

# *Build and Beyond:* The (r)evolution of healthcare PPPs

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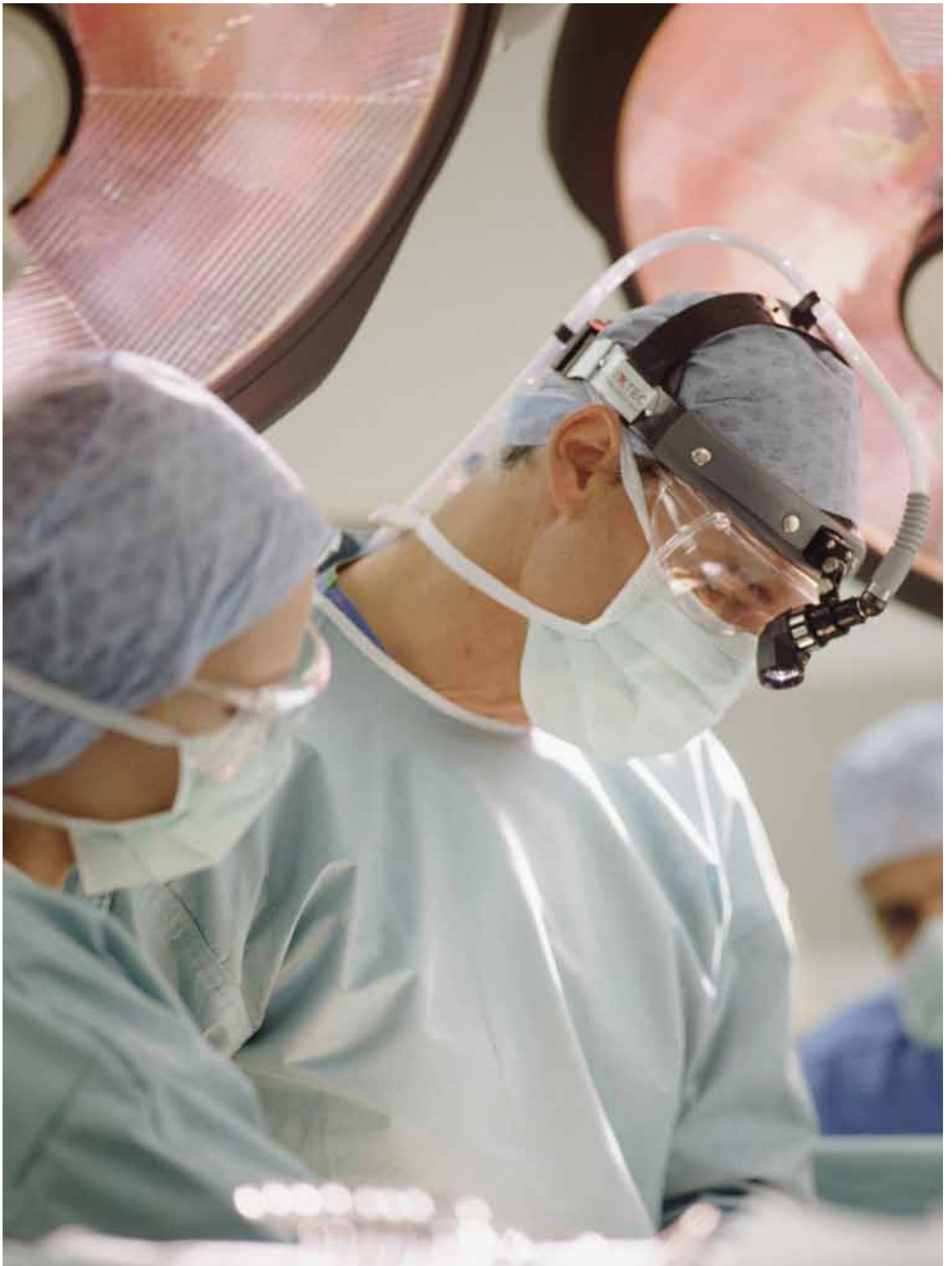




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## *Heart of the matter*

There is no country in the world where healthcare is financed entirely by the government. While the provision of health is widely recognised as the responsibility of government, private capital and expertise are increasingly viewed as welcome sources to induce efficiency and innovation. What is less clear, however, is the appropriate balance of public to private resources in financing and managing health. Debates on this topic are laced with discussions about various structures that ensure the best possible return for both taxpayers and the private sector.

One such structure is a public-private partnership (PPP). Building on two decades of experience in PPPs for health infrastructure, governments are increasingly looking to this model to solve larger problems in care delivery and wellness. As PPPs move from replacing crumbling inpatient structures to managing care delivery, the impact on overall costs is far more substantive and sustainable. However, wrestling down the rapid pace of medical costs adds a higher level of difficulty and complexity.

As we describe in this report, PPPs can evolve to bend the cost curve. Across the globe, these partnerships are being crafted to make government and private industry more accountable for maintaining each nation's most precious national resource: the health of its citizens.



