Research Paper

Healthcare Affordability – the Global Challenge
Healthcare financing in Europe and the United States

SIEMENS

Siemens Financial Services
Key Findings

- Healthcare systems in Europe* and the US are coming under increasing financial pressure as spending restrictions are imposed and healthcare demand rises.

- Many healthcare regimes are moving towards a pay-for-performance approach, in which funds follow the patient. Most also offer, or are soon to offer, patient and physician choice regarding where the patient is to be treated – although some are now making sure that choice is not unsustainably broad.

- Germany’s healthcare system currently offers the best return on investment – in terms of basic healthcare provision, longevity and cost – when compared with the US healthcare system and those of other key European countries.

- Capital is becoming increasingly scarce as operational costs soak up available funds. However, investment in facilities and technology is required if medical services providers are to attract patients and the revenues that come with them.

- In the US and Europe, over €30 billion annually is tied up in capital budgets that could be freed up by the use of asset-financing techniques.

- Alternative forms of finance to simple bank borrowing are increasingly popular with the public and private sector to enable capital equipment upgrade. Leasing and renting are becoming the alternative financing tools of choice for growing numbers of medical service providers as technology replacement periods continue to contract. By giving the lessee the ability to upgrade his technology periodically, rather than have to write down equipment over ten years or more, leasing and renting options allow healthcare technology users to escape the obsolescence trap.

- New pay-per-use charging models are also becoming popular with medical service providers, especially in medical imaging, where a financing arrangement can be structured to allow the organisation to pay on a “per scan” basis.

* European countries included in the study: Germany, France, the UK, Italy, Spain, Sweden, Norway, Denmark and Finland.
# Contents

Introduction ........................................................................................................................................................... 4

1 Global Trends ......................................................................................................................................................... 5
   1.1 Rising Costs – Demographic Pressure ............................................................................................................. 5
   1.2 Financial Pressure – The Funding Crisis – The Advent of Fixed Payments .................................................. 6
   1.3 Technology Issues .......................................................................................................................................... 7
       1.3.1 Technology Turnover ........................................................................................................................... 7
       1.3.2 Technology Access and Competitive Strength ......................................................................................... 8
       1.3.3 Capital Investment in Technology – The Size of the Challenge ......................................................... 8

2 Understanding the Healthcare System Landscape in Europe and the US ............................................................... 9
   2.1 Overview ...................................................................................................................................................... 9
   2.2 Healthcare – Return on Investment ................................................................................................................ 9
   2.3 Funding Issues ............................................................................................................................................. 11
       2.3.1 Frozen Capital ....................................................................................................................................... 11
       2.3.2 Joined-up Healthcare ............................................................................................................................ 12
       2.3.3 Pay-for-performance and Patient Choice ............................................................................................ 13
       2.3.4 Outsourcing .......................................................................................................................................... 14
       2.3.5 The Cost of Prescription Drugs ........................................................................................................... 14

3 Alternative Finance – The Underutilised Resource .................................................................................................. 16
   3.1 Challenges for Financiers ............................................................................................................................ 16
   3.2 Financing Tools ........................................................................................................................................... 16

4 Asset Financing – Case Studies ................................................................................................................................ 18
   4.1 Germany ...................................................................................................................................................... 18
   4.2 United States ............................................................................................................................................... 19
   4.3 Spain ........................................................................................................................................................... 20
   4.4 France ........................................................................................................................................................ 20
   4.5 United Kingdom ......................................................................................................................................... 21
   4.6 Norway ....................................................................................................................................................... 22

5 Conclusion ........................................................................................................................................................... 23

6 Appendices .......................................................................................................................................................... 24
Modern healthcare systems face the challenge of affordability – requiring qualified professionals, up-to-date facilities and the latest technology. In a world of rising healthcare consumption, higher demand has to be met with fixed budgets. Modern financing approaches, such as public-private partnerships (PPP) and asset finance, are consequently seeing increasing take-up from healthcare organisations.

This paper aims to take a fresh look at the financing of healthcare systems, and offers professionals in the field some new metrics and perspectives on the issue. It is a qualitative study drawing on many sources and offers two new models – one measuring comparative value derived from healthcare systems, and another assessing the amount of capital unnecessarily “frozen” in those systems.

To illustrate some of the healthcare financing trends discussed in this study, we offer a selection of experiences from Siemens Financial Services’ customers.

The paper concludes that although some areas of healthcare costs will require politically radical, long-term solutions, others may be addressed in a more immediate fashion, with short-term, bottom-line benefits. We hope that this paper will provide other healthcare experts with a starting point for further study and investigation, resulting in viable strategies to manage the growth in global healthcare spending.

Dr Herbert Lohneiß
CEO, Siemens Financial Services GmbH, Munich

Mike Treanor
Managing Director, Siemens Financial Services GmbH, Munich
1 Global Trends

1.1 Rising Costs – Demographic Pressure

In 2002, the cumulative health spending\(^1\) for all countries that are members of the Organisation for Economic Co-operation and Development (OECD) was $2.7 trillion. By 2006, the US alone will be spending $2 trillion. Between 2004 and 2015, healthcare costs in the US are expected to rise from 16% to 20% of GDP.\(^2\) European country spending as a proportion of GDP varies from nearly 8% in the UK to about 11% in Germany (see Fig.1). All, however, expect the increase in the cost of healthcare to exceed their economy’s rate of growth.

Government officials now publicly acknowledge that there is a crisis in Western healthcare systems. In a recent conference speech\(^3\) in the UK, Dame Gill Morgan, CEO of the National Health Service (NHS) Confederation, said, “We have lost grip of finance... our approach has been to take the additional revenue [from central government] and do more of what we have always done rather than doing things differently.”

