

# 'Brave New World'

Outlook Dutch Hospitals 2007-2012

Developments Dutch Hospitals 2002-2007

Developments Dutch Hospitals 2006-2007



O wonder!  
How many goodly creatures are there here!  
How beauteous mankind is!  
O brave new world  
That hath such people in't!"

So does Miranda proclaim her wonder at the world in Shakespeare's play *The Tempest*. Miranda, daughter of the disposed but rightful Duke of Milan Prospero, has lived nearly all her life on an island. Prospero, confesses early in the first act to Miranda,

" –me (poor man) my library  
Was dukedom large enough:"

Prospero has been wronged by his own brother and lives alone on the island with his daughter. Such is then Miranda's wonder at seeing the other humans on the island like Ferdinand and his father the King of Naples, deliberately shipwrecked and brought by Ariel, the airy Spirit, on Prospero's command.

Ariel longs to be free. The wicked witch had captured her and Prospero released her when he came to the island, but keeps her morally bound to him for the services he needs to undo the wrong done to him. As promised, when all is well he lets her go, and Ariel celebrates her freedom in a wonderful Shakespearean joy of words:

When the bee sucks, there suck I.  
In a cowslip's bell I lie.  
There I couch, when owls do cry.  
On the bat's back I do fly  
After summer merrily....  
Merrily, merrily, shall I like now,  
Under the blossom that hang on the bough.

Aldous Huxley used Miranda's wonder at the new world she discovers to open his satirical vision of Utopia in his novel *Brave New World*, which he wrote in 1932. *Brave New World* is a frightening world. War, poverty, disease, and other afflictions have been eliminated. The socialist utopia is nearly there. Unfortunately this dystopia has been achieved by also eliminating virtues we value as humans, individuality, family, friends, art, culture, science, literature, religion.

Such virtues of self expression are equally manifest in hospitals. In the period 2002–2007 hospitals entered a new era of individual freedom, the opposite of Huxley's *Brave New World*. Most likely the ideals of completely eliminating efficiency, quality and other performance gaps will never be achieved in the *Brave New World* of hospitals. But let it be a world in which hospitals, physicians, and above all patients have the right to shape their own future. That inalienable right to self expression is the best ticket to the best performance. And then like Ariel, the hospitals could sing:

Merrily, merrily, shall I like now,  
Under the blossom that hang on the bough.

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## Executive Summary:

This year we have chosen to shift the emphasis of our annual hospital study to a look at the five year developments over 2002-2007 rather than just focus on single year, 2007 developments. We also venture to look ahead to discuss potential developments in the next five year period 2007-2012. We do report the 2006-2007 developments albeit in a much abbreviated version.

Reading back in the year to year studies it becomes obvious that while some developments have without doubt reinforced themselves over the five year period, others were more noise rather than signal. The purpose of this five year review is to separate the year to year noise from the five year signal. On this basis we present five main conclusions.

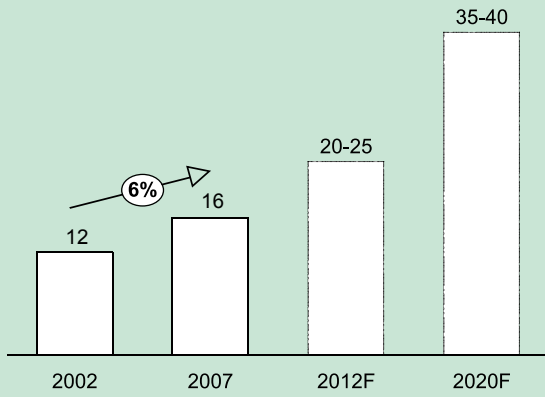
Looking back and analyzing the data to come up with a sensible set of conclusions is challenging enough in a sector so diverse, rich, complex and wrought with changes in the last five years (DBC, B-segment, medical advances etc.). The aim of this report is also to venture into the brave new world of tomorrow. We propose on basis of the five year developments an outlook 2007-2012. What are the most likely trends and developments we can anticipate based on the analysis of the last five year period?

The Executive summary is structured along three themes:

- 1) Outlook 2007-2012
- 2) Developments 2002-2007
- 3) Developments 2006-2007

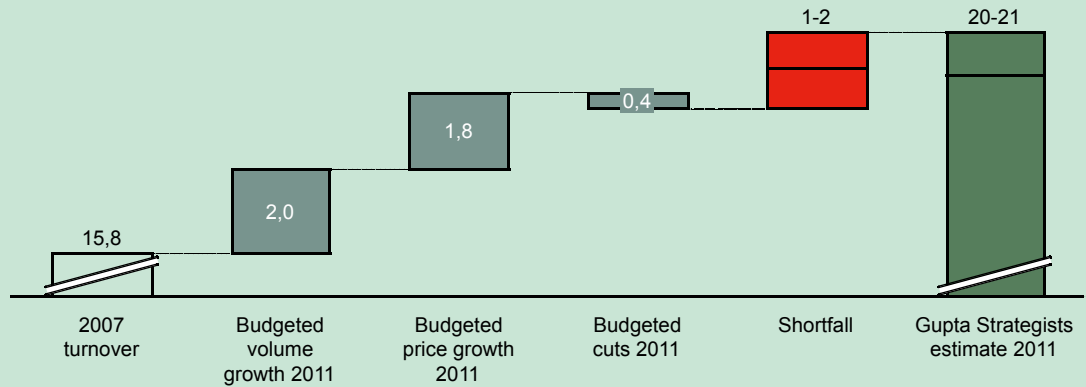
E1

**Double trouble**  
[Hospital outlay, EUR b, CAGR %]



E2

**psssst... anybody got 1-2 billion?**  
[EUR b]



## Outlook 2007–2012

The aim of our outlook 2007–2012 is to provide the sector leaders in hospitals, but also at insurers and policy makers, with a set of concrete predictions so that they can fine-tune their strategies, should they be convinced of the need to do so. As the reader will see, many predictions, while not necessarily surprising, pose significant if not insurmountable management challenge.

- 1) Hospital expenditure to reach EUR 20–25 billion in 2012 up from EUR 16 billion in 2007. We predict a shortfall of EUR 1–2 billion compared to currently available budget projections. EUR 1–2 billion extra funds must be earmarked for hospitals through higher premium or direct government funding. Failing to earmark extra funds, there is a risk of forced price cuts at hospitals (Exhibits E1, E2)**

Future trends in demographics and medical technology suggest that growth will accelerate in the coming five years. We expect on the lower side the outlay to come to EUR 21 billion but could be as much as EUR 25 billion in 2012.

Our downside prediction of EUR 21 billion expenditure in 2012 already exceeds currently projected spending in the national healthcare budgets by EUR 1–2 billion. Should the budget projections not be adjusted upwards significantly by earmarking new funds for hospitals we expect turmoil in the period 2007–2012. Lack of sufficient funds could lead to non-voluntary price cuts across all hospitals. However we do not expect such price cuts to happen given their ineffectiveness. We predict that the insurance premium would rise significantly and the covered treatments would shift from basic to additional policies to cover the hospital growth.

- 2) Procurement and salary costs will be the main drivers of the EUR 5 billion extra outlay in hospitals in 2012. Taking our cue from 2002–2007 we expect little net efficiency gains in 2007–2012**

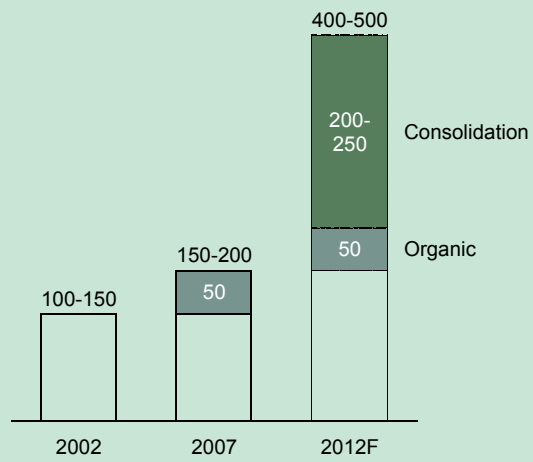
Cost-to-serve will continue to rise and we do not predict any significant overall efficiency gains. Labor specialization and scarcity will continue to drive both salary costs and outsourcing costs. Procurement costs will be main growth driver. Lack of sufficient understanding in the volume, inflation and



E3

**Race for scale could lead to much larger consolidated hospitals**

Average turnover Dutch Hospital [EUR m]



innovation component of procurement cost increase will continue to hinder efficient management of procurement.

**3) A consolidation wave among hospitals would create significantly larger hospitals chains (Exhibit E3)**

Several trends suggest that we are on the brink of a major consolidation wave. These trends include growth in complexity of medical procedures, need to do sufficient volume, positive correlation between volume and quality, insurer consolidation and professionalization, talent war, scale needed for procurement, struggle for markets, administrative burden etc. We predict that a powerful consolidation wave will wash across hospitals' shore in the next five years, creating significantly bigger, national hospital chains. Do not be surprised if the average size of a hospital chain grows to EUR 400-500 million in 2012 up from EUR 150-200 million in 2007.

**4) Expanded B-segment would mean significant performance pressure. Patient switching in B-segment is already much more important and will grow driven by the unique partnership strategies forged by individual hospitals and insurers. Specialization of a few hospitals in a few B-segment procedures appears imminent**

Already growing to a projected 30-35% in 2009 we expect B-segment to continue to grow in importance. Insurers and hospitals will develop their own individual and unique strategies for dealing with B-segment. Such partnerships would include own management information language to circumvent the impossible task of working with current DBC system, and far reaching agreements in time and in price, medical quality and service.

Patient switching is already high ( $\pm 8\%$ ) but will become much more important in B-segment as both hospitals and insurers work together or against each other in other cases, to drive patients' choice. As a result the first shakedown could happen in 2007-2012, with some hospitals limiting some B-segment procedures to the bare minimum and others becoming high volume specialized centers.

E4

**Will the lagging hospitals please take notice?**Average market share  
[% of expected market]

- 5) **The performance gap among the best and the worst hospitals could widen further. With overall performance improving again, the widening gap must be seen as a spur for further performance improvement rather than a problem** (Exhibit E4)

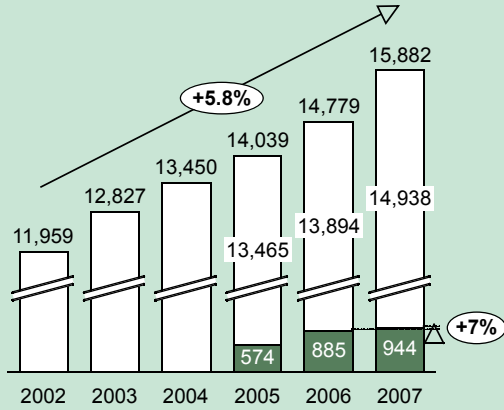
Accelerated rate of change from the outside and the ability and ambition of some hospitals to drive the change would mean that the performance gap between the hospitals would widen. We expect market shares in B-segment to shift significantly. Given the fixed cost base, the market share winners will see their overall profitability grow. At the same time we predict few frontrunner hospitals will continue their successful focus on efficient operations. Insurers will become much better at implementing "money follows the patient who seeks the efficient, high quality hospital", principle. These trends in market, operation and financial performance will ensure that the best hospitals further outpace the laggards. While bankruptcy of laggards is an option, we suspect they will rather play a part in the consolidation game driven by the frontrunners.

We predict that the overall performance of hospitals will again improve in the next five year period, provided that the financing issue does not become a bottleneck. With overall performance improving, a widening gap is a measure of the health and self-healing ability of the sector rather than a problem.

E5

**Up, Up, Up**

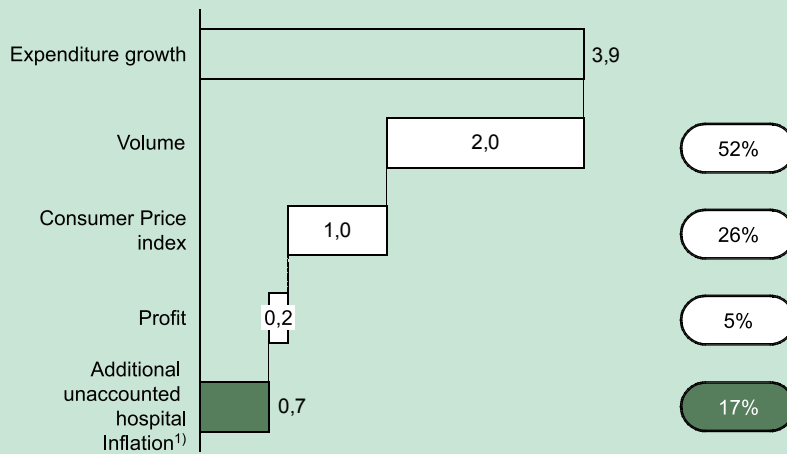
Total hospital revenue [EUR m] and growth [CAGR %]



E6

**Most of the increase in hospital expenditure can be traced to volume growth and inflation**

[2002-2007, EUR b]



1) Includes complexity of case and patient mix, expensive medicines and technologies etc.

## Developments 2002–2007

The five year period 2002-2007 saw the paradigm shift for hospitals. DBC and B-segment ushered in a brave new world of freer markets in hospital delivery. It was also a period of increasing awareness of the overall hospital outlay growth challenge. More importantly still hospitals became increasingly confronted with the large and inexplicable quality and efficiency gaps. Did the hospitals meet these challenges? We present five main conclusions based on performance analyses of all Dutch hospitals in the period 2002-2007.

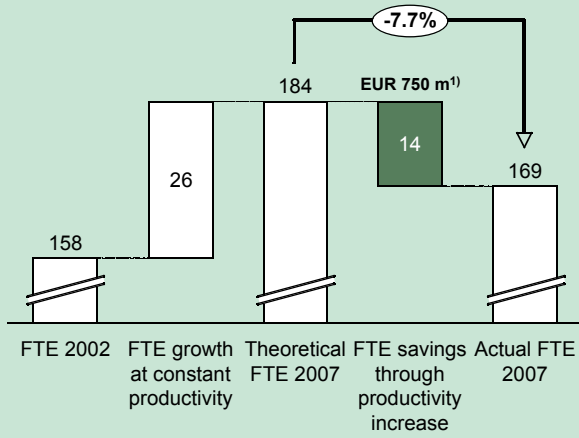
- 1) Hospital expenditure increased EUR 4 billion in 2002–2007 to reach EUR 16 billion in 2007. Volume component accounts for more than 50% of the increase. Volume, general inflation and profit accounts for more than 80% of outlay growth. Consistent underestimations in Budgettair Kader Zorg (BKZ) may have led to a shortfall of EUR 750–1000 million over 2002–2007 (Exhibits E1, E5, E6)**

Hospitals outlay continued to grow at compounded average annual growth rate of 5.8%. 2007 had the highest growth in the five year period at 7.5%. 52% of the growth can be related to volume growth in terms of patient entities. A further 26% would have been justified given the average consumer price index. An additional 5% of the extra outlay stayed in the hospitals as higher profitability. After accounting for these three factors EUR 700 million of the growth remains that cannot be explained easily based on data reported in annual reports. We believe most of this comparatively small difference could be explained considering new technologies, procedures and medicines, and shift in case and patient mixes in this period. All these changes are not captured by patient entities. We conclude that growth rates of 6-7% are more realistic than the currently used projections for the BZK. The gap between the budgets as set in 2002 and actual growth has meant a growing gap between original budget and actual expenditure which we have quantified to EUR 750-1000 million for the period 2002-2007.

E7

**We did the work of 14,000 fte less**

[’000 FTE]

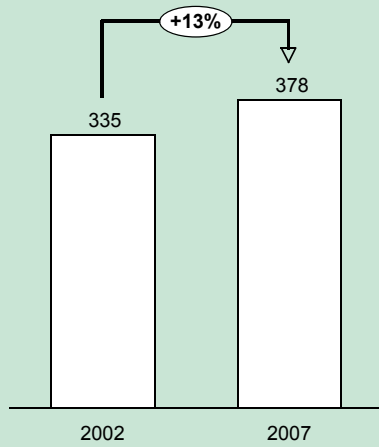


1) At 2007 average salary

E8

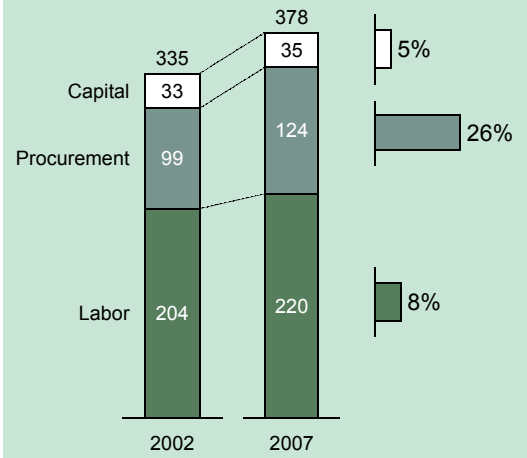
**Cost-to-serve increased...**

[EUR / Patient Entity]



**..mainly due to soaring cost of procurement**

[EUR / Patient Entity]



- 2) Hospitals realized labor efficiency gain of EUR 750 million in 2002–2007 by reducing labor by 14,000 full time equivalents, corrected for volume increase. However total cost-to-serve continued to rise mainly due to procurement costs which increased by EUR 1.6 billion (Exhibit E7, E8)

In the period 2002–2007 hospitals realized an efficiency gain of EUR 750 million or 14,000 FTE by improving labor productivity<sup>1</sup>. This is nearly 10% gain in a five year period. However the increase in salary costs and procurement costs meant that overall cost-to-serve continued to rise. We believe there is still significant room for efficiency improvement, definitely in procurement but also in labor productivity.

<sup>1</sup> Part of the decrease could be accounted for by outsourcing.

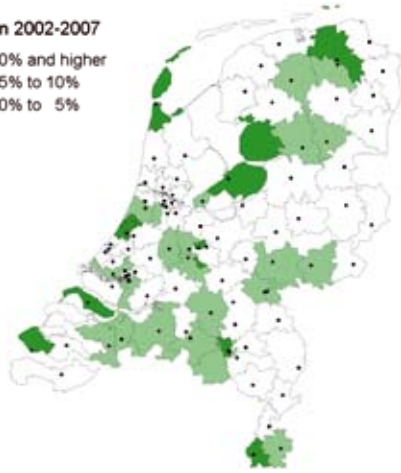


E9

**Cumulative A-segment churn was significant...**

Change of market score 2002-2007 [%]

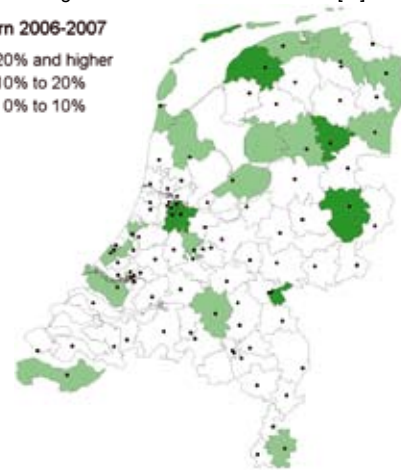
**Churn 2002-2007**  
 ■ 10% and higher  
 ■ 5% to 10%  
 □ 0% to 5%



**..but market shifts are even stronger in one year B-segment**

Change of b-segment market score 2006-2007 [%]

**Churn 2006-2007**  
 ■ 20% and higher  
 ■ 10% to 20%  
 □ 0% to 10%

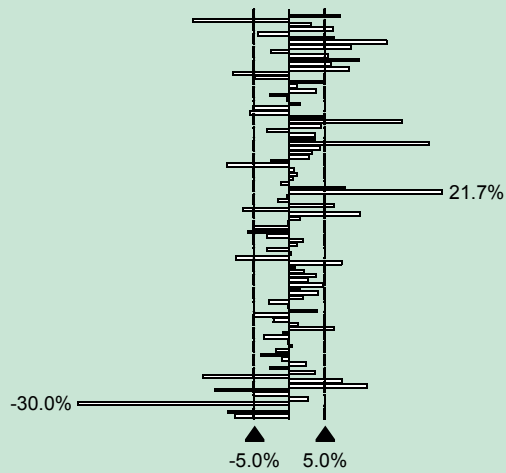


E10

**Switching in A-segment over 5 year is ...**

2002-2007 market score change [%]

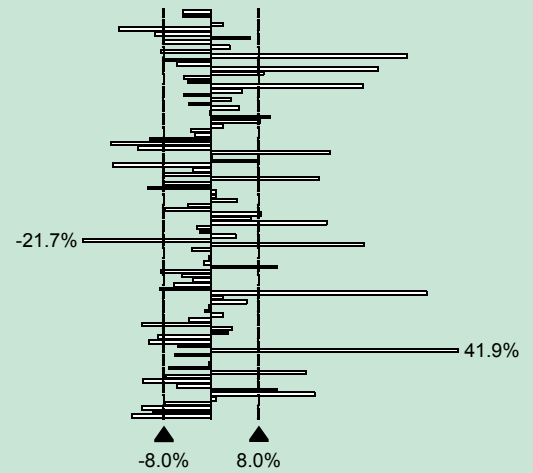
**Average 5 year switching: ± 5%**



**... less than one year in B-segment<sup>1)</sup>**

2006-2007 market score change [%]

**Average annual switching: ± 8%**



1) Could be different due to price, case-mix and registration effects

- 3) **B-segment stabilized to 6% of total hospital turnover. Growth of B-segment in value is comparable to A-segment. All hospitals have a fair chance to excel in B-segment. Patients switching is four times higher in B-segment than in A-segment suggesting better functioning markets for B-segment.** (Exhibits E5, E9, E10)

In 2007 the growth of B-segment was just under that of A-segment. The share of B-segment in total turnover stabilized to 6%.

