ co-morbidity group. In interpreting the findings, it is important to remember that this analysis is based on a limited sample size.

Table 11: Resource-use analysis for cardio co-morbidity group

<table>
<thead>
<tr>
<th></th>
<th>Public (N=21)</th>
<th>Private (N=9)</th>
<th>Differential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Age</td>
<td>55</td>
<td>67</td>
<td>(12)</td>
</tr>
<tr>
<td>Average patient days</td>
<td>Incomplete records, poor billing data</td>
<td>12.6</td>
<td></td>
</tr>
<tr>
<td>Average anaesthetic time (hh:mm)</td>
<td>5:09</td>
<td>4:55</td>
<td>00:14</td>
</tr>
<tr>
<td>Average operating time (hh:mm)</td>
<td>3:55</td>
<td>3:28</td>
<td>00:27</td>
</tr>
<tr>
<td>Average no. of physiotherapy visits</td>
<td>4</td>
<td>5</td>
<td>(1)</td>
</tr>
<tr>
<td>Proportion with &gt; 1 physiotherapy visit/day</td>
<td>38%</td>
<td>22%</td>
<td>16%</td>
</tr>
<tr>
<td>Average no. of chest X-rays</td>
<td>3</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Average No. of drug items prescribed</td>
<td>18</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>Average No. of lab tests requested</td>
<td>10</td>
<td>12</td>
<td>(2)</td>
</tr>
</tbody>
</table>

The resource-use analysis suggests that there were no fundamental differences between care provided to public and private patients receiving coronary by-pass surgery. If anything, public patients received slightly more resources with respect to
theatre/anaesthetic time as well as physiotherapy visits. Although there is a slight difference in favour of the private patients with respect to laboratory tests, this result is skewed by the low sample size of private ward patients and the fact that there was one case that required an unusually large number of tests (28 as opposed to the next highest of 15). When the outlier is excluded, the average number of private laboratory tests comes down to the same level as the public ward group.

It is important to note that laboratory tests are paid for either directly by the patient or the intermediary (medical aid scheme), and hence there is no direct financial incentive in place for the hospital to increase laboratory testing for private patients. The tests are left to the discretion of the clinician in charge who, being in the state employ, also has no incentives to over-provide these services to private ward patients. Thus, the model of service delivery and the re-imbursement of this component ensures that no visible distinction in treatment regimens take place.

An interesting observation is that, on average, there are no difference between public and private ward patients vis-à-vis the average number of drugs items prescribed, suggesting that no clinical differentials exist and that, even with respect to drugs, a private ward bias may not exist. Further detailed investigation is required across more interventions and with a larger sample size to determine whether this assumption is valid.

Table 12 shows the results of the analysis for the ‘cardio-diabetic’ co-morbidity group. This analysis also suggests that there is no real difference in resource use between public and private patients. However, the longer time spent by public patients in the theatre and in recovery from anaesthesia might be the result of public patients spending more time waiting for anaesthetic or to be transported back to the public ward (i.e. because of inefficiency rather than more intensive or better quality care). This observation is based on anecdotal evidence at TBH and from discussion of experience at other public hospitals, and has not been verified empirically. A discussion with a clinician (Interview Material) highlights that one needs to consider the time the patient spends waiting for the anaesthetist and surgeon, as well as the time between the initiation of the anaesthetic and the start of the operation, to understand resource use fully. Unfortunately, the data available from the medical records does not allow one to assess the accuracy of the time
spent in theatre, as well as the resource-use implications thereof. Given the exploratory nature of this case study, this is an area that warrants attention in future research.

Table 12: Resource-use analysis for cardio-diabetic co-morbidity group

<table>
<thead>
<tr>
<th></th>
<th>Public (N=11)</th>
<th>Private (N=7)</th>
<th>Differential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Age</td>
<td>60</td>
<td>56</td>
<td>4</td>
</tr>
<tr>
<td>Average patient days</td>
<td></td>
<td>Incomplete records, poor billing data</td>
<td>7.28</td>
</tr>
<tr>
<td>Average anaesthetic time (hh:mm)</td>
<td>4.52</td>
<td>3.57</td>
<td>0:55</td>
</tr>
<tr>
<td>Average operating time (hh:mm)</td>
<td>3:34</td>
<td>2.52</td>
<td>0:42</td>
</tr>
<tr>
<td>Average no. of physiotherapy visits</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Proportion with &gt; 1 physiotherapy visit/day</td>
<td>45%</td>
<td>43%</td>
<td>2%</td>
</tr>
<tr>
<td>Average no. of chest X-rays</td>
<td>2</td>
<td>3</td>
<td>(1)</td>
</tr>
<tr>
<td>Average No. of drug items prescribed</td>
<td>18</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>No. of lab tests requested</td>
<td>8</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 13 shows the results of the analysis for the hip-replacement group. As with the coronary bypass public-private comparison, the main difference appears to be vis-à-vis anaesthetic and operating time. With respect to laboratory tests requested, private ward patients – on average – had more four more. Again, one cannot reach a firm conclusion based on this factor alone, given the relatively small sample sizes as all it takes is two patients with high numbers of requested tests to skew the picture. For instance, although the average is 24 for the private patients, there were two patients that had over 30 tests. Likewise, public ward hip-replacement patients – on average – received two more prescribed items than private ward patients. However, given the small sample size, this difference is not significant.
Table 13: Resource-use analysis for the hip-replacement group