---

1) OECD, A System of Health Accounts, http://www.oecd.org/document/8/0,2340,en_2649_37407_2742536_1_1_1_37407,00.html
2) Office of External Affairs, Continued slowdown in healthcare cost growth projected, February 2006
3) Managed Equipment Services, 1 March 2006

---

Fig. 1: Health spending as % of GDP

<table>
<thead>
<tr>
<th>1993</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>9.4</td>
</tr>
<tr>
<td>Germany</td>
<td>10.7</td>
</tr>
<tr>
<td>Italy</td>
<td>8.0</td>
</tr>
<tr>
<td>Spain</td>
<td>7.5</td>
</tr>
<tr>
<td>Sweden</td>
<td>8.6</td>
</tr>
<tr>
<td>Norway</td>
<td>10.3</td>
</tr>
<tr>
<td>Finland</td>
<td>8.8</td>
</tr>
<tr>
<td>Denmark</td>
<td>8.6</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>7.7</td>
</tr>
<tr>
<td>United States</td>
<td>9.2</td>
</tr>
</tbody>
</table>

Source: OECD
The relative pressures of demographic change, with proportionately more elderly people (high healthcare consumers) and fewer working age people (who tend to be net contributors to their health services), are universal to all the countries we studied. Additionally, modern, relatively sedentary lifestyles and creeping obesity have led to increasingly early manifestation of diseases such as coronary conditions. Meanwhile the progress of drug treatments has made it possible to keep people alive for longer. All these factors tend to lead to higher healthcare consumption. Moreover, they provide financial challenges that must be dealt with in the short term.

1.2 Financial Pressure – The Funding Crisis – The Advent of Fixed Payments

There has been an intense debate over the last 12 months concerning the ideal combination of state and private healthcare funding. Consensus among the foremost commentators is that the nations studied in this report will see a distinct trend towards co-payment over the next few years. Co-payment, where individuals foot some of the cost of their treatment, already exists to a varying extent in the European countries studied and in the US. This approach seems to be very effective in reducing consumption of health services. It was introduced in Germany in 2004, and has resulted in an 8.7% drop in physician visits. The French approach was similar. Looking at the physician level, the UK, France and Italian health services are all attempting to strengthen and incentivise the physician’s role as gatekeeper to reduce unnecessary referrals and to help patients manage their health better.

Many state-funded national health services (through tax receipts or compulsory social insurance), such as those in the United Kingdom, France, Italy and Spain, are running troublesome deficits, which each country’s administration is unlikely to tolerate in the longer term. The legal status of hospitals in some countries is in the process of being changed so that they can become insolvent. Potential insolvency removes the “backstop” of government, an issue not only for medical services financial managers, but also for financiers assessing the risk of lending to these institutions.

There is a common thread to the way health services in Europe and the US are reforming how funds are granted. The most widely used approach on both sides of the Atlantic is Diagnostic Related Groups (DRG). Standard pricing, or a price range, is established for each ailment or condition and its treatment. Healthcare providers then have to treat patients for this price, or less, whilst meeting rigorous treatment quality standards. This system is designed to incentivise efficiency, creating real financial reward (a surplus in the public sector, a profit in the private sector), as well as transparent evidence (at the individual

4) PricewaterhouseCoopers, Healthcast 2020, October 2005
patient level) in the effectiveness and efficiency with which different treatments are being delivered.

1.3 Technology Issues

1.3.1 Technology Turnover

Technology turnover is an increasing challenge for national economies, in both the private and public sectors. The rush to produce increasingly sophisticated technology has, in the last few years, brought us Broadband, PDAs, mobile applications, web-based tele-medicine and multi-slice MRI (Magnetic Resonance Imaging) scanners. As one German study has noted, “The demand for new ideas and superior therapies is immense: Typically, more than 50 percent of medical device firms’ revenues stem from devices that are less than two years old.”

There is also major pressure on health services to invest in electronic patient record systems and technologies that ensure joined-up treatment across many different providers – not just the traditional divide between primary and acute care, but also the increasingly complex web of commissioned specialised services as each patient’s diagnosis and treatment progresses.

It is worth quoting the Equipment Leasing and Finance Foundation’s findings, as its thoughts are pertinent to all the nations studied in this report. The Foundation notes in its report that “advanced technology is central to the quality of healthcare in the US.” The report is not just making a point about efficiency, but is also highlighting effectiveness – it is thought that 44,000 Americans die each year because of medical errors and incorrect drug dosages.

Happily, the rising costs of diagnostic equipment are to an extent being tempered by the falling cost per unit of technology processing power. In the area of healthcare IT, this is actually pulling down the cost of some activities. Nevertheless, improvements in medical services and, indeed, efficiency (new MRI equipment can perform many more scans per day) that new developments introduce mean that practitioners are anxious to find a way of acquiring new technology just as soon as they can.

Another commentator has remarked on technology replacement cycles that “the rapid advances that continue to occur in the [medical] industry compel many organisations to upgrade their IT equipment every 24-36 months and their medical modalities every 48-60 months.” Such technology turnover may not always be a case of the replacement of a whole unit, but may apply to essential software upgrades.

---

5) Institut für Gesundheitsökonomie, Universität Trier, The Lewin Group, Study on the Value of Medical Devices in Germany, 2000
6) Equipment Leasing and Finance Foundation, Long-term trends in healthcare and their implications for the leasing industry, 2005
7) Institute of Medicine, Crossing the Quality Chasm, 2004
8) T. Trierweiler, Guest Editorial, Medical Imaging, 2004
1.3.2 Technology Access and Competitive Strength

The available cash to make capital investments in the technology that attracts patients and reduces diagnostic and treatment times is shrinking. One study has remarked that “with a share of only 10 percent, medical devices make up only a small portion of total expenditures in Germany’s social health insurance system. Yet some people believe that new medical technology is a decisive factor in increasing healthcare expenditures.”9) As patient/physician choice increases, however, and payment for health service providers is provided on a case by case basis – following the patient – the pressure to have the latest technology with which to provide both effective and efficient treatment mounts. If a medical service provider – public or private – is to create a track record that will attract those all-important patient volumes, then it has to find an affordable method of acquiring technology and managing costs in the long term. And as if that were not challenging enough, the pace of technology turnover means the approach has to allow upgrade periods which do not reflect the traditional health service investment and write-down periods of 10-15 years.