Importantly the performance of different peers groups in their markets is comparable and there are no set of hospitals with an obvious advantage in B-segment, like UMCs and WBMV-hospitals in A-segment.

The average net churn of EPB was constant over this period at  $\pm 2\%$ . The cumulative churn over the period 2002-2005 is  $\pm 5\%$ .

The patient switching in B-segment is much higher. The average churn in B-segment over 2006-2007 is  $\pm 8\%$ .

An average  $\pm 2\%$  EPB churn is large by itself. Its impact on hospital's financial performance is comparable to the average profitability of the sector. But over the period studied we found that a small group of hospitals have been steadily gaining market share at faster rate. The cumulative impact of patient switching over a five year period is significant both for the winning and the losing hospitals. The large B-segment churn suggests that B-segments markets are functioning better than A-segment. New windows have opened for the winning hospitals, whereas a whole set of medical and strategic possibilities have become impossible for the losing hospitals.

<sup>2</sup> Growth in the relative number of patients above or below the market growth. Churn measures shift in market share. It reflects net shift in patients per hospital but not the gross shift per individual. By definition net shift is zero across all of NL (provided patients seeking hospitals outside NL are also not counted).

B-segment churn is based on total value and not local volume. This means that the churn levels may reflect price and consumption year on year differences.

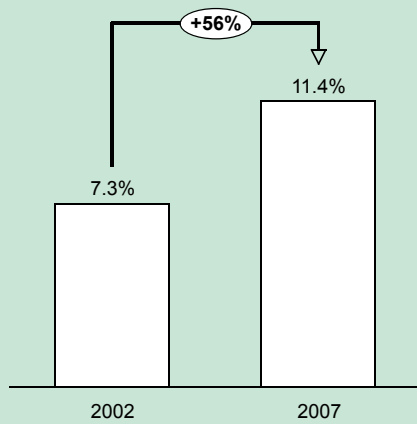
E11

**Running hard to stand still**  
[Result as % of total revenue]

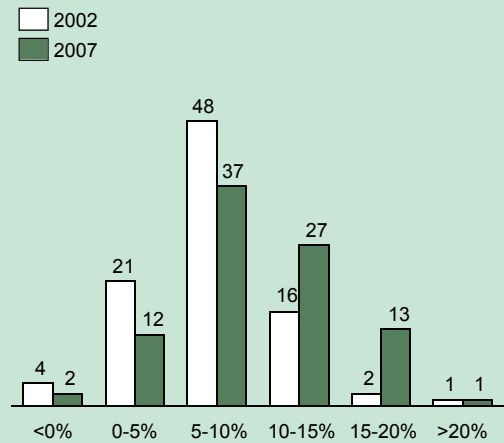


E12

**Slowly building a buffer...**  
[Equity as % of revenue]



**...and all heading in the right direction**  
[Number of hospitals; Equity as % of revenue]



- 4) Overall hospitals added nearly EUR 1 billion to their equity and they are financially stronger now than in 2002. Profitability margins were stable at around 1%. Despite substantial improvements both average financial health and financial buffers of few hospitals are still low (Exhibits E11, E12)

Hospitals came from a low profit margin of 0.3% in 2002. Since 2004 the profits margins have remained fairly stable at 1%. 2007 was the best year at 1.4% margin.

As a result of 5 years of positive profitability hospitals could add to their equity. The equity grew to nearly 12% as a ratio of turnover. Thus not only did equity grow, it grew faster than growth in turnover. Adding nearly EUR 1 billion to their equity in five years, hospitals have improved their financial health considerably. Yet a number of hospitals still make a loss and their performance needs further improvement.

E13

**Will the lagging hospitals please take notice?**

Average market share  
[% of expected market]



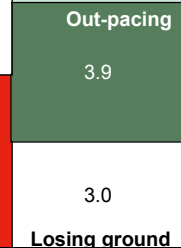
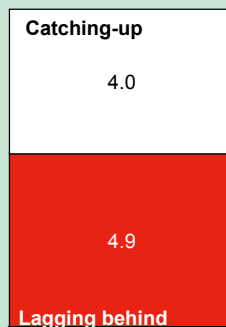
E14

**21 hospitals further improved their market position and set the frontline for their peers**

Relative market score 2002 and change in market score relative to peer group 2002-2007  
[EUR b revenue 2007]

Became stronger in 2002-2007

Became weaker in 2002-2007



Low market score in 2002

High market score in 2002

- Antonius Ziekenhuis
- Canisius-Wilhelmina Ziekenhuis
- Catharina-Ziekenhuis
- Deventer Ziekenhuisgroep
- Diakonessenhuis
- Erasmus Medisch Centrum
- Flevoziekenhuis
- Franciscus Ziekenhuis
- IJsselland Ziekenhuis
- Ikazia Ziekenhuis
- Kennemer Gasthuis
- Leveste
- Rijnland Ziekenhuis
- St. Antonius Ziekenhuis
- St. Elisabeth Ziekenhuis
- St. Franciscus Gasthuis
- St. Jansdal
- 't Lange Land Ziekenhuis
- Van Weel-Bethesda Ziekenhuis
- VU Medisch Centrum
- Ziekenhuis De Gelderse Vallei

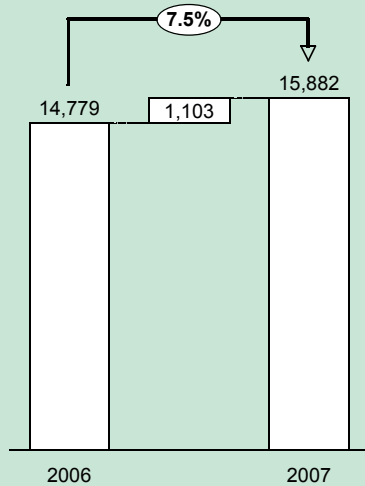
- 5) While overall performance of the sector has improved there is a large and widening performance gap between hospitals. The performance gaps have grown on all measures of market share, cost-to-serve and profitability. Since the overall performance of the sector has improved a widening gap is not necessarily of any immediate concern (Exhibits E13, E14)

On market performance, operational performance as well as financial performance there is a large and widening gap between hospitals. For example, the market share of the top performing hospitals has grown consistently faster than their neighboring hospitals and national peers. Similarly cost-to-serve and financial gaps have widened. In 2008, the year of Olympics, the comparison to a top sprinter who outpaces the rest, comes to mind. Such large gaps mean some hospitals have not only grown but invested heavily in new techniques and their people, while others will be faced with increasingly difficult choices.

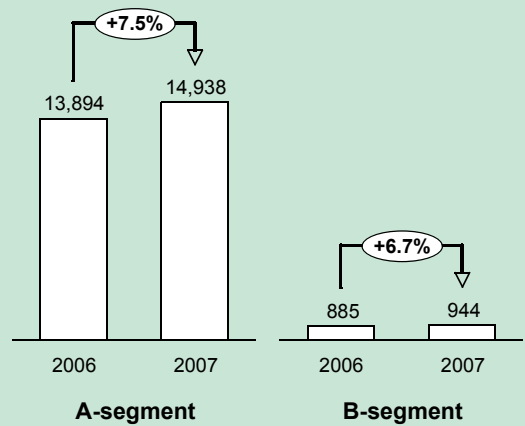
The overall performance of the sector is improving. Widening gap is of concern from the perspective of vulnerability and thus accessibility of care at weaker hospitals. However the outperforming hospitals should act as the inspiration for the "weak" hospitals to uplift their own performance. Such an evolutionary process proceeds on a much protracted time scale. Such a process is self-regulating but not without risk. We expect that in some markets issues of accessibility could arise. But as long as the overall long term benefit of the system is higher it justifies the short term local issues.

E15

**Total hospital revenues grew 7.5%**  
Revenue Dutch hospitals [EUR m]



**B-segment grew just under A-segment**  
A- and B-segment total revenue [EUR m]



E16

**Development per peer group at a glance**

Change 2006-2007 [%; profit: margin change]

	Revenue	Production	Cost	Labor productivity	Profit
Rural, Small	3.5%	2.4%	4.9%	1.7%	-1.4%
Rural, Average	5.8%	3.6%	6.0%	2.6%	-0.2%
Rural, Large	5.9%	2.6%	5.1%	2.9%	0.8%
Urban, Small	5.6%	4.3%	6.0%	2.1%	-0.3%
Urban, Large	4.4%	2.3%	2.0%	5.6%	2.3%
STZ	5.0%	3.4%	4.1%	2.4%	0.8%
WBMV	6.5%	3.2%	5.7%	3.3%	0.7%
UMC	11.5%	1.7%	10.8%	-1.2%	0.6%

## Developments 2006–2007

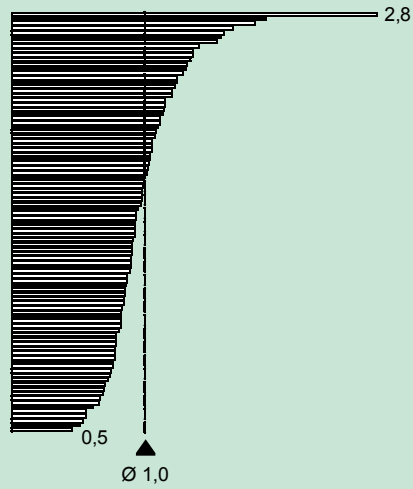
- 1) Hospital turnover grew 7.5% in 2007 to reach EUR 16 billion. UMC showed the largest increase. The B-segment growth was comparable to A-segment growth (Exhibits E15, E16)

At 7.5% turnover growth hospitals outlay grew considerably faster than in 2006 or any other period in 2002–2006. University hospitals and hospitals providing top clinical care had the fastest growth of turnover. UMC and the WBMV group had also the fastest growth in B-segment.

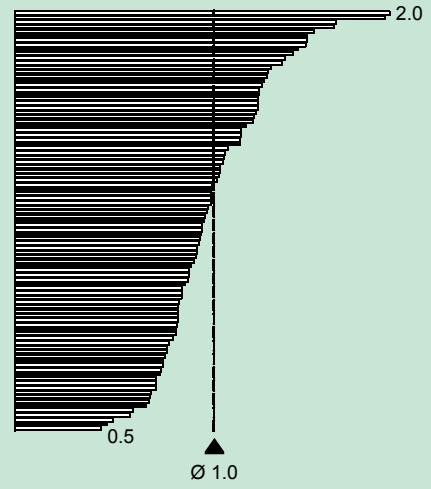


E17

**Overall market performance of hospital varies**  
 2007 market score per hospital [actual EPB production / expected EPB production on basis of travel time]



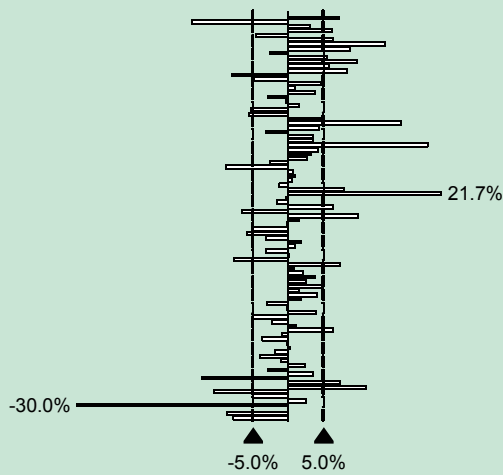
**B-segment market performance varies less**  
 2007 market score per hospital [EUR B-segment/ expected B-segment]



E18

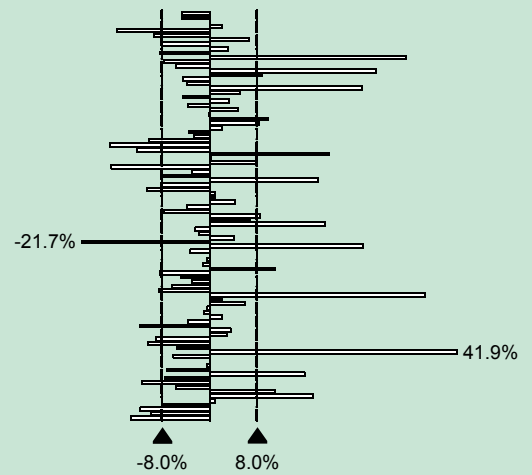
**Switching in A-segment over 5 year is ...**  
 2002-2007 market score change [%]

Average 5 year switching: ± 5%



**... less than one year in B-segment<sup>1)</sup>**  
 2006-2007 market score change [%]

Average annual switching: ± 8%



<sup>1)</sup>Could be different due to price, case-mix and registration effects

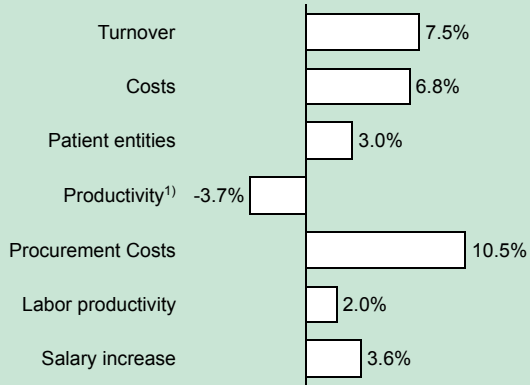
- 2) Patient switching in B-segment was much higher in 2006-2007 than churn in all out-patient visits (EPB). The market scores of B-segment are comparable across different peer groups implying that despite lower dependency B-segment is already important for all hospitals (Exhibits E17, E18)

2006-2007 provided the first full two years to measure B-segment market performance and patient switching. Based on total national B-segment value and local demographics we have defined a B-segment size for each hospital. On this basis the norm B-segment market score of each hospital would be 1.0. Unlike overall market scores B-segment market scores are similar across peer groups. Markets in B-segment are much more dynamic. The churn in B-segment is  $\pm 8\%$ , four times higher than overall churn of  $\pm 2\%$ . This could be due to volume but also price and registration effects which we shall follow and try to break down in the coming reports.

E19

**Sector developments at a glance**

Change 2006-2007 [%]

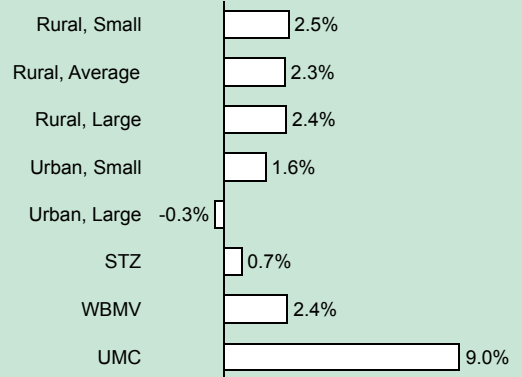


1) cost-to-serve EUR/patient entity

E20

**Need different measures for UMC?**

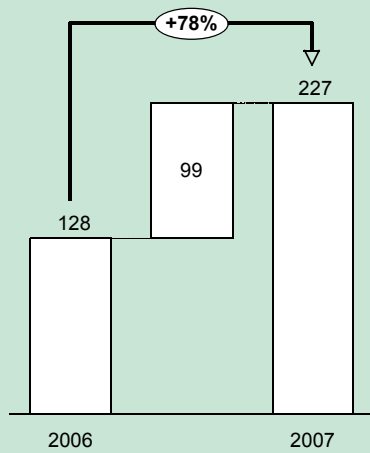
Cost-to-serve change 2006-2007



E21

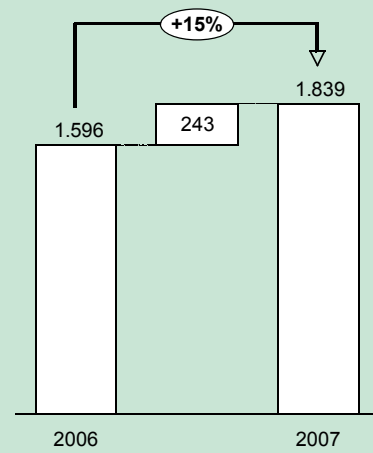
**Profits doubled**

Earnings Dutch hospitals [EUR m]



**Equity has risen even more**

Equity Dutch hospitals [EUR m]



**3) Cost-to-serve continued to increase in 2007 despite improvement in labor productivity. Procurement cost increase is the main driver behind the cost increase (Exhibit E19, E20)**

For the fifth year in a row labor productivity improved. But despite this cost-to-serve continued to rise. Salary costs and procurement costs were the major driver of cost increase. At more than 10% growth procurement costs were the largest cost burden. Procurement costs grew fastest at university and top clinical houses, suggesting perhaps faster uptake of newer and more expensive medicines and devices. University hospitals had the fastest increase in cost-to-serve and they were the only group to have lower labor productivity. Large urban hospitals were the only group to show overall productivity improvement measured in cost-to-serve.

**4) Profitability of hospitals improved. Large hospitals had the highest profitability in 2007. Hospital equity improved. Despite improvements equity levels are still low (Exhibit 16, 21)**

Overall profitability of the sector improved considerably from 0.9% in 2006 to 1.4% in 2007. The EUR 99 million in extra profits were however distributed very unequally. As a rule small to average size hospitals saw profitability erosion, while large hospitals posted better results. It is too early to say whether smaller hospitals are becoming vulnerable.



**5) While overall performance improves the gap between market winning and losing, efficient and inefficient, profitable and loss making hospitals is widening.**

As in previous years the performance gap between hospitals widened further. The top hospitals again won market share, improved operations, and profitability both compared to local and national peers. Slowly but steadily a group of winners and losers is emerging in the Netherlands. At the same time the overall performance is also improving, suggesting that the performance motivation maybe working.



## Introduction

*5 year developments are reported in addition to...*

This study addresses the development in the Dutch hospital sector over the periods 2002-2007 and 2006-2007. A five year trend analysis facilitates a higher level perspective and allows for conclusions that are more robust over a longer period. What might deceptively appear as interesting developments on a year to year basis may be drowned away as noise on a five year horizon. What then emerges on a five year period may be a better signal of the longer term development and challenges.

Previous studies in this series have addressed the developments in the past years:

1. "The Pied Piper of Hamelin" 2003-2004
2. "The Twilight" 2004-2005
3. "The Odyssey" 2005-2006

*... 1 year development*

This study, the fourth in this series, addresses the developments in the period 2006-2007 but also looks at the trends and developments over the five year period 2002-2007.