<table>
<thead>
<tr>
<th></th>
<th>Public (N=18)</th>
<th>Private (N=17)</th>
<th>Differential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Age</td>
<td>65</td>
<td>73</td>
<td>(8)</td>
</tr>
<tr>
<td>Average patient days</td>
<td>15</td>
<td>17</td>
<td>(2)</td>
</tr>
<tr>
<td>Average anaesthetic time (hh:mm)</td>
<td>3:18</td>
<td>2:26</td>
<td>52</td>
</tr>
<tr>
<td>Average operating time (hh:mm)</td>
<td>2:47</td>
<td>1:58</td>
<td>49</td>
</tr>
<tr>
<td>Average no. of physiotherapy visits</td>
<td>5</td>
<td>4 (based on N=11)</td>
<td></td>
</tr>
<tr>
<td>Proportion with &gt; 1 physiotherapy visit/day</td>
<td>32%</td>
<td>22%</td>
<td>10%</td>
</tr>
<tr>
<td>Average no. of pelvic X-rays</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Average No. of drug items prescribed</td>
<td>12</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Average No. of lab tests requested</td>
<td>20</td>
<td>24</td>
<td>(4)</td>
</tr>
</tbody>
</table>

The average length of stay for the private hip-replacement patients is two days more than that for public patients. However, one needs to note that the average age of private patients is 8 years greater than for the public comparator. This could explain the longer average length of stay.

Overall, one of the key explanatory factors for the fact that there is no clear difference between resource use for public and private patients, seems to be the private ward model adopted at TBH. The model does not allow public sector doctors and specialists to perform their RWOPS in the hospital, hence removing private ward bias that could result from the fee-for-service reimbursement system. In addition, given the limited number of private wards and beds relative to the rest of the hospital and the workload in the rest of the hospital, very little incentive exists to divert resources towards the somewhat limited private ward set-up. The potential to raise revenue for the hospital is great, however, which could introduce different behaviours over time. Given management’s cautious approach to the private ward policy the transition towards a private ward bias is still not – at this juncture – likely.
11. UNDERSTANDING THE DESIGN AND GOVERNANCE FACTORS INFLUENCING PRIVATE WARD OPERATIONS AND IMPACTS (OBJECTIVES 4 AND 5)

This section draws on the interviews with key informants and considers the factors influencing the operation and impacts of private wards, testing the findings of this study against the six propositions generated from the review of relevant international literature and described earlier.

Proposition 1: Inappropriate price levels, resulting from poor cost data and weak assessment of likely demand, will undermine revenue-generation levels

This study provides some evidence in support of elements of this proposition. The Uniform Patient Fee Schedule (UPFS) was developed by the National Department of Health (2002) and is not facility-specific. It is possible, therefore, that prices may not be a true reflection of the costs of service delivery at TBH. TBH is a large tertiary (level 3) facility linked closely to a university and might incur higher costs than smaller level 3 facilities. In addition, whereas the UPFS has a facility fee which differs according to level of care, professional fees (for specialists, medical practitioners and allied health practitioners) are not differentiated between levels of care.

Another problem with the UPFS is that it could not be determined according to a rigorous cost-based methodology because of data constraints. It was merely adjusted downward relative to tariffs originally set by the Board of Healthcare Funders (BHF). However, in 2004, the Competition Commission ruled that the BHF could no longer set tariffs. The UPFS continues in place, being adjusted merely by the consumer price index, despite on-going guidance on annual adjustments made by BHF using a combination of negotiation and expenditure data from medical schemes.

It does, therefore, appear that the UPFS – although unifying the public sector – does not facilitate the estimation of costs and setting of prices according to both the inputs and service outputs at the facility level, in turn impacting on the ability to raise revenue.