1.3.3 Capital Investment in Technology – The Size of the Challenge

Although there is a wide range of capital equipment that can be usefully financed, from beds to vehicles to microsurgical technology, two main areas will serve to give an indication of the scale of the capital investment challenge. These are major medical devices, where scale advances are being made to technology capabilities every five years; and IT, where the provision and development of a digital backbone to each health service is to a greater or lesser extent already under way.

The main European economies alone currently represent a $31.1 billion market for major medical devices, a figure that is predicted to grow by an additional $6.1 billion over the next five years.10) Germany is the third largest medical device market in the world (6.8% of the global market), behind the US and Japan. When it comes to information technology, a 2005 report from analysts IDC forecast that total IT spending in the western European healthcare sector would grow from $7 billion in 2004 to $10 billion in 2009. The equivalent US figures for healthcare IT expenditures are $48 billion by the end of 2006, rising at a projected 9% to 2008.11)

9) Institut für Gesundheitsökonomie, Universität Trier, The Lewin Group, Study on the Value of Medical Devices in Germany, 2000
10) Espicom, Major Medical Device Markets in Europe, June 2005
11) Forrester, McKinsey
2 Understanding the Healthcare System
Landscape in Europe and the US

2.1 Overview

The minds of many economic strategists are currently occupied with the viability and sustainability of national healthcare systems. Germany is going through a period of fierce price restraint. France has a major budget deficit. The US has the most expensive healthcare system in the world. Sweden has the most rapidly ageing population in western Europe. And the UK is trying to introduce competition through restructuring and a level of private sector commissioning. In Appendix 3 we have summarised the key points of a more detailed comparison of different healthcare systems.

What is abundantly clear is that healthcare demand – and therefore healthcare spending – is rising faster than economic growth. In particular, the rising demands on pressurised capital budgets are suppressing the ability to make capital purchases. Furthermore, the public sector is expected to compete with the emerging private healthcare sector, especially in Germany and the UK; and to compete, it needs the facilities and technologies to improve the quality and efficiency of medical diagnosis and treatment – whether in the general hospital, the doctor’s surgery or the specialist treatment centre. Fixed-price payments for treatments and procedures also put the private sector under pressure to operate efficiently and effectively, or fall into a loss-making spiral.

A generational shift in attitudes to healthcare provision is observable across Western society. The acceptance of authority amongst the baby-boomer generations – the tail-end of which was born in the 1960s – has given way to those born post 1970 who experienced far greater levels of choice, accessibility and availability in all aspects of their life, further fuelled by the technological and communications revolution of the 1980s and 1990s. The demands of consumers who are used to 24-hour, seven-day-a-week service naturally extend into increased expectations and consumption of healthcare.

2.2 Healthcare – Return on Investment

In order to provide a broad indicator of the value that different nations obtain from their healthcare system, the authors of this report combined data on healthcare expenditure as a proportion of GDP, with figures on medical service coverage (physicians/’000, acute beds/’000) and life expectancy. The result was a basic healthcare value model, the output of which is a comparative index (see Fig.2).

Although this model only provides a purely relative measurement, and does not take factors such as diet or pollution into account in interpreting the life expectancy measure, it does reveal some interesting results that are consistent with analyses conducted by the World Health Organisation.
and others.\textsuperscript{12) The US healthcare system, which has inspired much of the radical reforms taking place amongst European nations, nevertheless appears to deliver the least value, according to our model. A contributing factor is the estimated 45 million Americans who do not have medical insurance.\textsuperscript{13)}

Germany’s leading position in our Index of Healthcare Value requires some further reflection. Returning to the index’s methodology, the country’s fierce spending restraint, imposed in 2004, has much to do with its leading index score. Healthcare spending as a proportion of GDP provides a measure not of absolute spending, but provides the first element of measuring affordability of spending on healthcare relative to a country’s rate of economic production. Second, the level of coverage that the system provides for citizens – measured as physicians and acute beds per thousand population – shows that despite the recent fierce curbs and controls that have been imposed on spending, medical facilities remain highly accessible and available in Germany.

\textsuperscript{12) University of Maine, The US Healthcare System: Best in the World; or Just the Most Expensive?, 2001
The limitations of the Siemens Financial Services model should nevertheless be recognised, confining it to a broad indicator of healthcare system return on investment.

2.3 Funding Issues

2.3.1 Frozen Capital

Central to the provision of healthcare technology and IT is better access to flexible capital. However, a proportion of capital is currently “frozen” in European healthcare systems, and is not effectively or efficiently deployed. Frozen capital is defined as capital funding which is radically out of step with the purposes to which it is being applied, and is therefore not delivering value for money.

Technology replacement cycles are shortening and healthcare institutions cannot afford to have an increasingly large proportion of their annual capital budgets tied up in medical equipment and administrative IT.

This section in no way pretends that capital does not need to be raised and serviced to afford capital investments in the latest technology. However, squeezed annual budgets are less and less able to afford such investments out of their yearly allowances. Secondly, there is now a major question mark over the advantages of actually owning capital equipment. Technology tends to advance in sudden leaps. Organisations stuck with previous generation equipment (which they have decided to own and are having to write down over, say, ten years) will find it difficult to attract patients in an internal health “market.”

At the same time, there has been a surge of interest into financing that comes closer to pay-per-usage, with technology simply being regarded as a means to deliver an efficient and effective medical service, divorced from the dogma of ownership. Financing methods that allow the health institution to upgrade to a superior new technology at certain points are therefore gaining in popularity. Such financing requires the presence of financiers who understand technology development paths, and who also have the channels through which to dispose of the older equipment at a reliable and predictable residual value.

In order to illustrate the level of capital “frozen” in this way, the authors of this paper constructed a simple model. Annual spending on medical equipment was combined with a conservative calculation of the equipment broadly considered leaseable or rentable, and then pro-rated for the leasing penetration for each country.