The context of the changes and challenges of the Dutch hospital sector specifically, and healthcare in general including insurance policies, need not be repeated here. The previous studies have detailed the issues sufficiently. For the new readers we refer to the previous reports.

*Focus of the report is on economic measures*

Five themes in hospital performance have dominated the discussion in the previous years. Three of these are related to the business performance of the hospitals and are the focus of this study:

- 1) Market performance:** What has been the overall growth as well as growth in market share for B-segment and A-segment for the sector and competitively for the individual hospitals?
- 2) Operational performance:** Have the sector and the hospitals improved their productivity or in other words delivered more and better care for the same EURO amount?
- 3) Financial performance:** Have the hospitals improved their financial strength both in profitability and in equity?

Two other themes are not covered here. The fourth theme has to do with the quality of care delivered. The hospital sector has been increasingly, and rightly so, under the





*Quality and...* limelight to improve the safety of patients and quality of care. If one may use the analogy of a marathon, we have not even done the first 100m, when it comes to developing, measuring, and improving safety and quality. That it is an arduous and long journey only highlights its importance and does nothing to detract from its relevance. Medical quality and safety are consequences of choices hospitals and doctors make or do not make in their processes and have impact on patient choices, operational and financial performance. There are other media and government sources that report these parameters and including them as is, does not in our view add any significantly extra value and rather detracts from the focus on the three central themes in this report.

*... organizational issues are not addressed here* The fifth theme not covered in this study has to do with organizational choices, between doctors and hospitals and within hospitals. We published our first study on the structure and performance of hospital boards in 2007 and we intend to repeat the study in spring 2009. Organizational choices also have impact on market, operational and financial performance, but are not within the scope of this study.

*2006 performance was a disappointment* 2006 was a year in which previous performance improvements of 2004 and 2005 came to a virtual halt. The efficiency gains were no longer sustained; costs grew faster than turnover, and turnover grew faster than central budgets. As a consequence financial position of hospitals deteriorated significantly in 2006. In this context 2007 is an important year. Did hospital performance decline further, did it stabilize, or could hospitals find the way back up again? 2007 is also an important year to judge the developments in B-segment and competition between hospitals. 2007 is the first year that provides an opportunity to assess the B-segment developments on a full year basis. Given that the decision has been made to expand B-segment further in 2009, the developments in the B-segment are relevant. Gupta Strategists have recently published an extensive study on B-segment developments together with the Dutch Hospital Association. The annual report analysis provides an additional opportunity to critically review the B-segment performance for the entire sector, and hospital by hospital. Lastly as sense of competition awakens in the hospitals and insurers, the general patient switching behavior is an important measure we follow.

*2007 has been an year of relative tranquility* For those working at hospitals and insurers 2007 was a period of relative tranquility, predictability and reliability. 2007 was the third year of introduction of the B-segment and the second year of the Insurance reform. Three years on the B-segment should have become more familiar for insurers and hospitals and a reliable pattern could



have emerged in understanding the language and the room to maneuver. Similarly the insurers market was much more stable in 2007 than in the first year of introduction. 2007 thus could be viewed as a safe harbor, a year that provided the sector the time to consolidate and optimize their strategies, because the changes wrought by the regulatory environment were minimal.

*2008 has been disorderly*

2008 in contrast, which must be imprinted strongly in the immediate memory, has so far been a period of disorder, confusion and a sense of unforeseeable risks. The expansion of B-segment in 2008 required estimating the budget reductions per hospital; revenue now to be earned in the new B-segment. The process turned out to be wrought with errors and difficulties. At the same time the cost of capital was liberalized and introduced a new set of rules and uncertainties in the negotiations. The hourly rate payment principle was introduced for physicians and proved to be an extra complexity that both the hospitals and doctors had to manage.

As in previous studies the published annual reports are the main source of data for this report. A uniform, consistent and timely annual report is one the most reliable sources of information available to analyze the hospital performance. Over the last years sources like LMR<sup>4</sup> have become incomplete and others like DIS that are based on DBC<sup>5</sup> are incomplete and unreliable.

*Despite small issues annual reports are remarkably useful*

We have shown that annual reports are a very useful source to look at sector wide and hospital specific performance. However annual reports have severe limitations. Hospitals are not always consistent in the definitions they or their accountants use. We find that year to year reporting, for example 2006 reporting in 2006 annual reports is sometimes different from 2006 reporting in 2007 annual reports. We have corrected for these changes retrospectively and thus some numbers from our 2006 study "The Odyssey" may not be the same in this study. More importantly there is apparent room for changing definitions, for example does one include teaching funds or not or how does one account for work in progress on the balance sheet. It would do well if all hospitals and accountants used precisely the same set of rules and interpretations. Unfortunately this is not the case. We have corrected for such differences in reporting where possible and apparent. These are but small frustrations in what one must

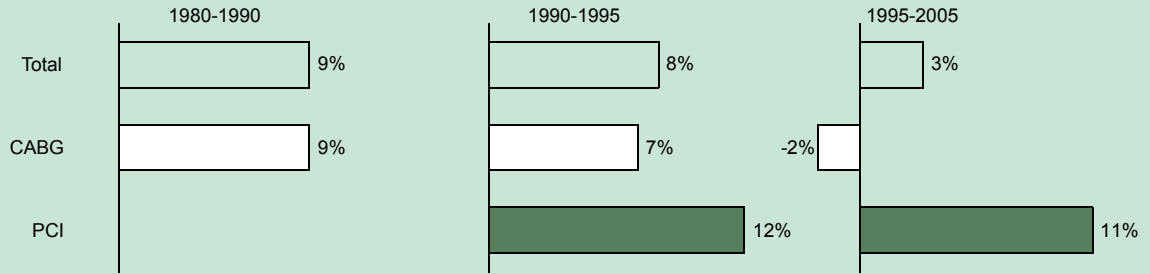
<sup>4</sup>Landelijke Medische Registratie (National Medical Registration)

<sup>5</sup> DBC Informatie System (DBC Information System)

Exhibit 1

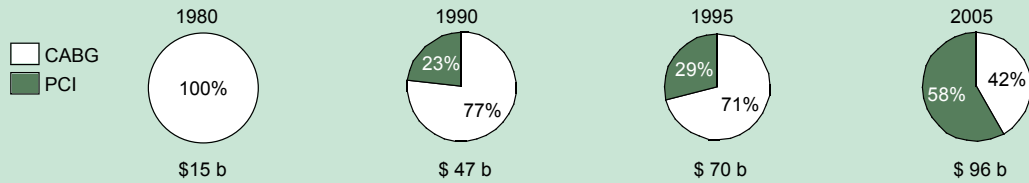
**Incredible speed of healthcare innovation implies overall growth rates mask strong underlying currents**

Cumulative Annual Growth Rate of heart procedures in the US [total based on 2004 constant \$ mean charges]



Source American Heart Association in Circulation 2008

Share of total value PCI and CABG<sup>1)</sup> in the US [Based on 2004 constant \$ mean charges]

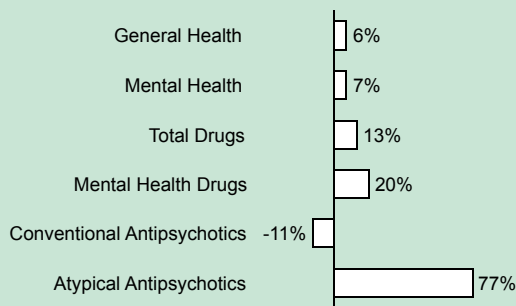


1) Coronary Artery Bypass Graft  
Source American Heart Association in Circulation 2008

Exhibit 2

**Incredible speed of healthcare innovation implies overall growth rates mask strong underlying currents**

Cumulative Annual Growth Rate spending [1996-2001]



Source Benjamin Druss, Health Affairs, 25, no 3 (2006), 614-622; Samuel Zuvekas, Health Affairs, Jan/Feb, 2005 24(1), 220-227; Haidan A. Huskamp, Health Affairs, 25, no 3 (2006), 635-646, Gupta Strategists analyses

recognize as a remarkably well functioning and useful system of annual reporting by all Dutch Hospitals. We suspect our task would be much more difficult in other nations.

*What is happening underneath in the hospital ocean that annuals do not cover?*

More than how hospitals do their annual reporting, there is of course what hospitals report in their annuals. In that is the real limitation this study. One of the conclusions of this study is the large increase in hospital turnover. Hospitals report total turnover in their annual reports. But the growth in total turnover is like the surface of the ocean. It may appear gradually rising year on year. But the currents underneath the surface in the ocean are orders of magnitude stronger. The rate of churn in the ocean is much stronger than what one sees on the surface. In healthcare the shifts in procedure to procedure within the same diagnoses in a short period of time are significantly more powerful than high level development of total turnover.

*Huge waves of change sweep treatment regimes*

To illustrate the importance of understanding the underlying trends we present two examples (Exhibits 1-2)<sup>6</sup>. The first is of procedures PCI and CABG for Cardio Vascular Diseases and the second is the use of medicines for mental health improvement specifically for psychotic diagnoses. The cardiology example shows that the 8% compounded average growth rate of PCI and CABG procedures over a twenty five year period is an important part of the story. How many other activities in all the different economic sectors can claim to have grown 8% in value year on year for twenty five years in constant dollar terms? None come to our mind. Even overall healthcare growth is lower. 8% means that what was worth EUR 100 in 1980 was worth EUR 685, a factor 7 growth in 25 years. But when one looks within the two procedures there is a much stronger underlying shift. From an initial growth of 8-9% in the period 1980-1995, revascularization (CABG) has been declining at a rate of 2% from 1999-2005. Whereas Percutaneous Cardiology Intervention which really took off in 1990 has been growing at double digits. As a consequence the share of the two has completely changed within the 25 year period.

Treatment of psychosis with antipsychotic drugs is an equally illustrative case. Mental health care has grown in the period 1996-2001 in the US at a rate similar to that of general health care spending. The mental health drug spending growth at 20% annually was much faster than the 13% annual growth of total drugs spending. But if one looks at antipsychotic drugs nothing less than a seismic change has occurred in a short five

<sup>6</sup> Both examples are from the US where the data and analyses are available. The trend in CABG and PCI is exactly the same in the Netherlands, but perhaps delayed by a few years.



year period. The conventional antipsychotic drugs declined in value 11% a year. The atypical antipsychotic drugs grew year on year at 77%.

*Health care world  
changes faster  
than paperwork  
can manage*

This is typical of healthcare. Massive changes occur in a short period of time on a diagnoses and treatment level. What we see and report in this study are overall averages. But for full understanding one needs to understand the continuously ongoing revolution at the treatment level. At the treatment level existing therapies rapidly disappear and new ones take their place often with even greater penetration and relevance for previously untreated patients. And all this happens at a pace much faster than the administrators in hospitals, insurers, regulators, and other bodies can keep up. This has always been our biggest criticism about DBC. The healthcare world changes faster than the paperwork can manage. Thankfully the doctors generally do not wait for the budget approvals to make the treatments available. Would doctors still do so if it was their own budget? This question is sometimes rhetorically posed to seek alignment between the medical and economic choice. Certainly if a proper tradeoff has to be made both the medical and economic considerations must be taken into account. But in our view economic and medical choices are usually well aligned. A new therapy that makes good medical sense usually makes good economic sense as well. In individual cases where medical value may not justify the investment it is equally important that both the patients and the doctors make a conscious, transparent and well reasoned decision. Unfortunately administrators have limited knowledge and insight in the treatment revolutions which occur every day in their hospitals. We need to understand the revolutions at the level of individual diagnoses and treatment if we want to initiate overall performance improvement. This is the real limitation of this study. It looks at the overall performance of an individual hospital, a region and the entire nation, but not at the individual treatment level. Within the hospital all kinds of fires are burning, this macro study could form a cue to seek them out.





## Developments 2002–2007 and Outlook 2007–2012

What might appear as remarkable trends on a year to year basis fade away as insignificant noise, when one takes a few steps back and looks at the same over a five or a ten year period. One might compare it to a bird's eye view. Flying low small mole-hills in the pasture may seem formidable till the bird rises and suddenly there are mole-hills no more but more importantly for the first time the bird sees the hills surrounding the pasture.

*2002-2007  
developments are  
reported*

This year, instead of reporting the 2006–2007 developments alone, we also report 2002–2007 trends. A five year period is a significantly longer time span. Following the earlier analogy mountains that we may see if we flew yet higher, for example a ten year period, are still hidden from our view. But we hope to be able to distinguish between the mole-hills and the hills.

*A period where the  
rules of the game  
changed*

The five years in question are significant for another reason. They represent a period of flux. Rules of the game changed significantly in this period. The beginning years of the period 2002–2007 were the years in which significantly extra budgets were made available for hospitals (Paars II period). Despite the extra budgets we entered this five year period with a financially weak sector. Early in 2002–2007 the pressure for performance improvement began to mount. Report after report, some commissioned by the then Minister of Healthcare, came back with stupendously large efficiency gains potential. One report near the middle of the period<sup>7</sup> even went so far as to say that the entire growth in the next decade could be financed with the current levels of expenditure. Rather quickly the image of the hospitals changed from cash starved services to inefficient, bureaucratic behemoths. The transition was not only rapid but also rather rude, much like the faith that befell the earlier cabinet in the period *Paars II*.

<sup>7</sup> Zorg voor Innovatie 2006



After many long years in preparation structural changes were introduced in 2002-2007.

The two changes that effected hospitals most directly were:

- Introduction of B-segment with free price and volume negotiation between individual insurers and hospitals
- Introduction of DBC as the language of the negotiations and accounting

*B-segment is not only about what hospitals and insurers can do better but also what governments cannot do effectively*

We have addressed both issues in the earlier reports in this series<sup>8</sup> and shall not repeat these here. We have also recently analyzed the B-segment in detail for the Dutch Hospital Association (NVZ) and refer the reader to it for details of B-segment performance<sup>9</sup>. The B-segment appears gradually to be gathering momentum and making true on its promise. Great part of the success is not what insurers and hospitals can do, but what governments cannot do effectively. It is the near impossibility of central authorities anywhere to be able to fix tariffs and budgets accurately and timely in hospitals that is at the main reason for the B-segment success. The underlying shifts in procedures, medicines, protocols and patient demands are so dramatic, that just on five year period, the world changes completely at a procedure level. We illustrate this with the two examples that we discuss above in the introduction:

- the growth of Intervention Cardiology (PCI) and the decline of Revascularization (CABG)
- the shift from conventional antipsychotics to atypical antipsychotics in the period 1996-2001 (Exhibits 1-2)<sup>10</sup>

In hospitals as a rule by the time the numbers are available to note the seismic shift the world is already completely rearranged, in total volume growth, in the volume mix of the alternative procedures and in the value of the entire therapy. As a rule of thumb the total growth is much higher with new technology as many more patients are addressed (that's why they were introduced after all), the new technology wins massive ground over the old, and the total expenditure rises dramatically both because of volume and price<sup>11</sup>.

<sup>8</sup> See "The Twilight" and "The Odyssey" respectively for the period 2004-2005 and 2005-2006

<sup>9</sup> B-segment ontwikkelingen, 2005-2007

<sup>10</sup> Both examples are from the US where the data and analyses are fully available. The trend in CABG and PCI is exactly the same in the Netherlands, but perhaps delayed by a few years.

<sup>11</sup> Usually but not always as the case of PCI shows that the extra volume is the main driver of total expenditure increase and not the unit price of PCI which is lower than CABG.



Given the impossibility of accurately signaling tens and hundreds of such ongoing tsunamis in the hospital ocean on time, it is just as well that the insurers and hospitals have more freedom to try to catch these signals earlier and agree on reasonable prices and volumes for their patients. B-segment shall expand further in 2009 and there is a good chance we shall emerge at the end of the 2007-2012 with a significant and well functioning B-segment.

*Last word on DBC  
is yet to be written*

The last word on the second change in this period, the introduction of DBC, has not yet been written. As readers of our reports would be well aware, we are and remain deeply skeptical about DBC as the language for negotiations and accountability. The reasons are really much the same as the two examples above for heart and mental health illustrate. The procedural changes in hospitals are so rapid, that it is unlikely DBC in its current form can ever capture them on time. Or in other words the rate of change in procedures is faster than the fastest rate of change of a central administrative organ that must approve a new DBC based on overall consensus. By definition by the time a new DBC emerges the tsunami would have already hit the coast.

*DBC fails to  
capture change...*

*... but given lack  
of alternatives  
appears to be  
staying for now*

Nonetheless in 2002-2007 DBCs were introduced and the language gradually gained acceptance. Given the general bankruptcy of Functional Budgets and the lack of credible alternatives on the horizon, it appears to us that provided the current DBC rationalization and simplification program works, hospitals will be working with DBC in the next five year period. And should we succeed in getting a simplified library of DBC working, it will help better understand, monitor and improve the hospital and physician performance.

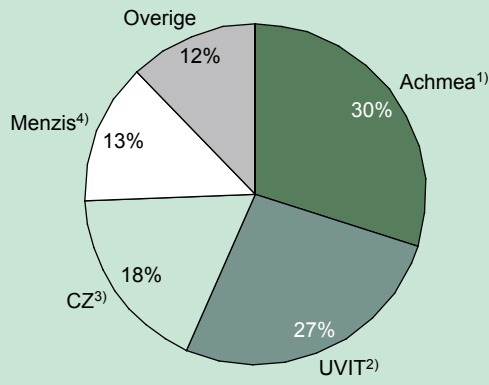
*Quality is not  
addressed in this  
report*

The period 2002-2007 saw two other important changes. The pressure on the hospitals to measure and report the quality of care mounted. Quality of care is beyond the scope of this report which focuses exclusively on the economic aspects of hospital performance. It is safe to claim that the pressure to report and improve will continue to grow, and perhaps will be even the most important challenge and change in the next five year period.