8 This is the umbrella body for medical insurance schemes.
Another reason for poor revenue generation, apart from price levels, could be difficulties in billing accurately for services rendered. Specific steps have been taken within the hospital to strengthen information systems and provide for accurate billing. For example, the CLINICOM system was implemented to improve billing and revenue collection in private wards; case managers have been appointed to ensure billing is accurate and to manage relationships with funders; and, most recently, efforts are being made to implement ICD-10 coding to ensure timely payment by medical aid schemes (medical schemes have implemented ICD-10 software systems and it is a legal requirement for providers to submit ICD-10 codes on their claims to medical schemes). In addition, the hospital uses the cost-centre approach which, in theory, should assist in tracking costs. All these developments have their own cost, however.

Moreover, this study has demonstrated the weaknesses of the existing data systems in estimating costs as a basis for prices. Thus, despite the limitations of using prices in the UPFS, it would nonetheless be very difficult to use the existing financial management data to do a comprehensive costing at the level of the private wards, let alone specific groups of patients. Given the difficulty in accessing accurate data for two tracer conditions for this study, allocating costs to over 30 clinical sub-departments would be a mammoth task. Capturing relevant data from medical records, moreover, also proved time-consuming and difficult. Finally, for the study period, there were noticeable discrepancies in the billing data, identified both during the research process and also pointed out by management (Interview material).

Although employing and training case managers may help with some aspects of these problems, it has proved difficult to employ adequate numbers to fill the posts required for this task. Interviews with management also pointed out that the attempt to improve the system through improved training has mixed impacts. First, service delivery improves and the ability to strengthen management capacity is enhanced. Then, once staff receive training, they are lost to the private sector, reducing the facility to its original position. The problem has been most notable with respect to case managers. Although by 2005 TBH had recruited a case manager, the facility was still constrained by the fact that only 1 of 4 posts could be filled (Interview material). Attempts to attract experienced private sector

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9 Getting patients to pay their bills is another problem, which is beyond the scope of this study to investigate.
capacity have not succeeded given that the public sector cannot compete with the remuneration packages offered by the private sector. One manager noted that a candidate was selected from the private sector, but the employer made a counter-offer resulting in the potential candidate opting to remain in the private sector (Interview material). This shortage of skilled human resources is systemic and a problem across the country.

With respect to generating demand for private ward services at TBH, implementing public-private interactions (PPIs), such as preferred provider arrangements, that have already been signed by the province and funders remains a challenge, with slow uptake at the facility level. At this stage the low-cost medical scheme market is not fully developed, with consumer demand for private services – in the private sector – still high. The public model of private delivery is relatively new in the market and despite buy-in from senior policymakers and schemes (at least in principle), medical aid beneficiaries are yet to be convinced. TBH staff identified problems such as the lack of ICU beds, theatres and designated staff to enhance private ward services (interview material, clinician and management). These constraints are linked to the general under-supply of beds, theatres and staff in the public sector which make private wards in public hospitals potentially less attractive to funders and patients alike.

Another aspect to consider is the assessment of demand for private ward services given the geographic location of TBH. One manager (Interview material) highlights that TBH is in an area surrounded by private facilities and is thus viewed as a threat by those facilities. Also, patients are more likely to seek care in one of the surrounding facilities. This is in stark comparison to the other major tertiary hospital in Cape Town which also operates private wards, but in a geographical area with far fewer private hospitals in close proximity (Interview Material). The impact on demand, therefore, of private hospitals in close proximity to TBH has a bearing on the sustainability and scaling-up of the existing TBH private ward model.

Overall, therefore, price levels are not set on the basis of cost data and cost data as currently collected provide only a weak basis for price estimation. In addition, there is no formal assessment of demand for private ward services at TBH which could make the hospital vulnerable to under-recovery in the future. At this juncture it is uncertain to what
degree the revenue forecasts are adequate in ensuring an optimal over-recovery that has the potential to bolster the hospital. The forecasts are based on a business plan developed by an EU consultant, but the costing methods were not available to the researchers.

**Proposition 2: The incentives inherent in the fee-for-service mechanism will promote a private ward bias in resource allocation within the hospital**

There is little evidence from this study to support this proposition. In practice, the influence of the fee-for-service system in TBH is contained by two factors. First, although patients are billed on a fee-for-service basis, staff are not paid on this basis. Second, at the hospital level there is no direct link between revenue collection from private wards and additional revenue allocated to the hospital (see discussion below). Ultimately, therefore, despite the use of a fee-for-service mechanism, there is no clear indication of a private ward bias in resource allocation within the hospital.