Our model estimated that the US was tying up some €20 billion or more of capital that could otherwise be released for other purposes into the funding stream. In the main European economies, the equivalent amount of “frozen” capital was estimated to be over €10 billion.
If this tied capital could be transformed into an asset-financing plan that (a) simply charged an equipment lease/rental and maintenance cost against revenue budgets, (b) reduced longer-term outlay because the financier retained title and could dispose of the technology on the secondary markets, and (c) introduced the possibility of the medical organisation being able to therefore upgrade their technology in broad line with technology developments without having to write down the full capital cost of purchase, then healthcare financing could start to reflect more closely – at least in terms of its equipment needs – the recent trends in funding and financing structures (see Fig. 3).

2.3.2 “Joined-up Healthcare”

For many and varied reasons, there is no single health service amongst the countries covered in this report that is not actively attempting to create a more joined-up, and therefore more efficient and effective, healthcare system. Some are more advanced than others – witness the French, German, Spanish and Italian smart card initiatives which, in a more or less sophisticated fashion, link the patient to their medical record, and in some cases to co-payment transaction mechanisms. All countries studied are moving in this direction. The United Kingdom has committed £2.3 billion (€3.3 billion) over the last three years (including 2006) to the creation of a “digital backbone” for its NHS, with the aim of integrating patient information at the primary...
and acute care levels. A total of £6 billion (£8.7 billion) is planned for the complete project. Italy and Spain have actively devolved levels of autonomy from the centre to their regional health authorities, a move that necessarily demands greater efforts towards the integration and portability of a patient’s complete medical history. Spain has a similar challenge to match devolution of power with efficiency improvements. These investments include hospital information systems, radiology information systems and PACS (picture archive and communication systems). Yet with operational costs continuing to rise, and healthcare demand also rising, the availability of funds to make such investments is becoming scarcer and scarcer. And this is exacerbated by the fact that the pace of technology development continues to increase, reducing the useful lifetime of any piece of equipment before the next technological leap is achieved.14)

2.3.3 Pay-for-performance and Patient Choice

Rising consumption, combined with a cap on public spending, plus the advent of pay-for-performance funding, have conspired to make medical institutions stand back and consider how they should best operate. Having many hospitals, all providing the full range of services to in-patients and out-patients is at odds with optimal service efficiency. Pay-for-performance tends to reward effective and efficient treatment, and is driving hospitals to develop centres of excellence that will attract patients away from their rival hospitals and private institutions or treatment centres. By the same token, low performing units are under threat, and are being increasingly replaced by outsourced service providers. The private sector has a keen eye on the situation and either offers general hospital services (a long-established situation in Italy and a developing one in Germany) or has set up units that specialise in particular services, ranging from diagnostic imaging centres, to oncology hospitals, to heart centres, to women’s health organisations. Although the intention and need to change towards this charging structure is common to all the countries studied, the pace of change varies widely, from its de facto embedding into the US or German systems, through determined, but as yet untested, first steps in the UK, to its early debate in much of Scandinavia. Nevertheless, the eventual structural effect in all the health services studied is – or will be – a trend towards cost awareness and operating efficiency, perhaps most starkly in the German system.15)

Transparency is a prerequisite of the idea of patients and their physicians having a range of choice about where to receive

14) It is important to note that the process cannot take place overnight. IBM – in various documents – describes three stages: activation over the next three years where clients will invest in clinical information systems (to get a better idea on ROI) and automated process tools; stabilization & standardization of data in years 4 to 7; convergence in years 7 to 10.

15) Dresdner Bank, Hospitals walking a tightrope between reform pressure and financial straits, July 2005
treatment for a particular condition. In all the countries studied, patient choice is now the norm – to a greater or lesser extent. When put hand-in-hand with the increasingly mandatory performance data reported by medical establishments (evidence related to the system of Diagnostic Related Group (DRG) funding) it is possible to construct performance tables by institution and by treatment. In the US, this phenomenon is highly developed, with websites (such as americanhospitals.com) providing this information for the healthcare consumer. As a result, public and private hospitals, as well as specialist treatment centres, have had to adopt the process of marketing their strengths in order to attract patients and the funds that now accompany them. This competitive environment is also felt to be conducive to efficiency and effectiveness. Patients will go to treatment organisations most likely to give them the best treatment, and in turn those organisations can only fund, build and improve excellence of service if they are able to conduct the treatment for the available funding, or less if possible.

2.3.4 Outsourcing

The financial pressure to meet budgetary constraints has led to another phenomenon common to all healthcare systems covered in this study – namely, a willingness to outsource the delivery of some services. This is not restricted to administrative or information services, but now stretches to diagnostic analysis. Outsourcing can be to a third party provider on home territory, in “nearshore” countries (typically EU accession countries for western European health services), or completely offshore (India, South Africa, Philippines) – although there are severe restrictions in some legislatures about exactly what can be offshored or whether this is allowed with medical services at all. Moreover, it should be emphasised that although outsourcing affects core medical services it is expected to have even more impact in administrative support services, where IT is being used to introduce critical efficiencies. Some commentators have remarked that the growing popularity of outsourcing rests in the ability to pass over delivery and responsibility of difficult-to-meet service standards and financing. Whatever the motivation, however, growth in third party provision appears to have taken hold.