Exhibit 3

**Race for scale has led to four payers holding nearly 90% share**

Market share - Gross Written Premium [2006]



1) Including Agis 2) Including Delth Lloyd Zorg and Ohra Zorg 3) Including OZ 4) Including Azivo  
Source: AM Jaarboek

<p><i>Three wave response to Health Insurance Act so far...</i></p>	<p>The last important change affected hospitals indirectly: the healthcare insurance reform. Since its introduction in 2006 the Healthcare Insurance Bill has thoroughly shaken up the sector. The response of insurers to these changes so far has been threefold, though the pace and effectiveness varies across insurers:</p>
<p><i>... win share</i></p>	<ul style="list-style-type: none"> <li>• The first reaction was to concentrate on the commercial market and win share. The period 2006 saw huge churns in insured clients but has stabilized since. However the insurance market remains highly price competitive business with low barriers to switching. Particularly of notice is the growing importance of collectives/employer policies.</li> </ul>
<p><i>... win partners</i></p>	<ul style="list-style-type: none"> <li>• The second reaction of insurers was to seek scale. Following a fervent mergers and acquisition phase four major players have emerged in the Netherlands (Exhibit 3).</li> </ul>
<p><i>... cut internal costs</i></p>	<ul style="list-style-type: none"> <li>• The last response was to get the own house in order. By integrating the acquired businesses, streamlining and redesigning processes, insurers have prepared themselves for the real challenge and ambition meant in the reform.</li> </ul>
<p><i>Improve hospital procurement effectiveness is the coming fourth wave</i></p>	<p>Only now have the insurers come around to significant and competitively unique efforts on the hospital procurement side. We expect that the hospital care procurement strategies will gain increasing priority at the insurers in the coming five year period 2007-2012. The hospitals will undoubtedly feel the effects of this shift in effort.</p>
<p><i>Hospitals' reaction to insurer market dynamics could be consolidation...</i></p>	<p>How would hospitals respond to the increasing efforts of insurers to gain competitive advantage through the procurement strategies? On one level the response appears to be clear, hospitals could react by consolidating themselves. There have been minimal mergers and acquisitions in the period 2002-2007 though not for the lack of trying. It is likely that in response to a professional insurer procurement strategy we would see consolidation in the hospital sector in the period 2007-2012. The rationale for the consolidation is not just based on forming a significant countervailing power to the procurement goals of insurers, but is driven by the trends in the hospital and medical sector itself:</p>
<p><i>... which is also supported by other trends</i></p>	<ol style="list-style-type: none"> <li>1) The rapid medical advances require significant scale of operations both in number and type of physicians and other professional staff as well as in equipment. Sub-specialization within specialization requires scale. Only the big usually attract both the money and the people.</li> </ol>



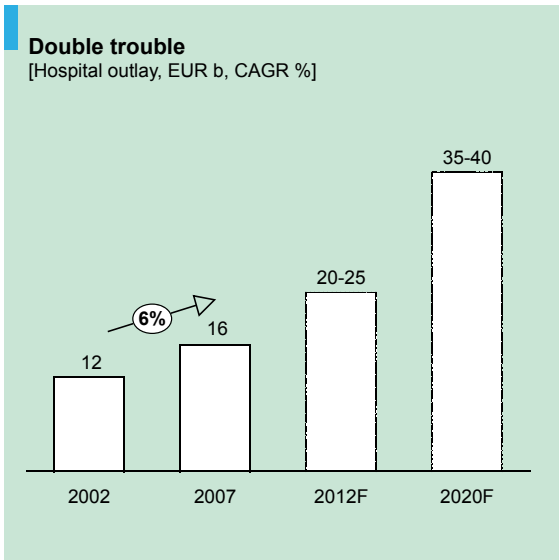


- 2) There is a growing pressure to introduce thresholds: either perform minimum number of procedures per hospital or not perform at all. This again will drive scale.
- 3) There is a world of literature that shows that quality of care is positively correlated to volume of care. As quality becomes transparent hospitals will seek volume and thus scale, to improve their quality.
- 4) Next to medical advances, service aspects of care will be more important. This will include additional expenditures in the hospital to enhance comfort and service. At the same time marketing efforts would intensify in competitive markets. Both aspects are highly cost intensive. Just look at the marketing budgets of pharmaceutical companies.
- 5) With the coming talent crunch, it will become increasingly difficult to find and retain the best staff. War on talent, at least in perception, usually favors the big and the affluent.
- 6) The financial and operational performance of the hospitals remains weak. A number of important operational efficiency gains require scale. For example almost all of the price increases in the period 2002-2007 can be attributed to procurement cost increases. Scale is definitely a benefit in managing costs.
- 7) Hospitals will need to continue to invest in their administrative processes. Administrative costs have increased in the period 2002-2007. But there are a number of further cost drivers:
  - a. the complexity of the operations
  - b. the speed of innovation
  - c. the information gap between the central planning and local units
  - d. the lack of uniformity in reporting across the units
  - e. the outside world will continue to seek accountability for the performance

Significant further investments in administrative functions are likely in the period 2007-2012. Administrative costs are highly scale sensitive and thus shall force hospitals to seek scale.

Given the trends and the expected price pressure from the insurers, it is a fair guess that we will see consolidation in the hospital sector in the coming 5-10 years. We expect that a rush to consolidation could see a doubling of average turnover among Dutch hospitals (see first conclusion below and the Executive Summary).

Exhibit 4



Exh. 5

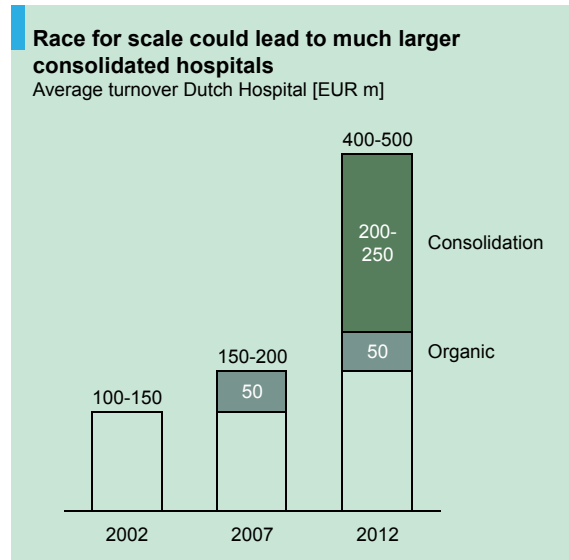
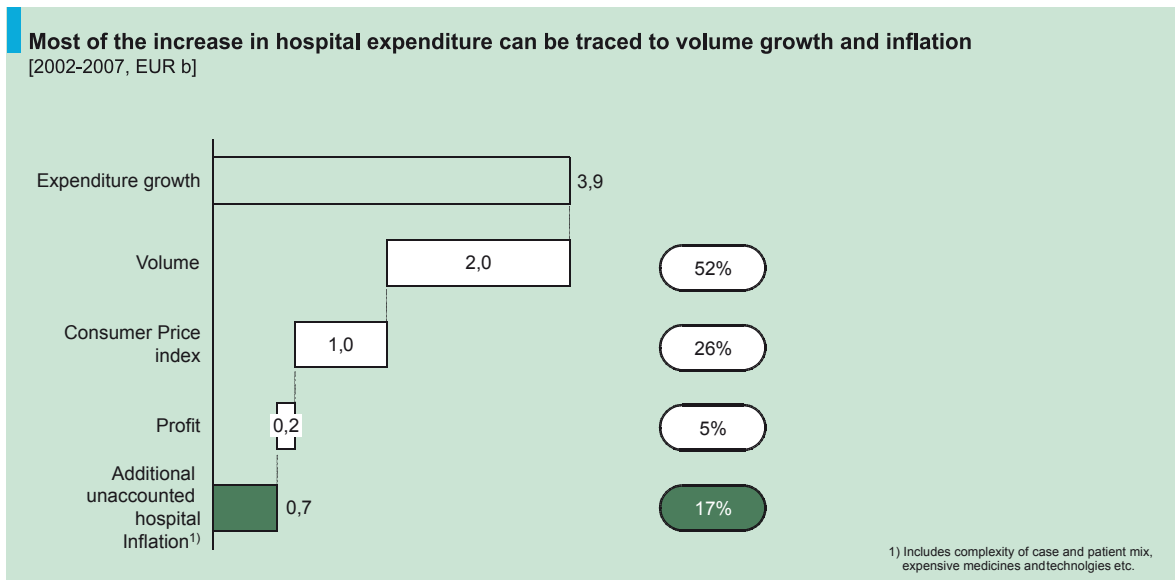


Exhibit 6



Having given a qualitative overview of the hospital changes in 2002-2007 and looked at potential developments we now summarize the major developments in hospital performance in the period 2002-2007 with an outlook 2007-2012. On the basis of our analyses we draw the following major conclusions:

**1) Hospital expenditure increased EUR 4 billion in 2002-2007 and shall further grow to EUR 20-25 billion in 2012 with likely consolidation leading to larger hospitals**

*Continued strong overall growth*

Hospital sector grew 6% a year in 2002-2007, a total growth of EUR 3.9 billion (Exhibit 4). Given the medical and market trends the growth is likely to be faster rather than slower in the next five years. At this rate we expect hospital outlay of EUR 20-25 billion in 2012 and EUR 35-40 billion in 2020.

Given the medical and market trends, and the expected price pressure from the insurers, it is a fair guess that we will see consolidation in the hospital sector in the coming 5-10 years. The average size of the Dutch hospital was EUR 150-200 million in 2007 growing from EUR 100-150 million in 2002. Nearly all of this growth was organic. Continuation of this organic growth rate will mean that the average size of a Dutch hospital will be EUR 200-250 million in 2012. But with mergers and acquisitions we shall not be surprised if the average size of a Dutch hospital is EUR 400-500 million in 2012 (Exhibit 5), with much larger differences between the really large (more than EUR 1 billion) and really small hospitals (less than EUR 100 m).

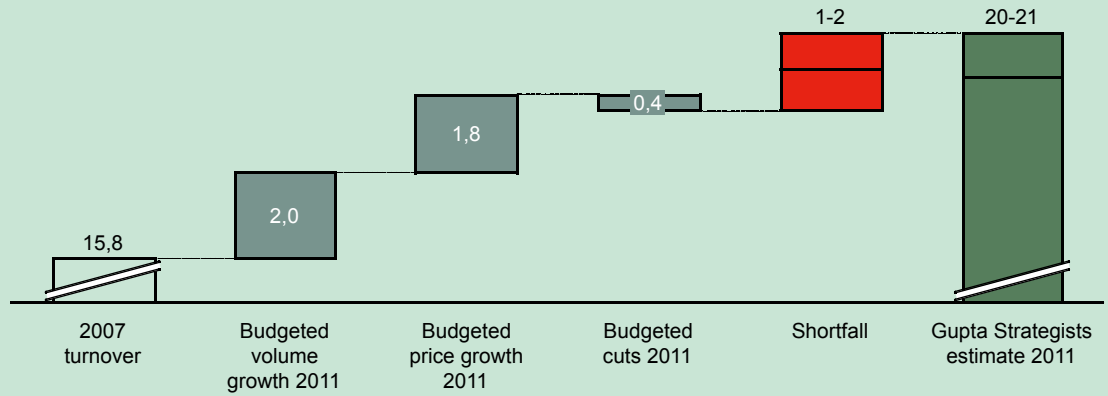
*Consolidation could lead to large hospital chains*

**2) Volume component accounts for more than 50% of the expenditure increase. Volume, general inflation and profit accounts for more than 80% of expenditure growth. Consistent underestimations in BKZ led to a shortfall of EUR 750-1000 million over 2002-2007**

*Volume alone accounts for more than half of the outlay increase*

Of the total expenditure growth of EUR 3.9 billion, the volume component alone accounted for an increase of EUR 2.0 billion or 52% of the total growth (Exhibit 6). Consumer Price Index can account for an additional EUR 1 billion. In the period the profitability of the hospitals increased EUR 190 million. After these corrections there remains a gap of EUR 700 million extra that cannot be accounted for either in volume or consumer price index (Exhibit 6). The main reason for this gap is of course that the healthcare price index is much higher than the general consumer price index. A healthcare price index reflects rapid

Exhibit 7

**pssst... anybody got 1-2 billion?**  
[EUR b]

*The "unaccounted" increases reflects the limitation of our measures as well as inefficiencies*

*Structurally underestimating growth leads to predictable overruns*

*EUR 1-2 billion shortfall likely based on current budget projections*

increase in new procedures, higher procurement and salary costs, and patient and case mix shifts. We suspect that a part of the EUR 700 million could well be accounted for by these factors.

If we compare the actual hospital growth with the budgetary projections of the last five years we see a large and widening gap. The growth rate of healthcare in general and hospitals specifically has been consistently underestimated in the Healthcare Budget projects (BKZ). In the period 2002-2007 BKZ projected an estimated growth of EUR 3 billion. The actual outlay growth was EUR 3.9 billion. The consequence of structurally underestimating the growth over a five year period of a EUR 15 billion hospital sector is a massive but nonetheless predictable overruns and scramble in the end to find new budgets or develop techniques to force price cuts<sup>12</sup>.

The government needs to ensure that the budget levels are in line with the actual growth. Considering we see no realistic options for slowing down the hospital growth, au contraire we see as described above several drivers for further growth, we propose that the budget levels need to be much higher and in line with the expected growth.

### **3) A further shortfall of EUR 1 billion expected in the period 2007-2012 (Exhibit 7)**

Given the historical growth levels and the demographic trends, we expect that the growth of hospitals will accelerate further. Assuming a conservative 6.0% annual growth rate till 2012 a realistic outlay of EUR 21-22 billion is required in 2012.

Current BKZ is based on EUR 2 billion extra volume growth, a further price component of EUR 1.8 billion and an expected claw-back of EUR 400 million resulting in an estimated budget of EUR 19.2 billion in 2011<sup>13</sup>. This means that the current government projections underestimate and underfund the growth by EUR 1 billion (Exhibit 7)<sup>14</sup>. If the government does not adjust the available budget upwards in the range of EUR 21 billion come 2012 it could be EUR 1 billion short on its own projections for hospitals.

<sup>12</sup> For example the proposed but for the time being no longer pursued yardstick regulation

<sup>13</sup> Including the physician tariffs. Our estimates are excluding most of the the (non-UMC) physician tariffs and thus a conservative estimate. See for example, CPB document No 121.



*Managing from  
"scarcity" is  
noble...*

*... but structurally  
underestimating  
needs is ineffective  
as well*

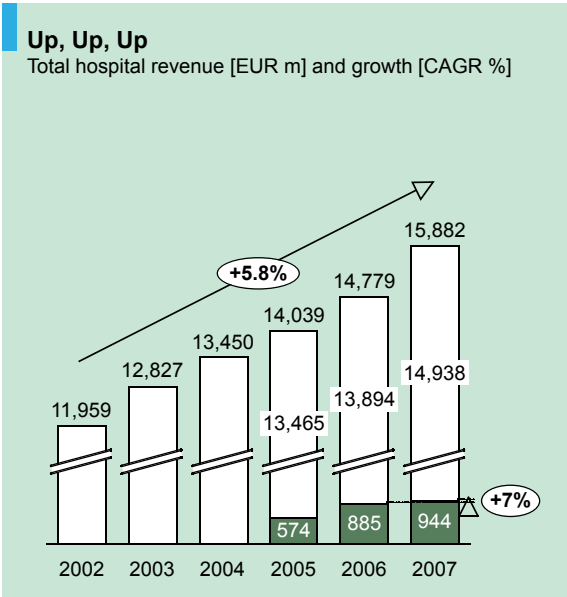
Managing from scarcity is of course a noble and effective principle. It forces discipline and creativity. The celebrated LEAN methodology emerged in such lean times after the devastating defeat of Japan in World War II. Needing to produce everything from bicycles to cars to buses in postwar Japan, and having no access to new raw materials and new equipment, TOYOTA mastered the art of working with scrap metal and rapid turnover of existing assembly lines producing different products with little to no waste in short periods. Excessive capacity and resources no doubt encourage waste. But structurally underestimating needs, running predictable shortfalls of two billion EUROS in five years, and then scrambling head over heels to pump the money in the sector is highly inefficient both for the governments' and the hospitals' perspective. We would argue it is better to structurally adjust the budgets in line with the actual historical outlays after correcting for the expected trends in demographics, technology, and service levels. On this basis we expect hospital outlay to nearly double every ten years and reach EUR 35-40 billion in 2020 (Exhibit 4).

No doubt efficiency gains and LEAN principles should be encouraged. We have always argued and quantified the efficiency gains possible in hospitals. Our project work at hospitals has confirmed the feasibility of achieving the quantified gains. But we do need to first understand where the efficiency gain potential is within a hospital and what the best routes for achieving them are.

<sup>14</sup> BKZ estimates are based on 2011 projections. A 6% CAGR would require EUR 20 billion hospital outlay a growth of EUR 4.2 billion over 2007. The BKZ accounts only for EUR 3.8 billion of it and has another EUR 400 million as claw-back.



Exhibit 8



Exh. 9

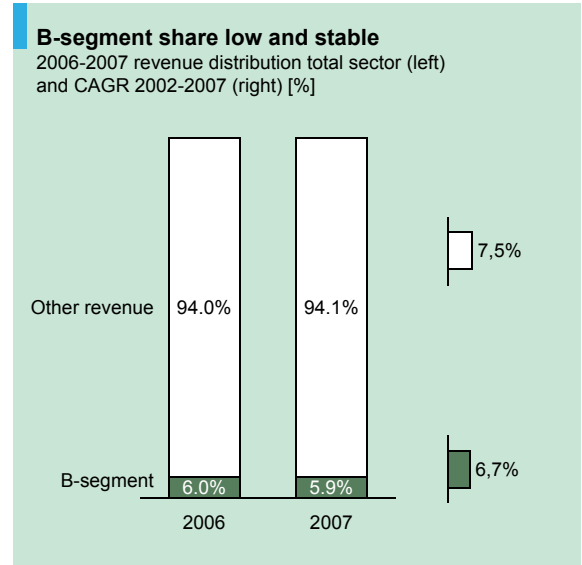
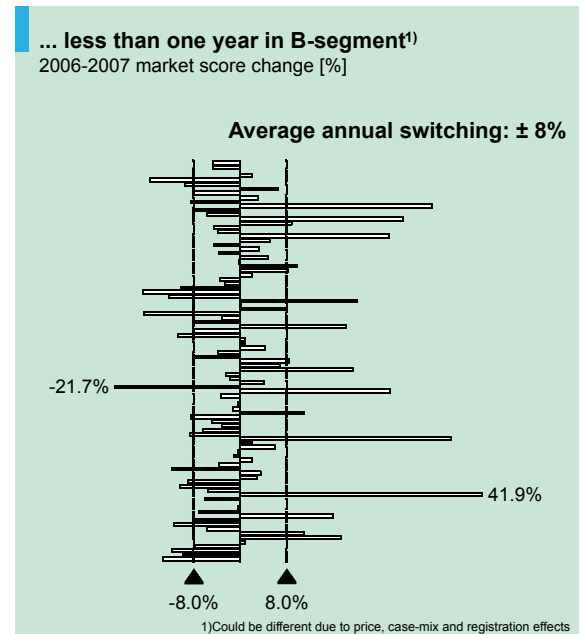
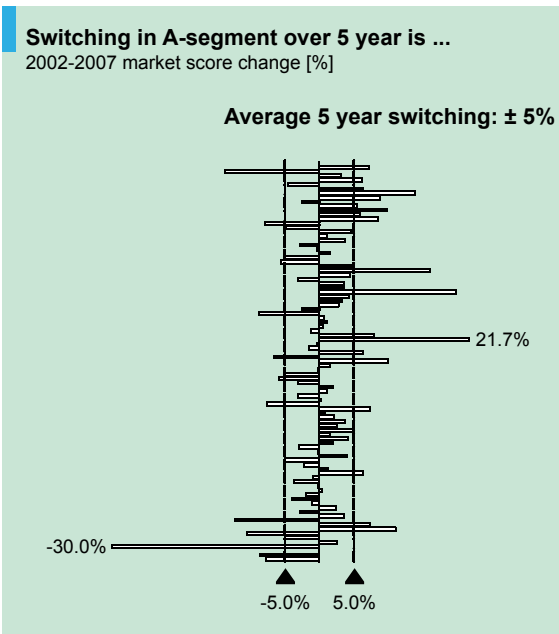


Exhibit 10



- 4) B-segment stabilized to 6% of total hospital turnover. Growth of B-segment in value is comparable to A-segment. A-segment cumulative churn over the period 2002–2007 is 5%. The average churn in B-segment over 2006–2007 is already 8%.

Overall hospital turnover has been growing at 5.8% in 2002–2007 (Exhibit 8). After a strong growth in 2006 which appears to be driven by registration effects the growth of B-segment stabilized and was just under the overall growth levels in 2007 (Exhibit 9).

*Significant  
A-segment churn*

The year to year switching of patients in the period 2006–2007 between hospitals has been 2% based on EPB. Individual hospitals have undergone patient switching which is a direct measure of market share of 10% in a single year. This effect is often cumulative over the years for the outpacing and lagging hospitals. That is the same hospitals win and lose share each year. This implies that the effect over five years of patient switching has been 5% share shifts on average (Exhibit 10).

*B-segment churn  
is much higher*

In B-segment we report that the switching on a single year basis is already  $\pm 8\%$  (Exhibit 10). In order to calculate churn we have developed a market performance definition of B-segment. This is detailed further in the section on developments 2006–2007.