Nonetheless, a key factor encouraging the development of the private ward model as implemented at TBH is the level of fees within the reimbursement method which makes it attractive to funders. In private facilities, patients are charged facility fees as well as specialist fees, as clinicians are not employed by the facility. Specialist fees continue to increase in the absence of regulated tariffs for private providers. This is evident given the annual above inflation cost-increases of medical aid expenditure on specialists (Council of Medical Schemes, 2005, 2006; BHF, 2005 and 2006). In the case of TBH, however, the majority of private patients are treated by staff who fall under the normal TBH staff complement. Although there is a professional fee levied by TBH, this is lower than private sector rates and increases at a slower rate, translating into a cost-saving to the funder.

**Proposition 3: Revenue retention arrangements will have a strong influence over the potential for revenue use to result in equity gains**

This study supports this proposition as it suggests that the revenue retention arrangements do influence the potential for equity gains, although the extent or nature of those gains is less clear. As discussed, revenue retention in TBH is not a direct result of revenue collection within the private wards. Instead, additional revenue is allocated to the hospital through annual budget negotiations and as a result of the hospital’s total pool of revenue (from full-paying patients in private wards and those H0-H3 patients in the public
wards who are not full-paying patients) exceeding initial forecasts of revenue generation. If end-of-year assessments show that there is an over-recovery relative to start-of-year forecasts, additional funding is made available to the hospital to invest in once-off expenditures. As discussed earlier, the sorts of expenditures that have so far been made are ones that are of benefit to the hospital as a whole rather than the private wards only.

Interestingly, moreover, TBH respondents believe that the private wards have the potential to act as a catalyst towards improving overall service delivery by becoming the benchmark upon which future service delivery is to be modelled. Another public ward was upgraded in 2005, and resembles a private ward in structure. The cleaner upgraded amenities have the potential to raise the morale of personnel, attract patients to the facility and improve public perceptions of TBH (Interview material). A senior manager – citing the example of cleaning notice-boards of old memos and notices - pointed out that, just by having a cleaner environment, one picks up the hospital and the morale of the workers. If the private wards can act as a catalyst to improving the condition of the entire hospital, then that is a gain that cannot be measure in financial terms. It is a positive subsidy of the non-financial kind.

Proposition 4: Weak actor management skills will allow medical professionals to influence the design in ways that benefit themselves personally, and at the expense of revenue generation.

There is little evidence from this study to confirm this proposition. There has been little or no resistance to the policy from the various groups of health professionals within the hospital. In general, nurses did not express opposition to the policy. In any case, although the head nurse of the private wards is a TBH employee, other nurses are largely drawn from agency staff, preventing the creation of divisions among nurses on the wards. Likewise, other grades of staff have not expressed opposition to the policy.

In contrast, doctors did express initial concerns, some arguing that private remuneration should be allowed within the model along the lines of the RWOPS policy that allows doctors to work privately outside the hospital to supplement their income (interview material). However, TBH management has maintained that the benefits of the private ward arrangement should accrue to the hospital as a whole rather than to a particular group of
clinicians (interview material) and, in practice, doctors have not refused to work in private wards and do continue to treat private patients.

The overall support from doctors is sustained as private ward activity constitutes a relatively miniscule share of overall hospital activity. The private wards are integrated with broader service delivery within TBH and are treated no differently. In addition, given the broader budgetary processes and negotiations at EXCO, senior clinicians have the opportunity to engage in transparent processes of resource allocation accruing from over-recovery. Although benefits do not accruing directly to specific clinical departments, the fact that revenue benefits the entire facility facilitates the buy-in of senior clinicians.

**Proposition 5: A lack of clear guidelines on revenue use and resource allocation will undermine the use of revenue in ways that benefit public ward users**

This study does not support this proposition strongly. There are clear guidelines in place on how to allocate revenue over-recovery. However, the process of decision-making is a cumbersome one that starts with wish-lists by heads of department which are discussed at EXCO before a final decision can be made. This decision then has to be ratified by the province. There is potential within this process to create tension affecting buy-in to the policy by senior clinicians. Several clinicians oppose the policy in principle (interview material) in that there are no clear financial incentives or benefits to their departments or to their members of staff. The policy has the potential to undermine morale within the facility given the limited visibility of direct benefit to specific departments.