2.3.5 The Cost of Prescription Drugs

This paper is mainly concerned with developments in medical technology finance – an area where there is considerable scope for efficiency and effectiveness gains. However, it is also necessary to briefly touch on related areas where financial pressure is also mounting, but where only longer-term radical strategies for managing demand can alter the current trend. These less tractable areas of healthcare finance only serve to redouble the pressure for achievable change in medical technology finance. The range, variety and specificity of drugs being developed and marketed to the
healthcare systems in Europe and the US has grown exponentially, providing many people with life-saving treatments. However, there has also been an escalating cost associated with this phenomenon, which has only partially been brought under control by stricter purchasing and supply rules. The reality can be seen in the sums associated with the growing use of prescription drugs – preventive and treatment – in the US and in Europe. From the mid-1990s, sales of drugs have increased 10% per year in the US, reaching total sales of $250 billion in 2004. We are told by the Equipment Leasing and Finance Foundation that pharmaceutical sales in North America are approximately the same as petrol sales – an annual “top-up” for each US citizen of $850.\(^{16}\) There is a parallel problem with the soaring cost of drugs in specific European countries. When figures on pharmaceuticals costs as a proportion of all healthcare spending are examined, then Italy, Spain and France stand apart from the crowd, with drug expenditure proportions at 22.1%, 21.8% and 20.9% respectively. This is in great contrast to the UK (15.8%), Germany (14.6%) and Sweden (13.1%), and even these more drug-prudent economies exceed the US (12.9%). The rising cost of pharmaceuticals is a universal problem, but there will be a scale difference in the pressure felt by the romance-language countries of Europe unless radical measures are taken to optimise consumption.

\(^{16}\) Equipment Leasing and Finance Foundation, Long-term trends in healthcare and their implications for the leasing industry, 2005
3 Alternative Finance – The Underutilised Resource

3.1 Challenges for Financiers

For financiers providing funding for medical equipment, care equipment or IT infrastructure, the changing financial status of the industry players poses major challenges. The US and Germany have experienced incidents of hospital insolvencies. This has profound implications for the financiers in assessing risk and recourse in a financing opportunity. In state-funded systems, the risk guarantee inherent in being a government body makes the risk gilt-edged. Peter Krause, International Program Manager, Healthcare, at Siemens Financial Services in Germany, notes that “an ongoing restructuring can also be observed in the hospital sector in Germany, occurring at an accelerated rate where: (a) the number of private hospitals is rising; and (b) the decrease in the number of hospitals and beds in public ownership is due largely to the downsizing and closure of small hospitals. The winners of this restructuring process, the private hospitals, often belong to large hospital chains with very professional finance and purchasing departments and processes that require a different level of cooperation.”

Jim Fuller, from Siemens Financial Services in the US, extends the argument: “The current phase of infrastructure shake-up in the healthcare systems covered in this report makes it critical for financiers and their customers to keep a very close eye on all sorts of factors, including legislative changes, tax status, corporate legalities, and tax-reclamation allowances. At the moment, financiers are simply re-assessing their customers’ circumstances in the light of all these changing factors on a regular basis. As the marketplace for medical service provision – onshore and offshore – becomes more crowded and competition increases, financial performance track records will be more closely observed, and statistical models will be built to refine the credit assessment process. This will benefit financiers and their customers alike.

3.2 Financing Tools

It is financing solutions such as leasing, renting, hire-purchase, ‘tech-refresh’, receivables securitisation and public-private partnerships (PPP) that are rapidly coming to the rescue for the medical services financial manager. Public sector and private sector providers face similar pressures and they all share the need to finance capital expenditure so that they can compete effectively in the new health services regimes.

Of course, equipment financing and PPP finance are poles apart, except insofar as they transfer the supply and risk of capital to the private sector. Equipment financing through leasing or other asset-financing & renting techniques simply spreads the cost of acquisitions, increases upgrade flexibility and minimises the risk of technology obsolescence, secures (often) capital allowance tax breaks, and leaves the residual value of the equipment at the financier’s risk. Public-private partnerships, on the
other hand, involve private sector equity and a far greater sharing of risk by private financiers.

One independent commentator has observed that “leasing is the most favoured technology financing option in France, Germany and the UK and all countries are showing positive signs of increasing uptake in alternative financing methods.\(^{17}\)” This is corroborated by, for instance, news from Germany’s Ifo Institute that equipment leasing experienced 9% growth between 2004 and 2005.\(^{18}\) The same commentator also notes that “traditionally, it has been high-priced items that have seen the largest use of leasing arrangements, but this is not always the case. With regard to apheresis systems... with a capital cost of $30,000, the market is extremely good. In Germany, the majority of systems are placed by rental or lease arrangements... and the same goes for France and Spain.” In the US, the Equipment Leasing Association tells us that diagnostic imaging equipment accounts for more than 50% of all healthcare financing, and that healthcare equipment leasing has grown twice as fast as the overall leasing industry in the US.\(^{19}\)

\(^{17}\) HBS Consulting, Alternative Financial Solutions for Medical Technology Acquisition, 2005
\(^{18}\) Ifo Institute, Business Survey in Leasing, December 2005
\(^{19}\) Equipment Leasing and Finance Foundation, Long-term trends in healthcare and their implications for the leasing industry, 2005
4 Asset Financing – Case Studies

4.1 Germany

- Hire purchase

**Medical Centre Dr Neumaier and Colleagues / Regensburg**

The medical centre Dr Neumaier and Colleagues run in Regensburg, Germany, offers its patients diagnostic options that extend far beyond traditional methods of treatment. More than almost any other medical specialists, radiologists rely on the latest technological equipment. This is why Dr Neumaier decided as early as five years ago to finance imaging systems through Siemens Financial Services. And the radiologist has chosen this method of financing over and over again.

His most recent investment is the latest-generation magnetic resonance tomograph (MRT). The Magnetom Trio scanner from Siemens Medical Solutions offers an extremely high magnetic field force (3 tesla), which produces unprecedented quality and, as a result, assures the diagnostic usefulness of the MRT images. Patients then can receive the best possible treatment, and the throughput of patients can be improved. “I think it is very important for as many people as possible to benefit from medical progress,” Dr Neumaier says.

“It is important to us that we receive the technology and the financing from a single source. This particular deal was structured as a hire-purchase arrangement where ownership transfers to us at the end of the financing term. As such, the equipment is immediately on our balance sheet so that we can claim all available tax breaks and allowed depreciation. The customary fast and smooth handling of our financing requests and the option of financing the value-added tax gives my practice much-needed budgetary freedom. As a doctor, this allows me to concentrate even more closely on my patients.”