Exhibit 11

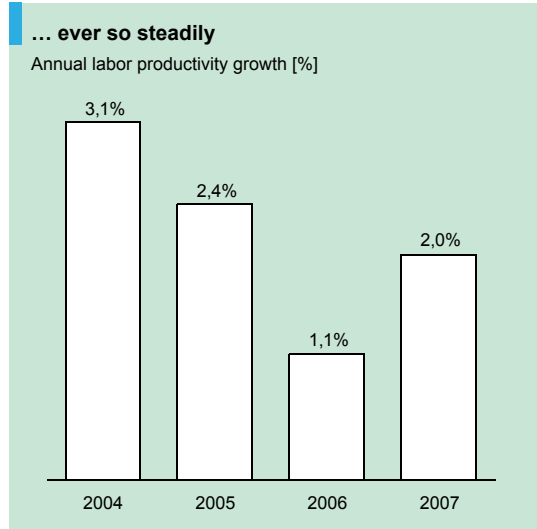
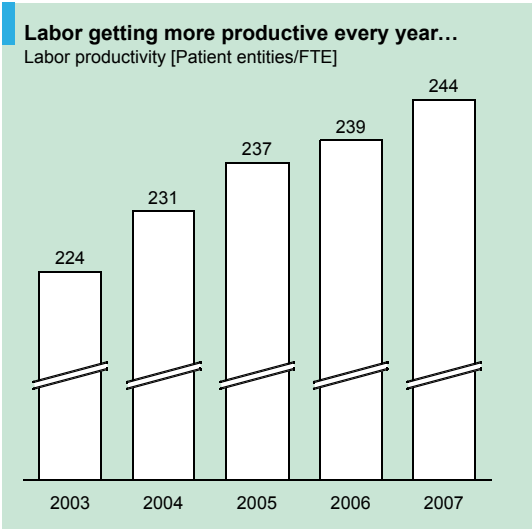


Exhibit 12

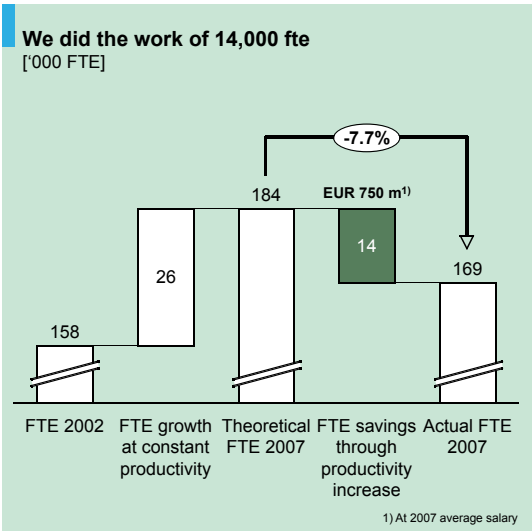
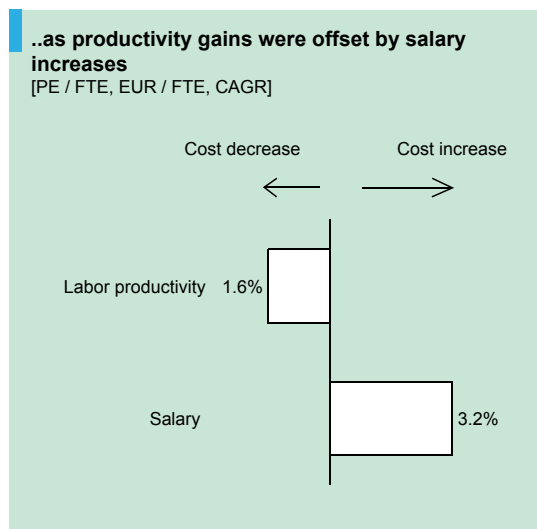
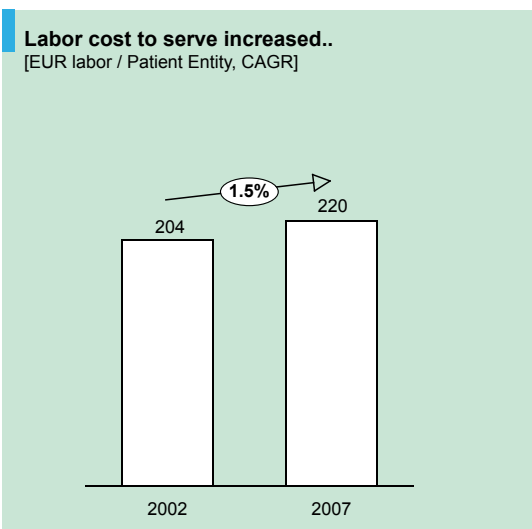


Exhibit 13



**5) Hospitals posted an labor efficiency gain of EUR 750 million in 2002-2007 by reducing labor by 14,000 full time equivalents**

In period 2002-2007 the labor efficiency at hospitals improved in terms of FTE per patient entity every single year (Exhibit 11). By consistently improving the labor productivity hospitals delivered more volume using less personnel<sup>15</sup>. We estimate that hospitals were more than 14,000 FTE lighter in 2007 than in 2002, corrected for the volume of care delivered (Exhibit 12). This is a nearly 8% improvement in labor productivity over a five year period. In the heated and sometimes acrimonious debate on efficient or not efficient it is important to take notice that hospitals posted a substantial labor productivity gain in the last five years. Translated in value, we estimate that hospitals reduced their total labor costs by more than 5% in the five year period, a gain of EUR 750 million (Exhibit 12).

Had hospitals not saved the EUR 750 million the budgets would have risen yet faster or the hospitals would be made massive losses.

*Significant gains in labor productivity...*

*... but not nearly enough for what is needed and possible*

The labor productivity improvement is much needed considering the talent and labor crunch awaiting us. As the labor pool shrinks, while the labor need continues to soar, at a time not too far away in the future, there could be significant crises in hospital services. A 10% productivity gain over a five year period in the coming decade would not be enough to manage the labor shortfall. Hospitals will need to look at breakthrough technologies in ICT and process improvements, like LEAN, to at least double this rate of productivity gain in the coming years.

Productivity gains could be made in terms of FTE but unlikely in terms of value. As in the previous years, while gains in labor productivity were possible in FTE terms, there were no gains in salary and overall cost terms. Average salary increase was 3.2% per year in hospitals (Exhibit 13). This translates in

<sup>15</sup> Outsourced personnel are included in the total personnel costs but not included in the FTE analysis. This probably overestimates the FTE savings. But since the outsourced personnel costs are included in the labor costs and not procurement this does not overestimate procurement cost increase (see conclusion 5 below). Salary cost increase was 3.2% CAGR over 2002-2007. This includes the effect of hiring extra personnel which have a higher cost base for hospitals than own personnel. Correcting for this effect means that the salary rise of own personnel on payroll has been lower. A lower salary rise would further aggravate the tendency of own personnel to let themselves be hired in as PNIL rather than be on the payroll. To break this vicious circle would require creating an attractive proposition of which salary is but one component.

Exhibit 14

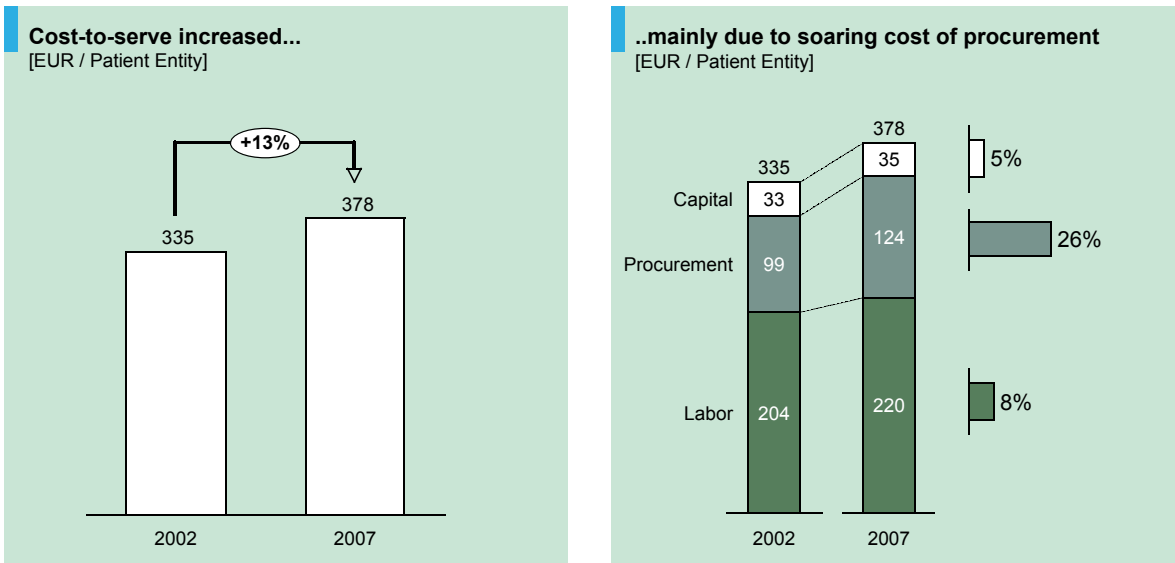
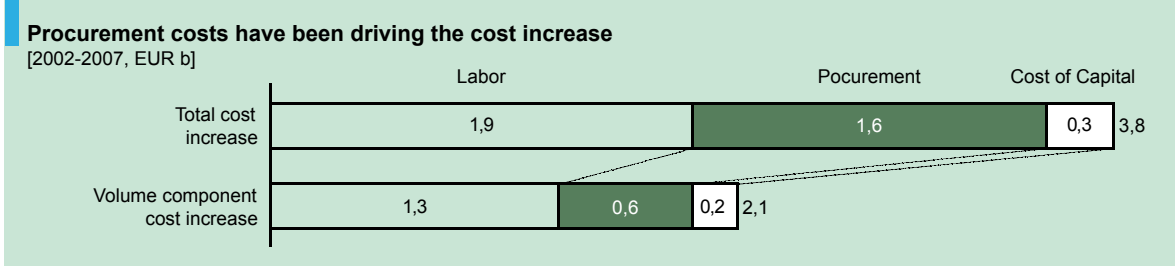


Exhibit 15



*Salary costs shall  
continue to rise*

a EUR 1-1.5 billion extra salary expense in the period 2002-2007. As activities at hospitals get more complex and require more professionals and specialists it is expected that the salary component and therefore total cost component will continue to rise faster than the general inflation levels despite labor productivity gains.

**6) Procurement cost increase at EUR 1.6 billion was by far the largest cost driver in 2002-2007**

*Massive increase  
in procurement  
costs...*

In cost-to-serve terms procurement costs grew the fastest at 25% (Exhibit 14). Total procurement costs increased in 2002-2007 by EUR 1.6 billion. Of the EUR 1.6 billion procurement cost increase, EUR 600 million can be accounted in terms of volume increase on like to like basis (Exhibit 15). EUR 1 billion extra increase in procurement seems to be driven by innovation, penetration of existing procedures and procurement inefficiencies<sup>16</sup>. As illustrated in Exhibits 1-2 for cardiovascular and mental care, it is seems obvious that massive changes in technology and treatment guidelines drive huge changes in procurement costs. We estimate that expensive medicines alone cost several hundred million EUROS extra in the period 2002-2007. In addition stents and other procedures like knee and hip replacement with a large procurement component also posted double digit volume growths in the period 2002-2007. Huge shifts such as these are clearly not accounted for properly in the budgeting processes, either at the hospital or the national level. These are largely responsible for the massive increases in procurement costs.

*... that are not  
accounted for in  
terms of patient  
entities...*

*... but may have  
to do with new  
technologies and  
treatment specific  
growth rates*

Can procurement be more efficient? Absolutely. Unlike almost all other countries, the Netherlands still lacks a Group Purchasing Organization, which uses economies of scale to drive a better bargain with the suppliers for their member hospitals. There has been renewed activity in the last years, and several ongoing initiatives. But a successful model has yet to merge. We suspect sense of urgency in the search for scale in procurement will intensify in the coming five years. While scale could bring some respite, we anticipate that procurement costs will continue to rise in the coming years. In fact, just as in the last five years, the major gap in financing will continue to be procurement.

*Procurement costs  
will continue to rise*

<sup>16</sup> Cost of hiring personnel (PNIL) is not included in procurement costs, but generally included in personnel costs. Thus procurement costs are not overestimated due to outsourcing of personnel driven activities.

Exhibit 16

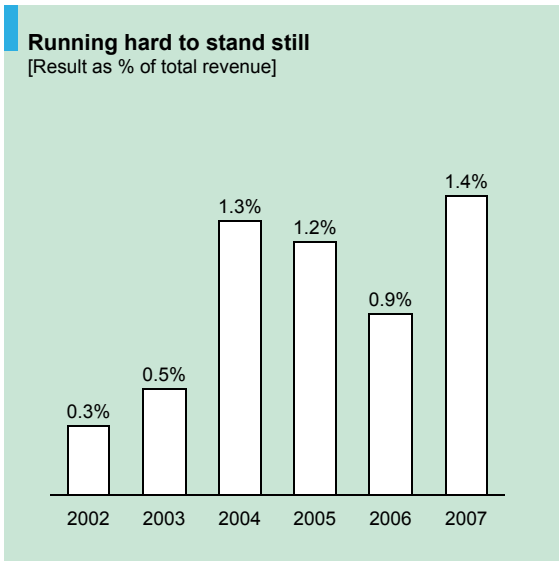
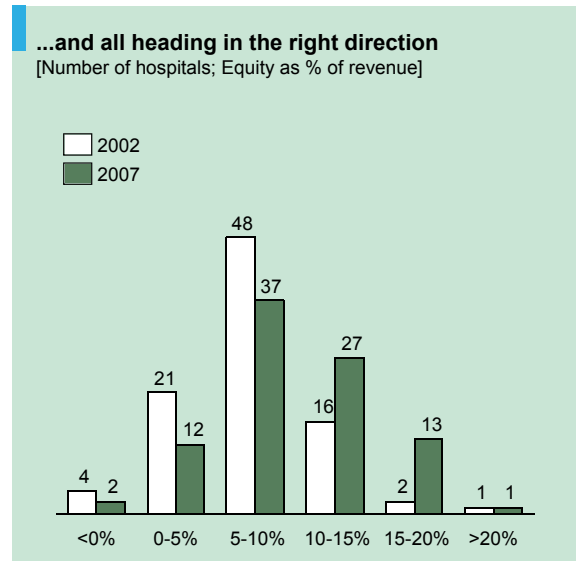
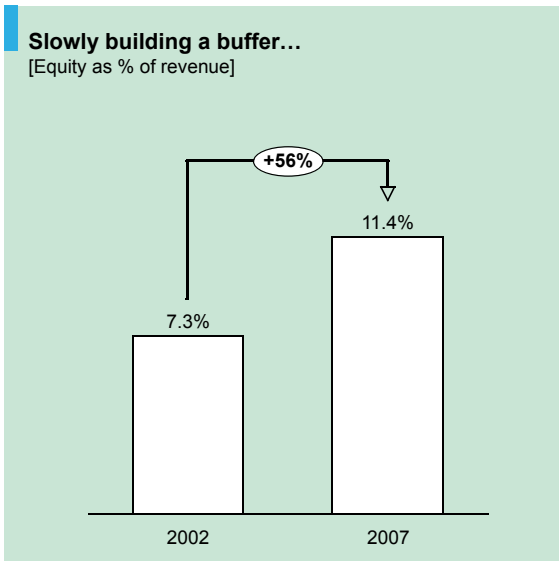


Exhibit 17



*Procurement needs to  
be somewhere near  
the top of hospital  
management agenda*

Even if hospitals and their insurers get a grip on procurement and form a viable countervailing power to the innovative, multibillion dollar all powerful medical technology companies, procurement will continue to be the largest cost driver, because it is the largest benefit driver as well. Procurement more than all else requires a sense of urgency for the hospitals and insurers.

**7) Running hard to stand still: overall profitability of the sector was stable. Equity grew faster than turnover in the five year period. Overall hospitals added nearly EUR 1 billion to their equity and they are financially much stronger than in 2002.**

Hospitals came from a low profit margin of 0.2% in 2002. Since 2004 the profits margins have remained fairly stable at 1%. 2007 was marginally the best year at 1.4% margin (Exhibit 16).

*Equity improved...*

As a result of 5 years of positive profitability hospitals could add to their equity. The equity grew to nearly 12% as a ratio of turnover. Thus not only did equity grow it grew faster than growth in turnover (Exhibit 17). Importantly all hospitals grew equity in the right direction.

*... but still low for  
some hospitals*

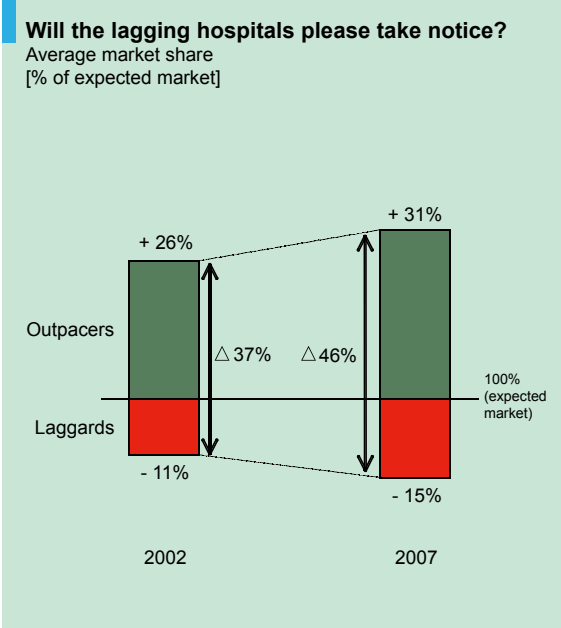
In the Brave New World, such profitability margins and equity turnover ratios are of course way too low. The pace of improvement may yet turn out to be too slow. The markets may catch some weak hospitals sooner than some may wish. This of course is to be desired. Hospitals appear to be improving their performance or at least maintaining it over the last five year period. Further fear of the outside world would bring more sense of urgency and should help accelerate the current pace of improvement.

**8) While overall performance of the sector has improved there is a large and widening performance gap between hospitals. For example the gap between the most efficient and inefficient hospitals has doubled in the period 2002–2007. Similar gaps existed and have grown in market and financial performance. Since the overall performance of the sector has improved a widening gap is not necessarily of any immediate concern.**

On all measures of the performance: market share, cost-to-serve and profitability, the gap between hospitals is large and widening. For example, the market share of the top performing hospitals has consistently grown faster



Exhibit 18



Exh. 19

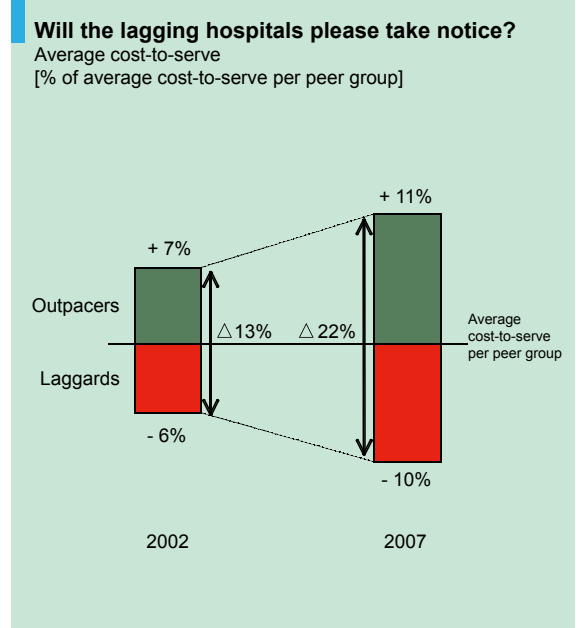
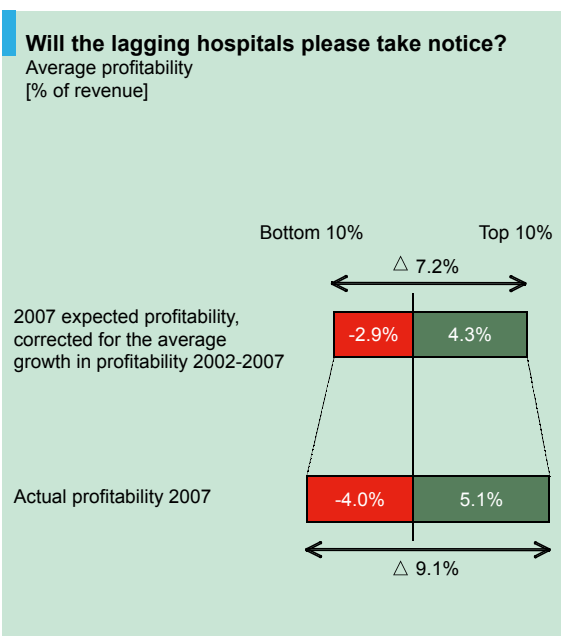


Exhibit 20



*Market performance gap...*

than their neighboring hospitals and national peers (Exhibit 18). The gap in market performance widened from 37% to 46% between the outperformers and laggards (see also Exhibit 21).