Perhaps a more important influence over the allocation of revenue is, in any case, the strong managerial concern about the potential for private ward bias. Management and clinicians both highlight the primary importance of service delivery to public sector dependants (Interview material, TBH management & TBH clinicians). Senior management feel quite strongly that, if a private ward bias and a reverse subsidy were to be demonstrated, then the current private ward model would either be abandoned or be improved to ensure that a reverse subsidy did not occur (Interview material, senior management). In other words, management will not continue the model in its existing format should it be shown to promote inequity. According to a senior management official:
“If public subsidising the private wards- would need to look at how we run the private wards. One would need to bring in business expertise to ensure that the private wards do become profitable. If they are not capable of generating profit then we are doing something wrong, because in theory private hospitals would not exist if they could not generate profit. Wouldn’t discontinue but would look at reasons. If determined that there was no way for private amenities to subsidise public, then it should not be continued…”

(Interview Material, Senior TBH management official)

The provincial health department are supportive of TBH management on this issue and are keen to tackle the question of reverse subsidy (Interview material). Policymakers, like management, acknowledge the atmosphere of uncertainty generated by minimal evidence on whether private wards are generating a net surplus. From a governance point of view, the senior levels of accountability, both at the level of the province and the facility, are cognisant of the potential for the private wards to undermine equity, and are therefore keen to ensure that the private wards remain viable. The concept of private wards may never be abolished, given their potential to raise revenue and to boost the public sector, but the current atmosphere suggests that the key stakeholders would work together to ensure that the model is improved and entrenched within the health care delivery system. It appears, then, that it is more the technical, administrative and bureaucratic dimensions of policy implementation that curtail the efficiency of revenue generation from private wards, rather than poor governance.

Proposition 6: Poor accountability over budgetary allocations within the hospital will encourage a private ward bias.

Under current arrangements at TBH, the evidence does not support this proposition. Provincial and senior management concerns around reverse subsidy suggest that policymakers and senior management alike are keen to ensure that the focus of service delivery is on public sector dependents and that the revenue-generating ability of private wards does not drive service delivery. The annual budget negotiation process between the province and the facility, coupled with the internal decision-making processes of TEXCO, suggest that allocations within the hospital are transparent and departments across the facility have a say in how resources are allocated. In addition, the private wards do not have a designated manager assigned: rather, there is one manager whose portfolio includes both public and private ward functions. All in all, the potential to bias resource allocation towards private wards is limited, given the particular contextual circumstances of TBH.
12. CONCLUSIONS

- Tygerberg hospital does generate revenue from private wards but, at least in the case of coronary by-pass surgery and hip replacements, it seems unlikely to be covering costs, especially if one were to add in the investment costs of new information systems and training and the transaction costs associated with billing, and adjust for instances of under-estimation. However, the extent of the public subsidy to the private ward is difficult to quantify, given the limitations of the study. Accurate billing and reducing bad debt are two immediate ways to minimise this reverse subsidy.

- Even though it is not covering the costs of private ward activity, TBH is getting extra revenue for the hospital as a result of these activities. Although representing only a small percentage of patient admissions, the private wards are contributing around one-third of total revenue. The revenue that the hospital is allowed to retain as a result is being used for wider hospital benefit.

- Governance arrangements for the TBH private wards are very different from experience elsewhere in low- and middle-income countries. The private wards are a relatively small-scale operation with revenue generation not linked directly to retention arrangements at the facility. Revenue generation is linked to the budget cycle and negotiations with the provincial health department. From a provision perspective, there are no incentives that translate into a private ward bias. This is because providers are not performing duties as part of limited private practice within the public sector, and service delivery in private wards forms part of normal service delivery throughout the hospital. The cautious approach of management, and their commitment to equity, has helped to prevent a bias towards the private wards. Clinicians and nurses have not opposed the policy.

- There is some suggestion from staff that the very existence of private wards under these sorts of arrangements is having a positive impact on service delivery in public wards.
In conclusion, the Tygerberg experience is an interesting one although overall gains remain unclear and the study generates more questions than it answers: are the overall benefits to the hospital enough to offset the reverse subsidy?; is there any real equity gain?; what, if any, changes would strengthen the model and benefit the hospital more generally? Given that the private wards at TBH are unlikely to be rolled back, the challenge rests with the TBH management and provincial government to ensure that a system is in place that ensures that costs are tracked and that a surplus is generated to the overall benefit of the facility. It is important to protect arrangements that guard against a private ward bias and prevent an erosion of the positive aspects of the Tygerberg experience. The complexity of the private ward policy, and the high levels of uncertainty around its impact, highlight the multiple health system challenges to harnessing the private sector for public sector gain.
REFERENCES


29. Tygerberg Hospital (2004): Tygerberg Academic Hospital: Annual Report 1 April 2003 to 31 March 2004