- Combined Technology and Financing Package

**Filder Cardiac Centre / Esslingen**

For several years now, cardiologist Dr Ulrich E. Borst has operated the Cardiac Centre in Esslingen, Germany, as an independent business. In the summer of 2005, he also concluded an agreement with the Paracelsus Hospital in Ostfildern-Ruit. The arrangement gave him and his designated partner, Professor Dr H. Hanke, the opportunity to offer special independent cardiological services to patients and the hospital – the Filder Cardiac Centre was born.
To start with, a number of investments in medical equipment were necessary. One indispensable piece of equipment was a heart catheter measuring site. The winning bidder – Siemens Financial Services – offered a combined technology and financing package, while taking into account the association with the Paracelsus hospital to offer suitable credit terms. The centre ordered the system and was then able to use the asset financing facility to acquire additional medical equipment made by other companies than Siemens, so far to an asset value over half a million euros. This now includes an electrophysiological measuring site, an imaging network, and a computer system for reports, material management and external quality control. The financing arrangement also allows equipment to be upgraded at periodic points.

4.2 United States

Structured Term Loans

Catholic Health System (CHS)

Catholic Health System (CHS), a major healthcare provider in the US with 8,000 employees and 1,200 physicians, needed to upgrade its hospitals with the latest technology to better serve its patients. Siemens Financial Services, Inc. provided two term loans totalling $29 million for CHS. These term loans served two of the system’s four hospitals and the financing was structured to provide customized pricing, collateral, and repayment terms to meet the unique borrowing needs of CHS. The proceeds were being used for renovations and to refinance existing debt which allowed CHS to enter into a strategic alliance agreement with Siemens Medical Solutions. Under this agreement, CHS will purchase approximately $100 million of medical equipment and software from Siemens.

Jeff Baughan, Vice President of Information Technology for CHS, said the agreement provides for future new equipment while keeping costs under control. “Some of the future systems are just on the drawing board now,” he said. “It’s a way to buy today’s technology and enable you to continue to upgrade it while managing your investment.”

“Critical to this alliance is Siemens’ unique ability to help CHS develop a truly integrated electronic health record,” said Joe McDonald, CEO of CHS. “With our dedication to personal care, and Siemens’ technology and workflow expertise, I am confident we will raise the bar in healthcare delivery both regionally and nationally.”
4.3 Spain

- Rental arrangement with flexibility for equipment upgrade

*Hospital de Madrid / Centre of Excellence in Oncology*

There are three private general hospitals in Madrid with a fourth now under construction – the Hospital de Madrid. This latest hospital is a centre of excellence in oncology and has incorporated the very latest oncological diagnosis and treatment technology. The hospital group’s directorate and management made a strategic decision that if their centre of excellence (they have achieved ISO 9002 and ISO 14001) was to be maintained, then it must continue to have affordable finance for equipment and upgrades that kept it in the forefront of its field.

Renting and leasing held significant tax advantages over bank borrowing; the renting route was suggested by Siemens Financial Services. The latest acquisition is a sophisticated MRI scanner, and the rental arrangement in place leaves the flexibility for equipment upgrade or renewal at specified points in the rental period, as well as the option to buy at a pre-agreed residual value. Flexible finance is just one tool that the hospital is using to maintain and build its reputation for quality and excellence.

4.4 France

- Operating Lease Arrangements with Upgrade Flexibility

*Centre d’Imagerie Médicale Sainte Marie, Osny*

The Centre d’Imagerie Médicale Sainte Marie, based in the Parisian region, has been financing its major equipment purchases through Siemens Financial Services since 1994, spanning MRI scanners, ultrasound, radiology equipment, and more. As an independent imaging centre, obtaining equipment out of capital expenditure would not have been economical. “Today, in the private medical sector, the use of asset financing, and particularly operating leases, is becoming increasingly standard,” notes Dr Valentin, the Centre’s Director. “We are a specialist organisation, and so it is imperative for us to offer the highest quality imaging capabilities using the very latest equipment. We were the first organisation in France to acquire a multi-slice MRI scanner. But we have no desire now to own this equipment, just to have use of it to provide the services we offer.”

Mr François Yon, Financial Director of the Centre, adds, “Operating leases are the ideal financing vehicle, especially since we wrap up equipment, maintenance, insurance, and so on into a single 360° arrangement which ensures that we have a reliable fixed monthly outlay. We also remain free to upgrade or change our equipment if – as
happens – a technological breakthrough occurs, rather than being burdened with having to get rid of obsolete equipment. This kind of financing is simple to understand, and flexible in the face of change. And when compared with other financial methods, it remains competitive.”

4.5 United Kingdom

Leasing Arrangements with Tech Refresh

Mid-Cheshire Hospitals NHS Trust

Mid-Cheshire Hospitals NHS Trust has been leasing equipment using Siemens Financial Services since 1996, and now most of the equipment it needs is leased rather than bought. Clive Mosby, Head of Procurement at Mid-Cheshire, says the capital value of the equipment it leases is approaching £12 million but the annual payments amount to £1.5 million. “You can lease practically anything,” he says, “and it can often be better value than buying from capital funds. We don’t have depreciating assets on our balance sheet, so they are not subject to the external financing limit and do not attract capital charges.” But perhaps the biggest benefit is that the equipment is refreshed more regularly and maintenance and downtime have been cut.

Bedford NHS Trust

Tom Devine is Buying Manager at the Bedford NHS Trust in the UK, and a customer of Siemens Financial Services. He has seen a fundamental change in the financial pressures on organisations such as his. The Trust currently spends 25% of its maintenance outlay on ageing radiology equipment. Mr Devine observes, “The pace of change with radiology equipment is phenomenal – four times faster than 10 years ago and continuing to accelerate. In this regard outright purchase makes no sense. Acquiring medical equipment on some sort of lease structure delivers fixed costs, guaranteed availability, and properly planned replacement.”