*Productivity performance gap...*

The cost-to-serve performance gap has widened the most in 2002-2007. The most efficient hospitals were 7% more efficient than their peer in 2002 but improved to be 10% more efficient in 2007. The least efficient were -6% more expensive than their peers but became -10% more inefficient in 2007 (Exhibit 19 and 22). The cost-to-serve gap widened from 13% to 22% in 2002-2007.

*Profitability performance gap...*

Lastly both on profitability and own equity a group of hospitals have put increasing performance gap between themselves and their peers (Exhibit 20 and 23). Profitability of the outperforming hospitals is almost 10% points higher (EUR 15-20 million in absolute money) than the underperforming hospitals in 2007. Importantly the gap has increased 2-3% points since 2002. The average profitability in 2007 was 1.4%. The profitability of the top 10% was 5.1% while the losses at the bottom 10% hospitals were -4%. The difference between the financial health of the top 10% hospitals and the bottom 10% was thus nearly a factor 10.

*...between out-pacers and laggards has widened*

In 2008, the year of Olympics, the comparison to a top sprinter who outpaces the rest, comes to mind. Such large gaps has meant some hospitals have not only grown but invested heavily in new techniques and their people, while others will be faced with increasingly difficult choices.

*Hospital performance is like a stairwell where the steps get steeper every year*

To borrow an analogy used by Paul Krugman in "Peddling Prosperity", the hospital performance distribution curve could be a picket fence or a stairwell. In a picket fence distribution curve, a plot of hospital percentile groups against a performance measure, all percentiles would come out at nearly the same level. In a staircase curve, the top performers would have much higher steps and the worst performers having much deeper steps. Hospitals did not have a picket fences distribution curve in 2002. Already in 2002 there performance looked like a stairwell with some doing much better than the others. But by 2007 the differences in the step heights had widened. Or in other words the steps had become much steeper, with the best performers improving over the worst performing hospitals. In Exhibit 18-20 and 21-23 we show that a

Exhibit 21

**21 hospitals further improved their market position and set the frontline for their peers**

Relative market score 2002 and change in market score relative to peer group 2002-2007  
[EUR b revenue 2007]

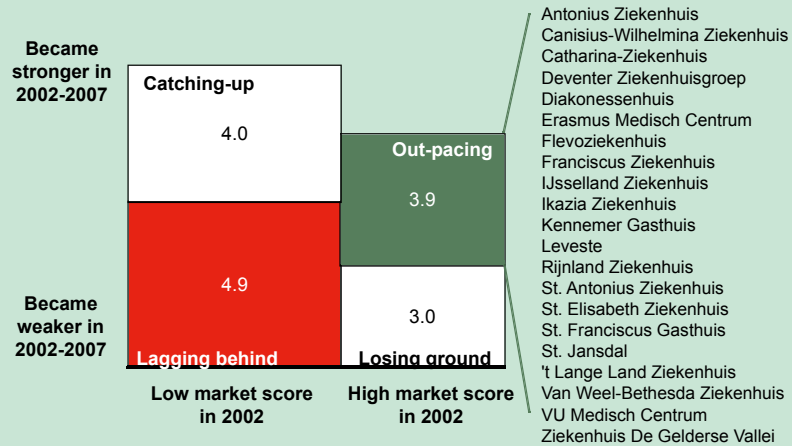


Exhibit 22

**21 hospitals further improved their operations and set the frontline for their peers**

Relative cost -to-serve 2002 and change in performance relative to peer group 2002-2007  
[EUR b revenue 2007]

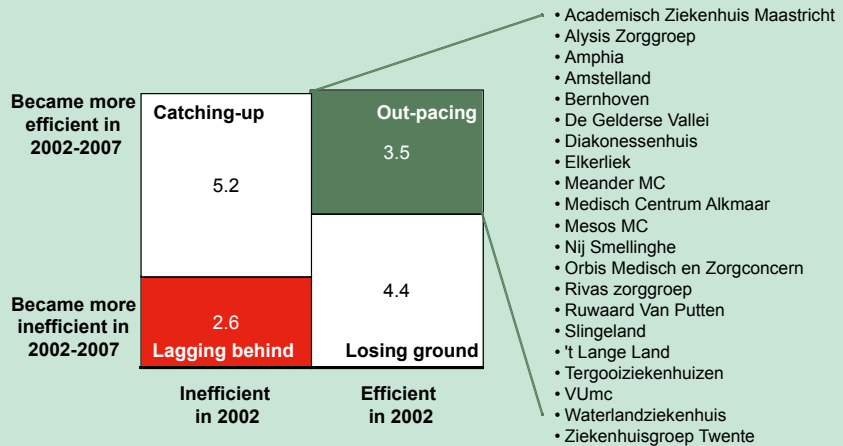
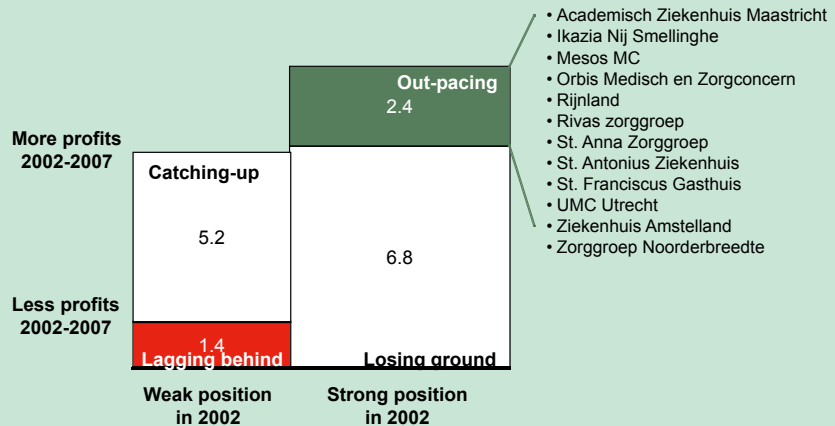


Exhibit 23

**12 hospitals further improved their financial position and set the frontline for their peers**

Relative equity position 2002 and change in performance relative to peer group 2002-2007  
[EUR b revenue 2007]



substantial group of hospitals are outperforming and lagging and that the gap between these two groups has widening since 2002.

*Performance gaps should be welcome as they ensure evolutionary, self-regulating overall sector improvement*

The overall performance of the sector is improving. Widening gap is of concern from the perspective of vulnerability and thus accessibility of care. However the outperforming hospitals should act as inspiration for the "weak" hospitals to uplift their own performance. Such an evolutionary process proceeds on a protracted time scale of many years. It is self-regulating but not without risk. We expect that in some local markets issues of accessibility may arise. But as long as the overall long term benefit of the system is higher it justifies the short term local issues. In as much as the laggards will take notice of the outperformers and seek remedial action, the performance of all hospitals will improve further.

**9) Hospitals operate in a dynamic world. While a substantial group continues to outperform compared to their 2002 advantage and another group continues to lag behind, most hospitals either improved their performance (catching up), or lost ground (falling behind)**

We have analyzed the performance matrix 2002-2007 for all hospitals on three measures:

- Market share
- Cost-to-serve (as measure of efficiency)
- Profitability

In Exhibit 21-23 we plot the performance of the hospitals in 2002 against the improvement or deterioration hospitals made in 2002-2007. On this basis we have distinguished four hospitals groups:

- **Outpacing:** were better than peers in 2002 and improved
- **Losing ground:** were better than peers in 2002 but lost ground
- **Catching-up:** were worse than peers in 2002 but have improved
- **Lagging behind:** were worse than peers in 2002 and lost ground

*The group of consistent out-performers*

On all three performance measures we find that there have been a set of consistent out-pacers and laggard among hospitals. However the majority of the hospitals, as shown by turnover in each quarter of the matrix, either lost ground or caught up. Further as described above and shown in Exhibits 18-20 the gap between the out-pacers and the laggards has increased in 2002-2007.

Exhibit 24

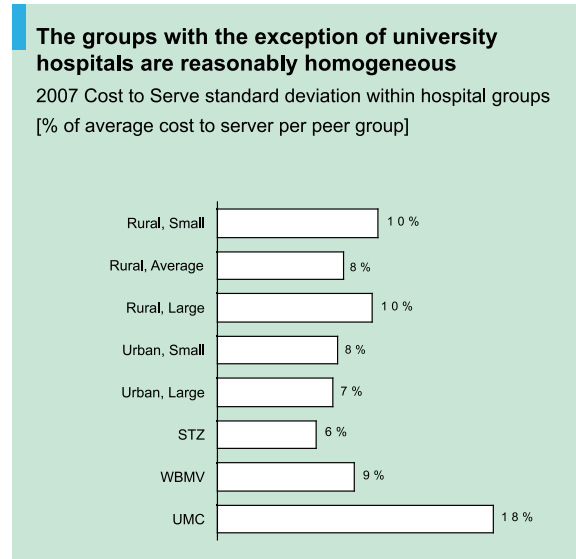
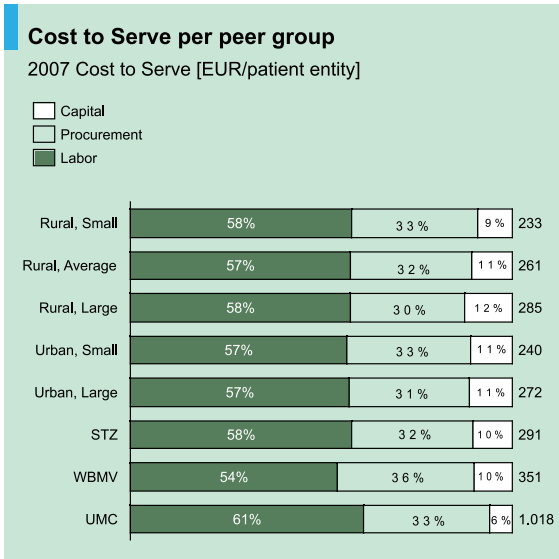
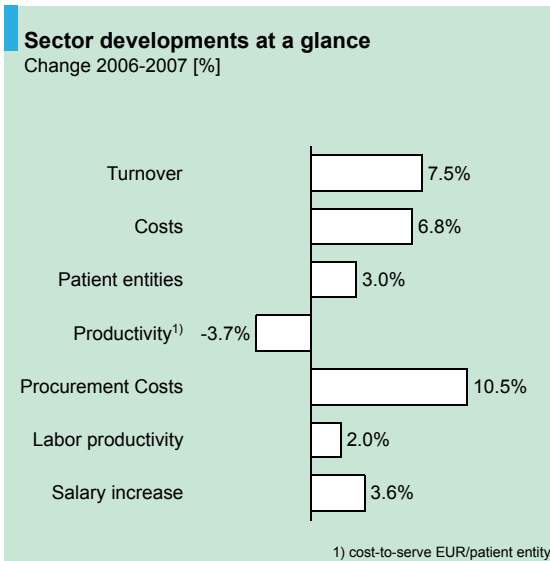


Exhibit 25



## Developments 2006–2007

This year we have chosen to give an abbreviated summary of the developments in 2006–2007. Following the structure of the earlier reports we summarize the developments under three headings: market, operational and financial performance. We end with the ranking based on the same criteria as previous years. This should also help to make comparisons across hospitals.

In methodology terms we have rearranged our peer groups to better reflect the care delivered as well as year on year developments. The STZ group was not only getting very large, it is also highly diverse. We have separated the STZ hospitals in two groups, if you will STZ light and STZ heavy. The STZ heavy group contains hospitals with a large proportion of WBMV care<sup>17</sup>. Further we have created a new group to reflect the size differences among the rural hospitals. We have now 8 peer groups reflecting the location (urban competitive and rural non competitive), size (small, average, large) and care profile (STZ, WBMV and UMC). A measure of the relevance of the group definition is the cost-to-serve standard deviation of the different groups (Exhibit 24). With the exception of the UMC group all other groups have a standard deviation of 10% or less.

*UMC drove the large turnover increase*

### **1) Hospital turnover grew 7.5% in 2007 to reach EUR 16 billion. UMC showed the largest increase**

Hospital turnover grew 7.5% from EUR 14.8 billion to EUR 15.9 billion in 2007 (Exhibit 25). The largest growth was recorded by groups known to deliver more complex care: the group of University Hospitals (UMC) and the group of STZ delivering higher proportion of WBMV care (Exhibit 26). Excluding University hospitals the growth in turnover would have been 5.7%. Clearly UMCs are driving a major share of the growth. 7.5% growth in turnover is significantly higher than the growth levels posted in the last years which have been 5%.

### **2) The B-segment growth was comparable to A-segment growth**

There has been concern that B-segment is growing faster than A-segment. The concern was based on the extraordinary growth in B-segment in 2006 compared to the introduction year 2005. In the year 2006 B-segment grew

<sup>17</sup> MCRZ is the one exception to the rule. MCRZ is not a STZ member, but because of the high amount of WBMV-care delivered, MCRZ is included in the WBMV group

Exhibit 26

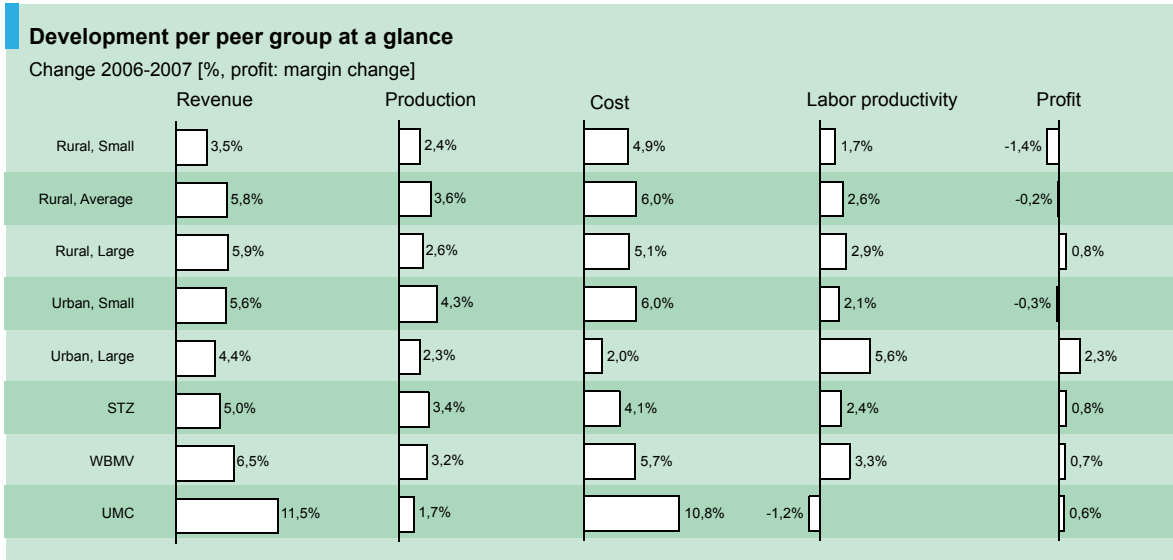
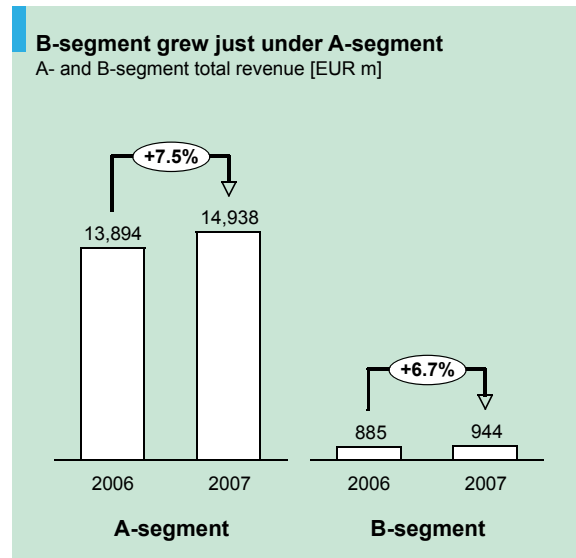
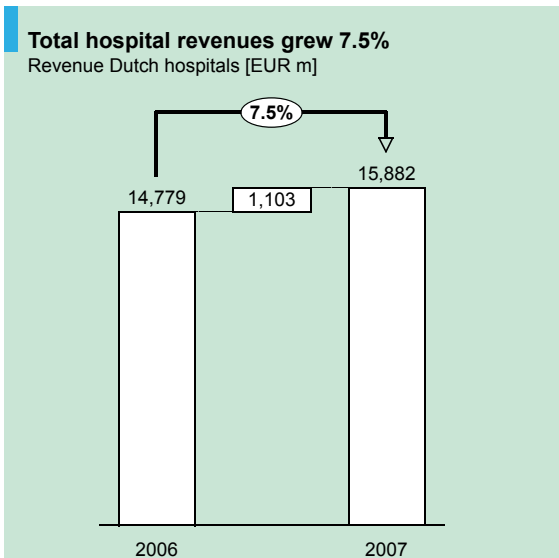


Exhibit 27



40% and came to account for 6% of the total hospital turnover (Exhibit 8). An extraordinary growth in B-segment would understandably be an issue. Unlike A-segment there is no price and volume cap in B-segment. There is the camp of skeptics among healthcare leaders: politicians, policy makers, managers and physicians, who maintain that an incentive in the form of freedom to dictate prices and volumes, would lead financially motivated hospitals and their physicians to deliver "unnecessary" B-segment care. This would come at the cost of A-segment in a world of fixed overall budgets. Given the large differences in B-segment among different types of hospitals this could also have unfavorable consequences for some groups like UMC and STZ that have a lower B-segment share.

These concerns were further fuelled by a report earlier this year by Vektis and BCG, published in NRC, showing extraordinarily large volume growth of B-segment procedures based on insurer billing data.

We have recently published a study commissioned by Dutch Hospital Association on B-segment developments. Analyzing four major procedures by several different methodologies over a longer period we found no evidence of extraordinary growth. For hip and knee procedures the growth was in line with the historical growth, for diabetes the growth was slower while for cataracts it was higher. Moreover in 2007 we generally found that the growth had slowed down.

*B-segment growth  
is in line with  
overall growth*

On the basis of the annual reports we now confirm that the growth in B-segment in 2006-2007 was in line with the A-segment and thus the overall turnover growth of 7.5% (Exhibit 27). Given similar growth for A and B, B-segment as a fraction of total turnover did not change in 2006-2007 (Exhibit 9).

In retrospect it is of course easy to both justify these conclusions and repeat the earlier reasons we expounded why it was not possible to draw any sensible conclusions based on year 2005-2006. 2005 was the first year for DBC. In 2005 B-segment introduction was not for the full year. Both effects make it difficult to judge the actual growth levels. Comparing on the first full year to year basis in 2006-2007 we find no difference in the growth levels of B and A-segment.