“Leasing instils, forces almost, a better financial discipline. It also encourages a more strategic approach to asset management. Rather than waiting until the asset is dead and being forced into a rush decision, you are looking at replacing well before, properly evaluating all options and costs.”
4.6 Norway

■ Structured Finance Lease

*Telemark Röntgen Senter (TRS)*

Telemark Röntgen Senter (TRS) is a privately owned company with medical practices at several locations in Norway. In spring 2004, a need for three additional x-ray machines emerged. TRS decided on the Magnetom Avanto MR machine accompanied by an intelligent financing arrangement from Siemens Financial Services.

TRS had some preferences with regard to the financing structure. The company wanted to pay down the value of the purchased equipment as much as possible during the five-year deal, giving TRS a lower residual value after the end of the financing term. The company wanted the equipment to move onto its own books as soon as possible. TRS agreed on a finance lease structure for the deal, covering some €3 million.
5 Conclusion

In conclusion, despite their widely differing financing structures and public-private balance, the healthcare sectors in the US, Germany, the UK, France, Italy, Spain and Sweden all share the challenge of increasing financial pressure. The sources of this pressure variously encompass: withdrawal of state funding; ageing populations; changing lifestyles and expectations, shortening technology obsolescence cycles; pay-for-performance; competition within and without the public sector for medical service provision; and rising tendencies to consume healthcare in developed economies. The solutions to stop healthcare provision spinning out of financial control, yet maintain equitable, high-quality healthcare services, are complex. However, one main area, whilst by no means the whole answer, can be addressed here and now by medical services providers – namely increased use of modern financing techniques to make essential capital investments in IT and technology.

Worldwide, healthcare providers would benefit considerably from some internationally consistent benchmark of the return on investment that the different healthcare systems deliver so that progress in producing high quality, but affordable, healthcare can be measured, tracked and compared. This paper has made a basic start in calibrating healthcare system return on investment with its Index of Value. Experts in healthcare system management are encouraged to take this calibration forward to a more refined stage, if the goal of economically sustainable, high quality healthcare is to be achieved over the next decades.

Finally, it cannot be regarded as efficient to retain a capital burden on the state if there are real alternatives. Over €30 billion of unnecessarily tied-up capital could be otherwise deployed, benefiting European and American society. And in Europe alone, €10 billion of taxpayers’ and private companies’ money should not lie inefficiently frozen in medical equipment assets that are likely to be technologically superseded in a few years’ time. Flexible financing has been the key to many economic miracles of the last century. In this new century, healthcare system reformers need to grasp asset-financing techniques so that they can afford to devote scarce working capital to improving their institution’s service quality and efficiency. The authors of this paper hope that it will provide the first steps for other expert organisations to follow in extending the analysis and discussion of an issue which is fundamentally affecting all Western economies.
6 Appendices

Appendix 1 – Principal Sources

- Organisation for Economic Co-operation and Development (OECD)
- US Office of External Affairs
- Population Reference Bureau
- American College of Cardiology
- US Department of Health and Human Services
- UK Trade and Investment
- UK Department of Health
- Healthcare Financial Management Association
- World Health Organisation
- American Academy of Family Physicians
- IBM
- Dresdner Bank
- XMG
- Federal Statistical Office (Germany)
- Office of National Statistics (UK)
- Fedstats (US)
- Statistics Sweden
- Statistisk Sentralbyrå (Norway)
- Statistics Finland
- Danmarks Statistik
- INSEE (France)
- Instituto Nacional de Estadística (Spain)
- ISTAT (Italy)
- Amicus
- Epsicom
- Kable
- PricewaterhouseCoopers
- Strunk & Ginsburg
- Equipment Leasing and Finance Foundation
- Institut für Gesundheitsökonomie
- Universität Trier
- University of Maine
- The Lewin Group
- Institute of Medicine
- Medical Imaging
- Siemens Financial Services
- Eucomed
- Forrester
- McKinsey
- The Economist
- The Financial Times
- HBS Consulting
- Ifo Institute
- Leaseurope

Disclaimer:
The information contained herein is from sources considered to be reliable. However, accuracy and completeness are not warranted, nor opinions and analysis based on those sources.
Appendix 2 – Additional Healthcare Indicators

**Fig. 4: Public expenditure as % of total healthcare**

![Chart showing public expenditure as a percentage of total healthcare for various countries from 1993 to 2003.](chart)

Source: OECD

**Fig. 5: MRI scanners per million population**

![Chart showing MRI scanners per million population for various countries from 1993 to 2003.](chart)

Source: OECD (no data on Norway)
Appendix 3 – Healthcare Systems – Country Profiles

Germany
- Population: 82 million
- Government share of total health spending: 78.5%
- Financed through a combination of statutory and private health insurance
- Treatments costed on a Diagnostic Related Groups (DRG) basis
- Modest co-payment regime
- Oversupply of hospitals
- Decentralised healthcare
- Subcontracting by public system to private clinical service providers
- Legal limits on budget deficit by healthcare providers

France
- Population: 60 million
- Government share of total health spending: 76%
- Financed through a combination of statutory and private health insurance plus a small social security funding element
- Treatments costed by the public healthcare system which pays the healthcare provider directly
- Increasing co-payment regime
- Mixture of centralised and decentralised healthcare provision
- Some subcontracting by public system to private clinical service providers
- Annual budget targets set by central authorities, but government remains backstop for deficit

Italy
- Population: 57.5 million
- Government share of total health spending: 75.6%
- Financed through tax receipts and private health insurance
- Co-payment is required for all treatments, except for: chronic illness, tax-exempt patients, over-65s, unemployed and low-income
- Largely decentralised healthcare
- Subcontracting by public system to private clinical service providers – patient choice
- Annual budget targets set by central authorities, but government remains backstop for deficit