Exhibit 28

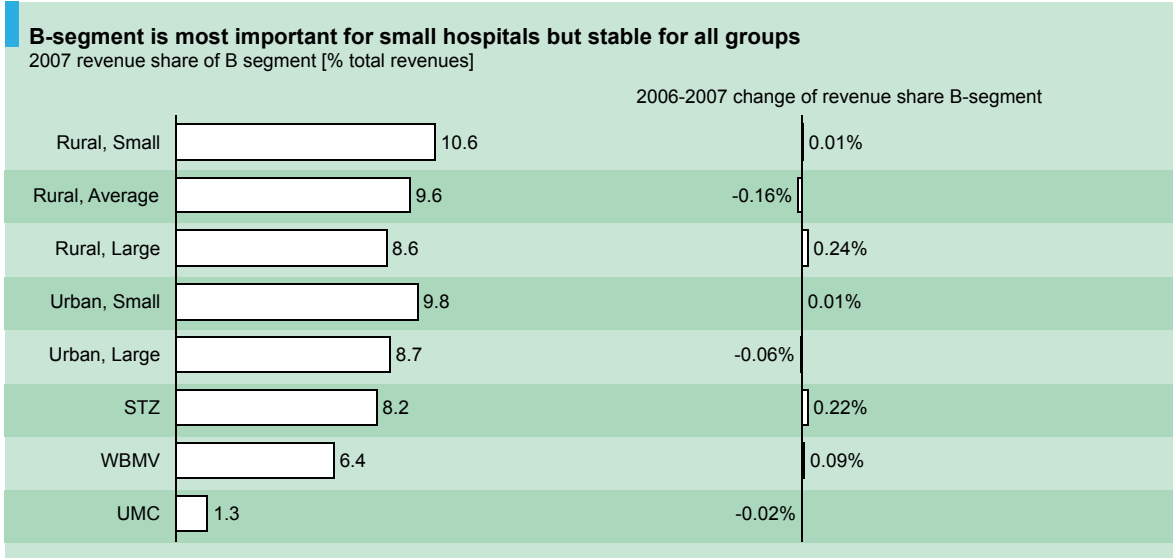
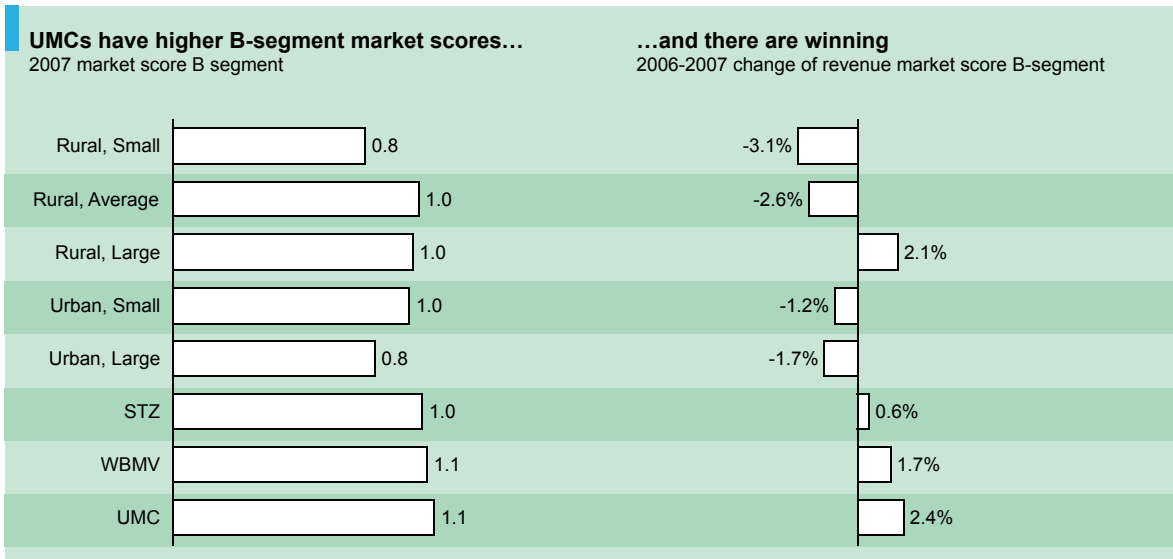


Exhibit 29



The second concern has been the differences in the dependency of different hospitals on B-segment. UMC have on an average less than 1% of their turnover on B-segment while small rural hospitals have largest dependency at more than 10% (Exhibit 28). Despite same average growth should small rural hospitals have grown faster than the UMC in B-segment, it would imply that both market shifts and specialization is taking place. This may also raise concerns about having the desired patient and case mix at all hospitals. We find that there was no perceptible difference in the dependency of B-segment across different hospitals between 2006 and 2007. The significant differences in 2006 among hospitals in B-segment (+13% to 0.8%, Exhibit 28) were stable and persisted through to 2007.

*Market based performance of B-segment is the relevant measure of performance*

Share of B-segment as % of overall turnover is one way of looking at importance of B-segment. However given different budget parameters comparing with overall budgets is not a relevant measure to report B-segment performance. A better measure is to consider share of B-segment of a hospital compared to the size of the total B-segment in the market.

*A market performance model for B-segment is presented*

We have developed a measure of B-segment market performance which is similar to our overall EPB based market score. Our B-segment market score takes the total B-segment market size in EUR terms across the Netherlands and translates it to a local 4 digit postcode level. The translation takes into account age and gender based probability of B-segment. Then, based on our market algorithm which assigns a market value to each hospital, theoretical market size for B-segment is calculated for each hospital. Price differences, case-mix differences and local production differences are not accounted for in this model<sup>18</sup>. Thus a hospital with higher prices, or with more knees and less cataracts would have a higher B-segment score. Nonetheless this model provides a first estimation of B-segment performance.

*UMC have a strong market performance in B-segment*

Based on this approximation we report the B-segment market share of each hospital and peer group in the Netherlands (Exhibits 29, 30, 31). We note that once corrected for market position University hospitals have a larger share of B-segment in their markets, more than their low B-segment dependency would suggest. UMC attract on average more B-segment revenue than

<sup>18</sup> Potential registration differences are also not accounted for in the model

Exhibit 30

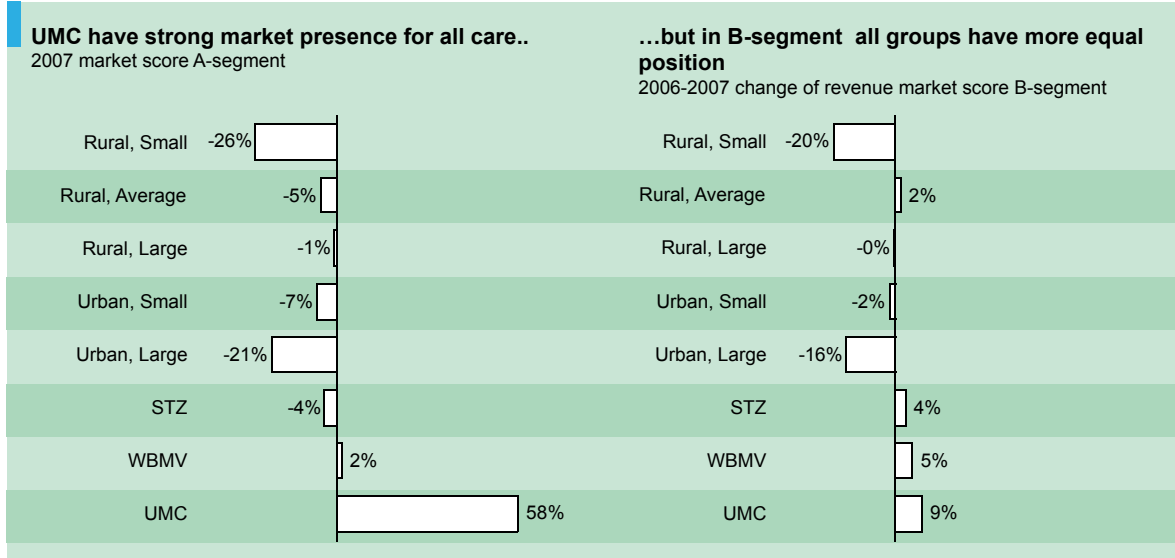
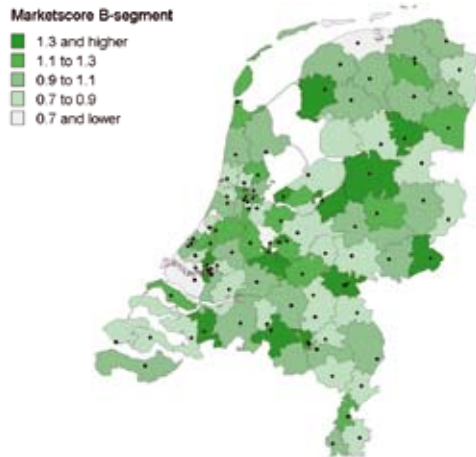
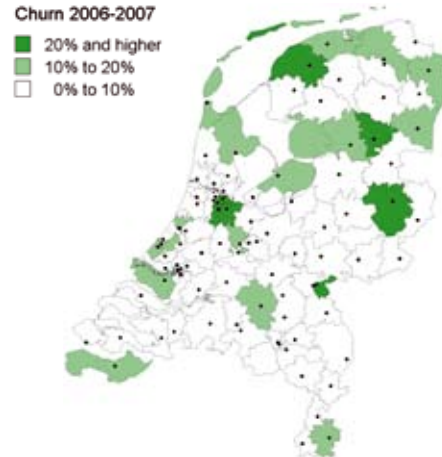


Exhibit 31

**Focus on B-segment varies per hospital**  
Market score B-segment 2007



**High churn levels in first 2 full years of B-segment**  
Change of B-segment market score 2006-2007 [%]



expected, but their B-segment proposition is much less unique than the rest of their profile. The STZ and WBMV group also appear to have higher B-segment value share<sup>19</sup>. The small rural hospitals appear to be most vulnerable, their overall and B-segment market scores are both much less than 1. However the B-segment position for small rural hospitals is relatively better than their overall position. This is of course also reflected in their higher than average dependence on B-segment (Exhibit 28).

Exhibit 31 depicts the B-segment scores on the Dutch map.

In conclusion based on the annual reports we can confirm that there is no evidence of "exploding" B-segment in 2006-2007. B grew just as much as A. While there are large differences between different hospitals in their A/B ratio, these differences did not change in 2006-2007. Further the performance of all hospitals in B-segment is much less divergent than their overall performance. In their individual markets UMC as well as small hospitals and other peer groups have an important and nearly similar B-segment position.

### 3) Patients switching is four times higher in B-segment is than in A-segment suggesting better functioning markets for B-segment.

We have been monitoring the churn, or switching behavior of patients over the period 2002-2007. The average net churn<sup>20</sup> of EPB was constant over this period at  $\pm 2\%$ . But the churn varied greatly between regions (Exhibit 31).

The patient switching in B-segment is much higher. The average churn in B-segment over 2006-2007 is  $\pm 8\%$ .

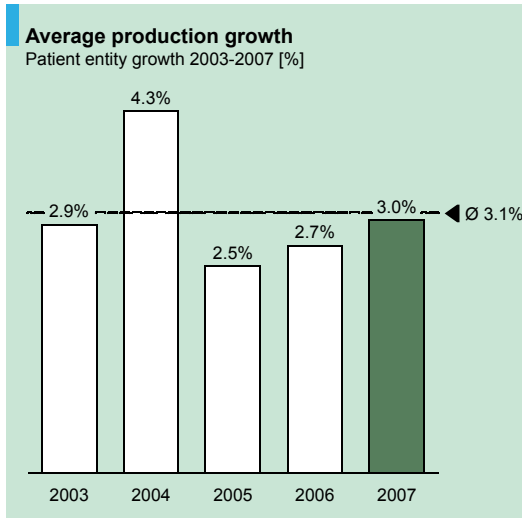
An average  $\pm 2\%$  churn is large by itself. Its impact on hospital's financial performance is comparable to the average profitability of the sector. But over the period studied we found that a small group of hospitals have been steadily gaining market share at faster rate. Individual churns year on year are thus larger. The cumulative impact of patient switching over a five year period is significant both for the winning and the losing hospitals. The large B-segment churn suggests that B-segments markets are functioning better

*B-segment has  
higher churn*

<sup>19</sup> This could be due to higher prices or more expensive case-mix

<sup>20</sup> Growth in the relative number of patients above or below the market growth. Churn measures shift in market share. It reflects net shift in patients per hospital but not the gross shift per individual. By definition net shift is zero across all of NL (provided patients seeking hospitals outside NL are also not counted).

Exhibit 32



Exh. 33

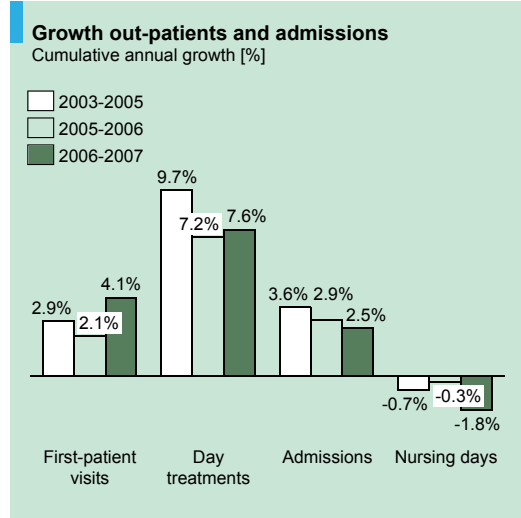


Exhibit 34

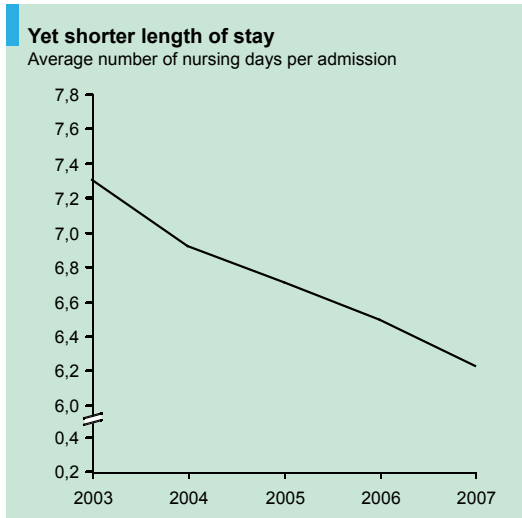
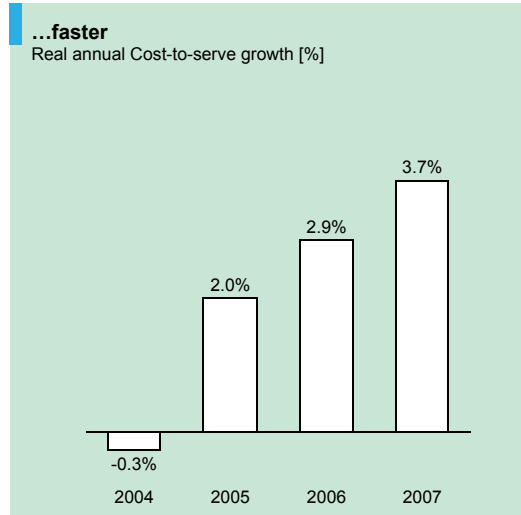
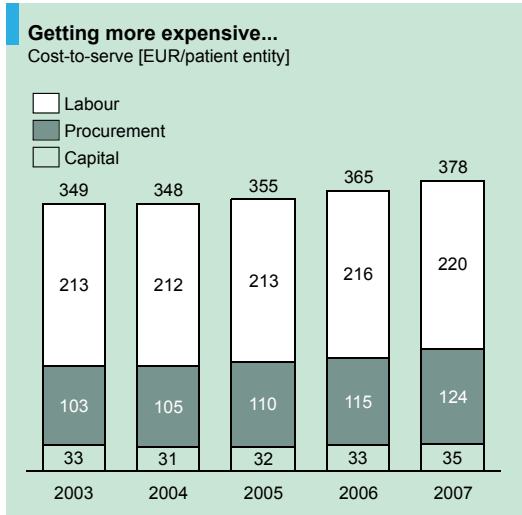


Exhibit 35



than A-segment<sup>21</sup>. New windows have opened for the winning hospitals, whereas a whole set of medical and strategic possibilities have become impossible for the losing hospitals.

**4) Patient entities grew in line with historical levels at 3%. The underlying trends of shorter stays and more in day treatments continued**

The patient entities grew at 3% in 2007 in line with the five year average of 3.1% (Exhibit 32). The extra growth was mainly driven by higher first out-patient visits (Exhibit 33). Day treatments had the fastest growth. Remarkably enough nursing days reduction accelerated. The average nursing day in 2007 was 6.1 days, down by nearly half a day from 2006 (Exhibit 34). With increasing B-segment the relevance of these four measures will gradually be overshadowed by DBC volume measures. So far DBC volume has proved to be much more unreliable mainly due to registration issues. We hope that the simplified DBC structure would be reported in the future so that we can take it as our measure for volume. As we discussed earlier more than 50% of the turnover increase in the last years can be explained by volume increase measured in patient entities. We suspect that of the unexplained EUR 700 million growth over the five year period 2002-2007 is for a large part due to patient entities as volume proxy. A weighted DBC is obviously theoretically better, even if it is unrealistic for now.

*Nursing days  
reduced further*

*and day  
treatments grew*

**5) Cost-to-serve increased mainly driven by procurement costs**

The cost-to-serve increased 3.7% in 2006-2007 (Exhibit 35). 2004 was the only year in which the real cost-to-serve declined. Since then it has been growing again at a faster rate. Have hospitals become less productive? On the face of it the answer must be yes<sup>22</sup>. It cost EUR 13 more, including inflation, per patient entity to deliver care, a difference of EUR 1.8 billion for the 140 million patient entities in 2007. Looking back across the years it seems to us that there is no performance evidence that hospitals can reduce their overall cost-to-serve.

<sup>21</sup> B-segment churn is based on total value and not local volume. This means that the churn levels may reflect price and consumption year on year differences.

<sup>22</sup> Definition of volume used is as mentioned earlier part of the reason for the increasing cost-to-serve

Exhibit 36

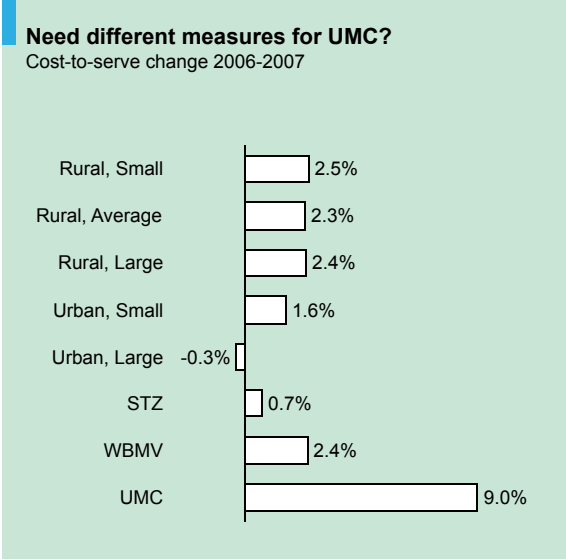
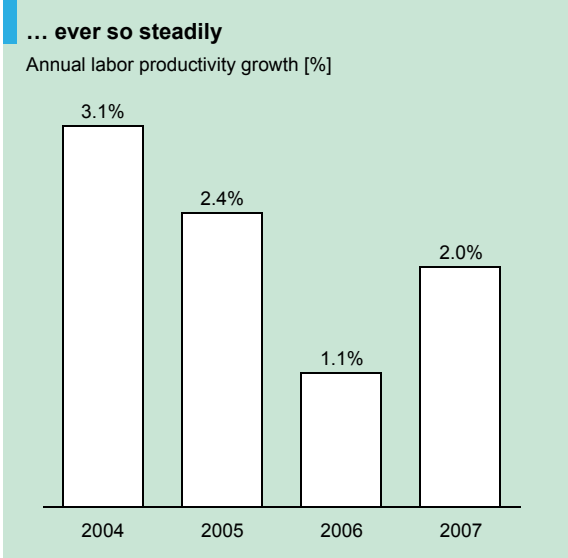
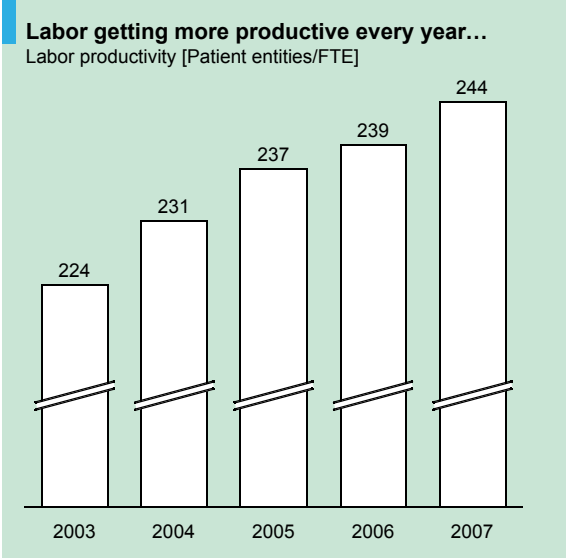


Exhibit 37



*Only large urban hospitals reduced their cost-to-serve*

There are however significant differences between groups. UMC posted the highest increase in cost-to-serve. The large urban hospitals were the only group to post a modest improvement in 2007 (Exhibit 36).

All hospitals have become more productive if one looks at the labor productivity. In terms of FTE per patient entity, hospitals have improved their labor productivity every single year in the last five years (Exhibit 37). The total gain which we have quantified elsewhere in this study over the five year period is EUR 750 million or 14,000 FTE. (See exhibit 12). The rate of labor productivity improvement was 2% in 2006-2007.

Almost all of the increase in cost-to-serve has to do with salary increases and procurement. The salary increases in the hospital were slightly lower than the average salary increases in the Netherlands in 2007. But because labor component is such an important part of the total hospital cost structure (60%) the total increase was much higher than the general consumer price index which is much lower than the salary increase.



Exhibit 38

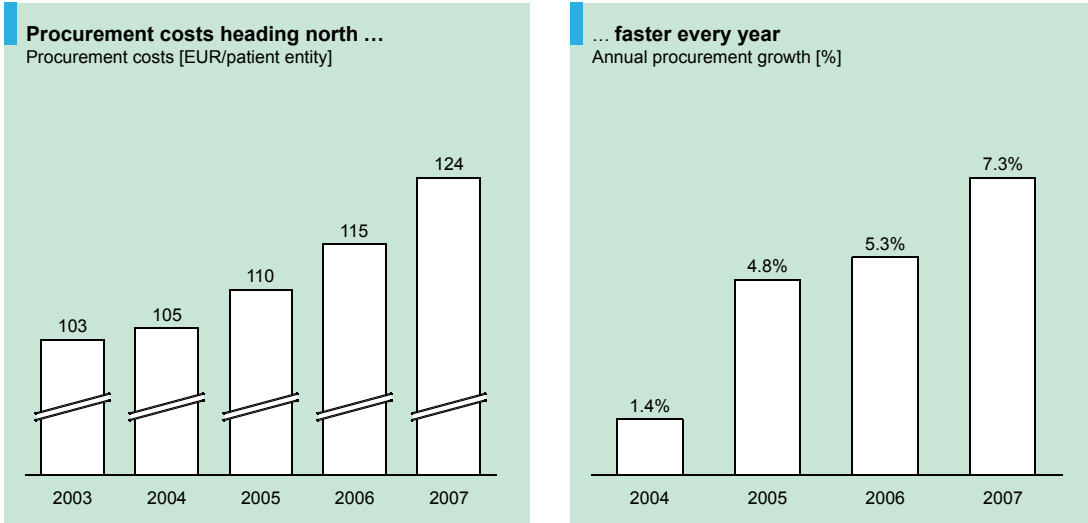


Exhibit 39

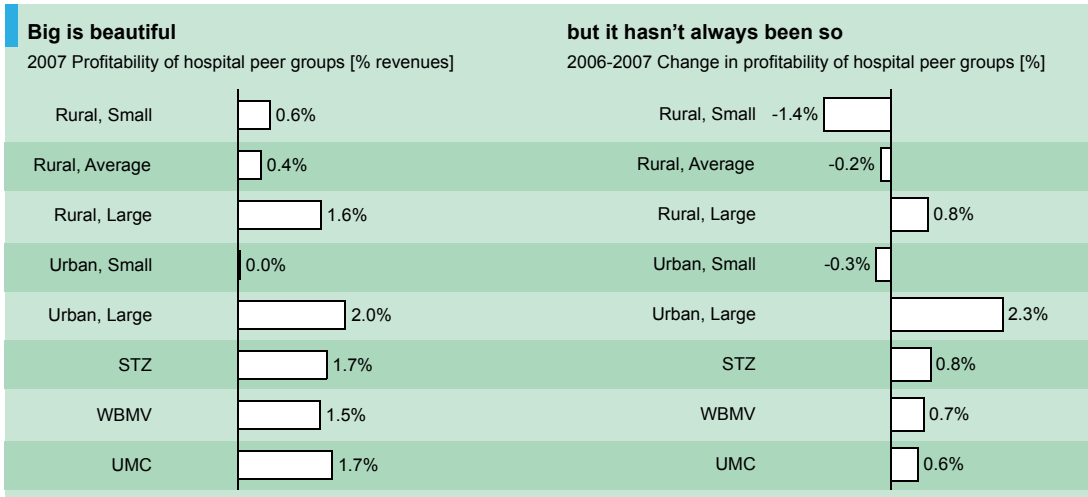
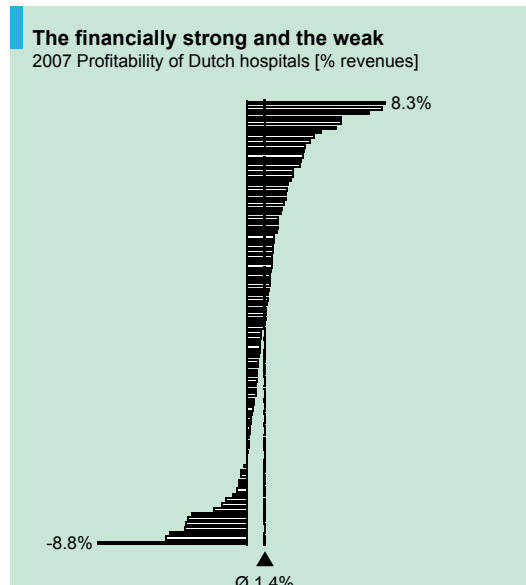
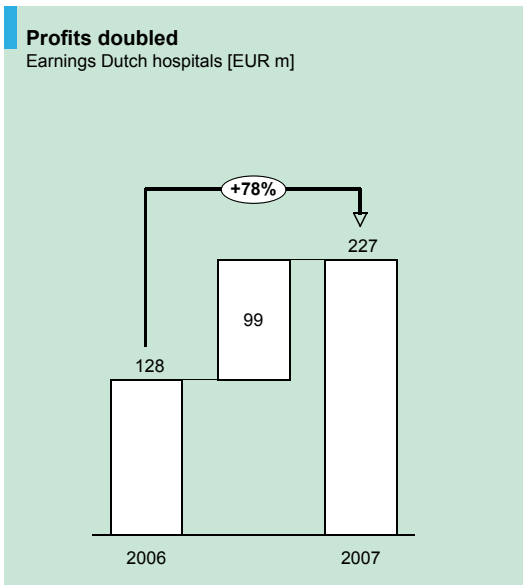


Exhibit 40



Exh. 41

*Procurement was the main driver for cost increase*

Procurement however is by far the largest driver of cost increase. Procurement cost-to-serve increased more than 7% in 2006-2007 or EUR 9 per patient entity. Of the total EUR 13 increase in cost-to-serve 70% is due to procurement. Procurement cost-to-serve increase has been accelerating year on year (Exhibit 38). The UMC had the largest increase in procurement cost-to-serve.

**6) Profitability of hospitals improved. Gap between the most and the least profitable is widening. Large hospitals had the best profitability in 2007.**

In 2006 the profitability had tumbled. This year it soared. Looking at a five year picture profitability of the hospitals is low and fixed around the 1% margin range. It makes little sense to talk of soaring or tumbling, which is mainly based on the small profitability base that exaggerates any differences.

*Large hospitals improved, small hospitals lost profitability*

In 2007 hospitals added EUR 99 million to their profits, an increase of 78% (Exhibit 40). The smaller hospitals saw their profitability decline while it grew for the larger and specialized hospitals. The 7 hospitals in the large urban group had the largest profitability in 2007 (Exhibit 39).

Profitability increase in 2007 is not due to efficiency gains, but entirely due to turnover increase.

As in previous years there is a large difference in the profitability of different hospitals (Exhibit 41).

Exhibit 42

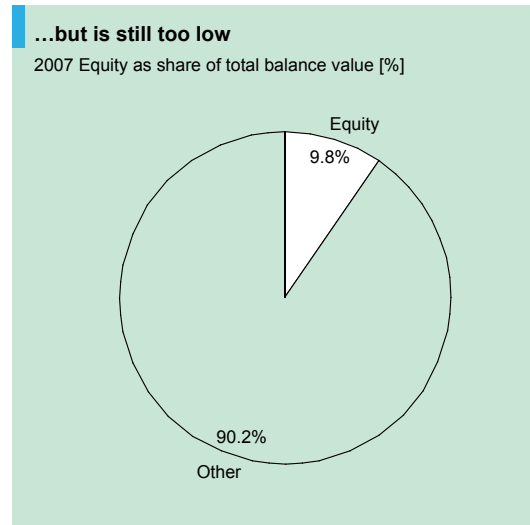
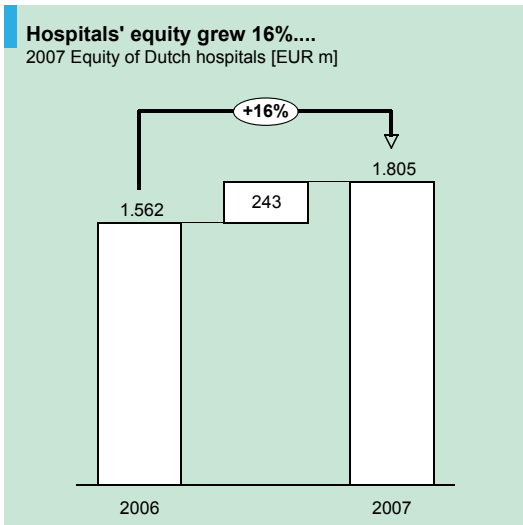


Exhibit 43

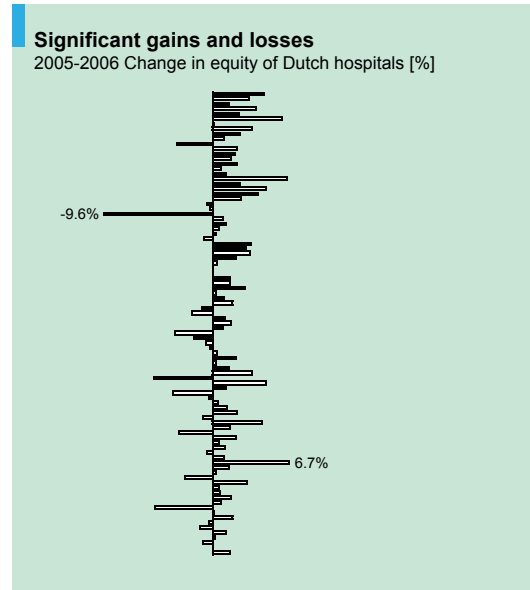
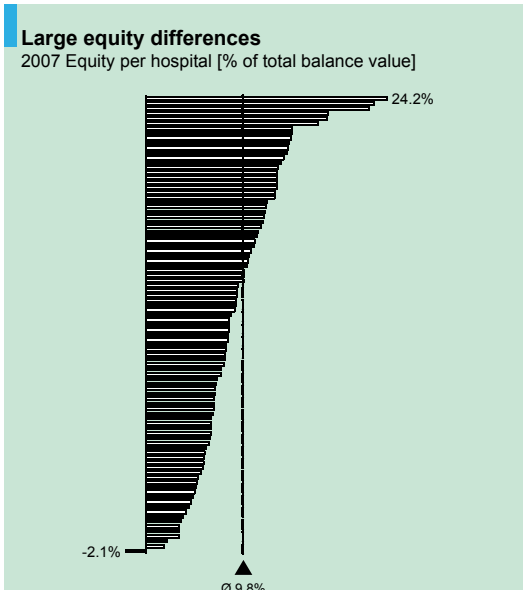
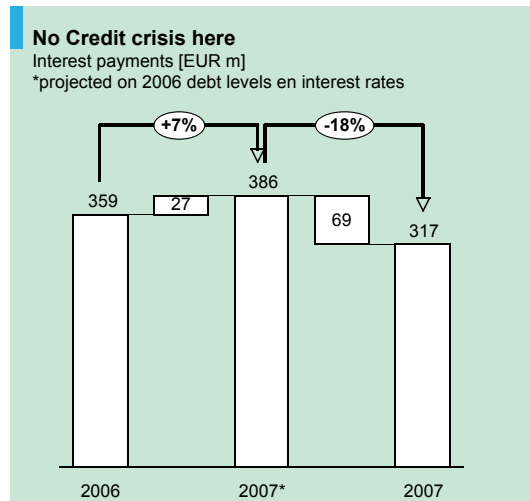
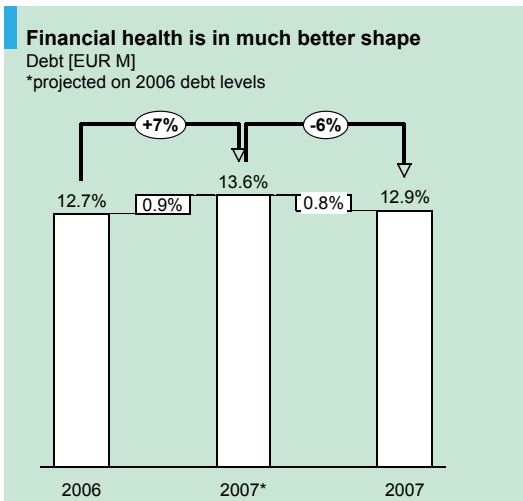


Exhibit 44



*Slowing improving  
financial health*

**7) Hospital equity improved while debt levels and interest payments decreased. Despite improvements equity levels are still low. Large differences between hospitals.**

Hospitals added EUR 243 million to their equity. EUR 227 million was the profit in 2007 (Exhibit 42). The EUR 16 million is related to revaluation and reassignment of other items on the balance. Hospitals have been slowly improving their equity. However the average equity as the % of balance is still less than 10%. At this rate it will take 5-10 years at 2007 profitability level to achieve an equity on balance ratio of 15-20%.

There are large differences in hospital equity. These vary from above 20% equity on balance ratio to negative 2% equity on balance ratio (Exhibit 43). Debt levels of hospitals decreased while interest payments fell even stronger. The credit crisis is yet to reach the Dutch hospital sector (Exhibit 44).

Exhibit 45

	Outperformers 2007	On-par performers 2007	Underperformers 2007
<b>Rural, small</b>	Delfzicht Ziekenhuis Ruwaard Van Putten Ziekenhuis St. Jans Gasthuis Van Weel-Bethesda Ziekenhuis	Pantein St. Lucas Ziekenhuis Talma Sionsberg	Refaja Ziekenhuis Saxenburgh Groep
<b>Rural, average</b>	Antonius Ziekenhuis Elkerliek Ziekenhuis Franciscus Ziekenhuis Nij Smellinghe Slingeland Ziekenhuis St. Jansdal Wilhelmina Ziekenhuis Assen Ziekenhuis Zeeuws-Vlaanderen	De Tjongerschans Flevoziekenhuis Gemini Ziekenhuis IJsselmeer Ziekenhuizen Laurentius Ziekenhuis Rivas zorggroep Waterlandziekenhuis Ziekenhuis Bernhoven Ziekenhuis Bethesda Ziekenhuis Lievensberg	Leveste Oosterscheldeziekenhuizen Rode Kruis Ziekenhuis Streekziekenhuis Koningin Beatrix Zaans Medisch Centrum Ziekenhuis Rivierenland Ziekenhuis Walcheren Zorgcombinatie Noorderboog Zuwe Hofpoort
<b>Rural, large</b>	Gelre Ziekenhuizen Kennemer Gasthuis Tergooiziekenhuizen Ziekenhuisgroep Twente	Orbis Medisch en Zorgconcern Westfries Gasthuis Ziekenhuis De Gelderse Vallei	Albert Schweitzer Ziekenhuis Groene Hart Ziekenhuis
<b>Urban, small</b>	Bronovo-Nebo St. Anna Zorggroep Ziekenhuis Amstelland	Ikazia Ziekenhuis 't Lange Land Ziekenhuis	BovenIJ Ziekenhuis Diaconessenhuis Leiden Havenziekenhuis
<b>Urban, large</b>	Diakonessenhuis Utrecht/Zeist Rijnland Ziekenhuis	Mesos Medisch Centrum Slotervaartziekenhuis TweeSteden ziekenhuis	IJsselland Ziekenhuis Vieltland-Ziekenhuis
<b>STZ</b>	Deventer Ziekenhuisgroep Meander Medisch Centrum Reinier de Graaf Groep Spaarne Ziekenhuis VieCuri Medisch Centrum	Jeroen Bosch Ziekenhuis Medisch Centrum Haaglanden St. Elisabeth Ziekenhuis St. Franciscus Gasthuis St. Lucas Andreas Ziekenhuis	Atrium Medisch Centrum Canisius-Wilhelmina Ziekenhuis Martini Ziekenhuis Máxima Medisch Centrum
<b>WBMV</b>	Amphia ziekenhuis Medisch Centrum Alkmaar Medisch Centrum Rijnmond-Zuid St. Antonius Ziekenhuis	Catharina-ziekenhuis HagaZiekenhuis Isala Klinieken Zorggroep Noorderbreedte	Alysis Zorggroep Medisch Spectrum Twente Onze Lieve Vrouwe Gasthuis
<b>UMC</b>	Academisch Ziekenhuis Maastricht Erasmus Medisch Centrum VU Medisch Centrum	Academisch Medisch Centrum UMC St. Radboud	Leids Universitair Medisch Centrum UMC Groningen UMC Utrecht

## 8) Ranking

We end this report with our annual ranking of hospitals. The ranking is based in the same parameters as in previous years. However we have used eight different groups this year to better reflect the differences in profile and location (Exhibit 45). Finally we highlight the best performance improvers in their peer groups on three measure, overall EPB based market share growth, cost-to-serve reduction and profit margin (Exhibit 46).

Exhibit 46

	Market share growth 2006-2007	Cost-to-serve improvement 2006-2007	Financial result 2006-2007
<b>Rural, small</b>	Van Weel - Bethesda	Ruwaard van Putten	Delfzicht ziekenhuis
<b>Rural, average</b>	Franciscus Ziekenhuis	IJsselmeer ziekenhuizen	Ziekenhuis Bethesda
<b>Rural, large</b>	Groene Hart Ziekenhuis	Ziekenhuisgroep Twente	Ziekenhuisgroep Twente
<b>Urban, small</b>	Diaconessenhuis Leiden	St. Anna zorggroep	Havenziekenhuis
<b>Urban, large</b>	Rijnland Ziekenhuis	TweeSteden Ziekenhuis	Slotervaartziekenhuis
<b>STZ</b>	St. Elisabeth Ziekenhuis	Meander Medisch Centrum	Spaarne Ziekenhuis
<b>WBMV</b>	Amphia ziekenhuis	Amphia ziekenhuis	Amphia Ziekenhuis
<b>UMC</b>	UMC Groningen	Academisch Medisch Centrum	VUmc







For further information please refer to:  
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