Spain
- Population: 41 million
- Government share of total health spending: 71.3%
- Financed through tax receipts and private health insurance
• Virtually no co-payment
• Totally decentralised, regionally governed healthcare
• Nascent subcontracting by public system to private clinical service providers
• Annual budget targets set by central authorities, but government remains backstop for deficit

Sweden
• Population: 9 million
• Government share of total health spending: 85.3%
• Financed through tax receipts and minimum amount through private health insurance
• Equipment funding on annual budget basis with investment budgets and normal operational budgets
• Some co-payment to encourage more efficient usage of services, but capped at levels now felt to be somewhat in need of reappraisal
• Regionally governed healthcare, with decentralised hospitals and smaller healthcare organisations
• Little subcontracting by public system to private clinical service providers. Conservative political bodies encourage increase in outsourcing while Social Democrats are against this practice
• Annual budget targets set by regional healthcare units, and local budgets are set for each local healthcare unit. Government remains backstop for deficit

Denmark
• Population: 5.5 million
• Government share of total health spending: 82.9%
• Financed through local tax receipts and private health insurance
• Primary care providers reimbursed through mix of quarterly capitation and pay-per-treatment
• Virtually no treatment co-payment
• Regionally governed healthcare, with decentralised hospitals and smaller healthcare organisations
• Virtually no subcontracting by public system to private clinical service providers
• Annual budget targets set by regional healthcare organisations, and local budgets are set for each local healthcare unit. Government remains backstop for deficit

Norway
• Population: 4.5 million
• Government share of total health spending: 83.5%
• Financed through tax receipts, and a small part coming from taking on own risk
• Experiences a shortage of doctors
• Funding by annual budget
• No substantial co-payment
• Totally decentralised, regionally governed healthcare divided into five regions (South, East, West, Mid and North)
• A developed subcontracting market to private sector because of the country’s waiting list guarantee
• Government backstop for budget deficit in process of removal

**Finland**

- Population: 5 million
- Government share of total health spending: 75.7%
- Financed through tax receipts
- Funding by annual budget
- No substantial co-payment
- Mainly decentralised, regionally governed healthcare, but with some central delivery retained by KELA (central health authority)
- Little subcontracting to private sector except by central authority for services such as rehabilitation
- Government backstop for budget deficit

**United Kingdom**

- Population: 59 million
- Government share of total health spending: 83.4%
- Financed through tax receipts
- Currently undergoing partial privatisation
- Treatment costs determined by central authority under new Payment by Results regime
- No substantial co-payment
- Former centralised system now decentralised to local trusts which not only have self-governance but also are becoming financially independent of government
- Subcontracting to private sector in early stages
- Government backstop for budget deficit in process of removal

**United States**

- Population: 294 million
- Government share of total health spending: 44.9%
- Financed through private medical insurance (paid by individuals or employers) plus tax funded help for the elderly, infirm or poor
- 45 million Americans have no health insurance
- Treatment reimbursement levels are controlled by negotiation across a variety of drug lists/formularies, prescription limits, coverage and payment decisions, and prior authorisation programmes. Universally agreed DRG-based levels apply for in-patient treatments
- Decentralised healthcare
- Medical institutions are financially independent. They can, and do, become bankrupt
Appendix 3 – Medical Technology Markets

Fig. 6: Major medical devices market – selected European countries

<table>
<thead>
<tr>
<th>Country</th>
<th>$ billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>10.7</td>
</tr>
<tr>
<td>France</td>
<td>4.7</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>4.5</td>
</tr>
<tr>
<td>Italy</td>
<td>4.4</td>
</tr>
<tr>
<td>Spain</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Source: Espicom

US Medical Imaging

The medical imaging equipment market in the US will register gains of 7.6% per year through 2008 to $9.5 billion, faster than projected growth in national health expenditures. (Freedonia Group, Medical Imaging Equipment, 2004)

European Healthcare IT

According to a new study by IDC, IT spending in the western European healthcare sector is expected to grow from $7.8 billion in 2005 to more than $10 billion in 2009, with average growth of 6.7%. This will have a positive impact on patient safety and satisfaction and also on costs, as it will slash expenditures connected to longer hospitalisation, duplication of tests, and litigation. (IDC, Western European Healthcare, 2005)

Global Ultrasound

The upgrade of ultrasound imaging systems to embrace new technology that expedites hospital workflow will be a major source of growth for manufacturers of this equipment. In addition, the increase in use of 3D/4D technology by new user groups in increasing market revenues. InMedica forecasts that global unit shipments of ultrasound equipment will grow at a compound annual growth rate of 9.3% over the next five years. (InMedica, World Market for Ultrasound Imaging Equipment, 2005)

Technology Turnover

Innovations in medical devices are constantly being introduced and rapidly adopted, which poses a strong threat to traditional medical devices. (Frost & Sullivan, Key Hospital Purchasing and Reimbursement for Medical Devices in Western Europe, 2006)

European Medical Devices

The seven main countries in Europe represent a total market value of US$31.1 billion, which is expected to grow by US$ 6.1 billion over the next five years. (Espicom, Major Medical Device Markets in Europe, 2005)
Appendix 4 – Equipment Leasing

Fig. 7: Leasing penetration as % of all assets – in Europe and the US (in %)

Source: Lease Europe / Equipment Leasing Association

Fig. 8: Likelihood of using leasing to purchase medical equipment

(scale of 1-10, where 1 = very unlikely to use leasing, and 10 = very likely to use leasing)

Source: HBS Consulting, 2005
This brochure provides solely general, non-conclusive information. It contains all the information available when we went to press and can change at any time without prior notice. The contents of this brochure in no way represent an offer to conclude a contract.

© 2006 Siemens Financial Services GmbH

Published by:
Siemens Financial Services GmbH
Strategy, Corporate Development & Communications (SCDC)
80312 Munich, Germany

Phone +49-89-636-36070
communications.sfs@siemens.com

Order No. L1-Z 556
Information supplied on:
July 2006
(unless stated otherwise)

www.siemens.com/sfs