## Key findings

- Government spending on healthcare is growing at a pace that is likely to be unsustainable unless new funding sources are found.
- Following a global recession, governments are increasingly looking to PPPs to solve larger problems in care delivery and wellness that are driving spending.
- The larger scope of PPPs means a much larger potential market for private organisations. Infrastructure represents only 5% of health spending. According to PwC estimates, the OECD and BRIC nations will spend \$3.6 trillion on infrastructure between 2010 and 2020. However, health spending beyond infrastructure—which represents 95% of health spending—will total more than \$68.1 trillion. This huge spend will become a target for government efficiency and create a market for private organisational investment and management.
- The measurements of success in PPPs are evolving toward health outcomes and performance. Healthcare infrastructure PPPs are more focused on better procurement and value for money.
- In service delivery, PPP arrangements open broader conversations about how to create and maintain locally-based sustainable health systems. Governments typically agree to build in profit margins to induce private sector involvement. Competition and later reductions in government payments are then used to generate long-term savings and improve quality.
- PPPs are increasingly developed by local, rather than national governments, that are closer to local health needs. However, national governments are important to setting a policy framework that enables local regulations.
- Technology was often left out of PPP infrastructure deals, but is central to the new generation of PPPs in which manufacturers are often risk partners themselves, as service delivery becomes more integral to PPPs.
- PPPs are challenging the notion that private healthcare is for the rich, and public healthcare is for the poor. Rather than creating or exacerbating inequities in care, PPPs can equalise care to all populations.

## An in-depth discussion



## The (r)evolution of healthcare PPPs

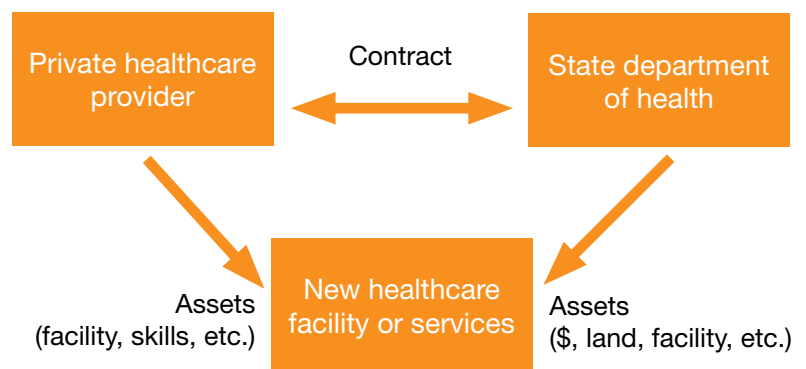
After two decades of experience, PPPs are worthy of examining in the historical and future prospects of PPPs in healthcare. PPPs are now delivering far more than buildings. This report tracks the evolution of the PPP models, but more importantly seeks to explore how the capital and operational structure provided by PPPs can be leveraged more broadly to address government demands for greater efficiency in health spending.

During the 1990s, the United Kingdom was fertile ground for PPPs in healthcare since the government had vastly underinvested in its National Health Service (NHS) hospitals. As a result, nearly every new NHS hospital—approximately 100 buildings in 12 years—was built as a PPP in the U.K. It is unlikely that the NHS, the world's largest single payer health system, could ever have taken on such an aggressive construction campaign without partnerships that became known as the Private Finance Initiative (PFI). These projects focussed on providing infrastructure and associated support services such as maintenance, while the public sector continued to be responsible for all clinical services.

The concept spread to other countries, and the PFI model developed its own cadre of expertise as bidders and the public sector improved on the process. PPPs were not without criticism and some well-publicised failures in Australia, Japan, Italy and other locales allowed sceptics to point to the flaws of “privatising” healthcare. Yet, important lessons emerged, and the PPP model was continually refined and altered.

What is a PPP? The acronym creates semantic turmoil over what it means and does not mean. In essence, PPPs are a collection of models. One such model is the PFI model in which the private sector is contracted to rebuild or replace a public asset and maintain that asset for 20 to 30 years. However, PFIs are merely one type of PPP model. PPPs are defined as a broader partnership between private contractors and government, in which the common characteristics are that the public sector contracts (usually on a long-term basis) with the private sector for the provision of a public service. (See Figure 1.)

Figure 1: Generic healthcare example



The PPP market has traditionally been measured by deal size or funding raised for a new facility. By that measure, PPPs are expanding their footprint; 2010 has seen record-setting PPP deals across three continents. This alone indicates a strong appetite for financing the hospitals of the future with private capital:

- **Europe:** \$4 billion in hospital PPP deals in Europe were announced during the first half of 2010, according to Infrastructure Journal. The biggest deal, €1.5 billion, 700-bed Karolinska in Stockholm, Sweden, is estimated to be the largest hospital PPP in the world. Another large project, New Hospital de Vigo, Galicia, Spain is a €375 million, 1,465-bed hospital.
- **North America:** British Columbia, Ontario, and Quebec have completed \$10 billion in healthcare PPP projects in the last five years. In 2010, McGill University Hospital project in Montreal reached financial close. At \$1.3 billion, it will be North America's largest hospital PPP and is expected to open in 2014. In Mexico, 22 states now have PPP regulations in place, and the remainder are in the process of approving theirs.
- **Africa:** The largest health PPP in Africa was announced—the revitalisation of what officials claim is the biggest hospital in the world, 2,964-bed Chris Hani Baragwanath Hospital, as the South African government announced a revitalisation of PPPs.

Although these landmark deals remain largely dominated by infrastructure projects, what is also becoming clear is that infrastructure PPPs are rapidly expanding the market for private capital and expertise in health. PPPs are now delivering far more than buildings. For example, they are delivering malaria vaccines in Africa, primary care services in Valencia, Spain and access to cancer treatment in Germany. In an important step forward, the NHS leveraged the PPP model in 2003 to stretch beyond new construction and into clinical services. This step accomplished the goal of reducing unpopular waiting times, and encouraged the government to consider PPPs more broadly. “The fact that infrastructure PPPs were a success gave government confidence that the private sector could deliver,” said Peter Coates, commercial director procurement, Investment and Commercial division at the Department of Health in England. “PFI was a necessary evolutionary step in working with the private sector starting with the building assets to the provision of services.”

Competition for private capital has prompted governments in Europe, Asia, Africa, and southeast Asia to staff and fund PPP units. Although many have room for improvement, these agencies are specifically tasked with creating the framework to develop

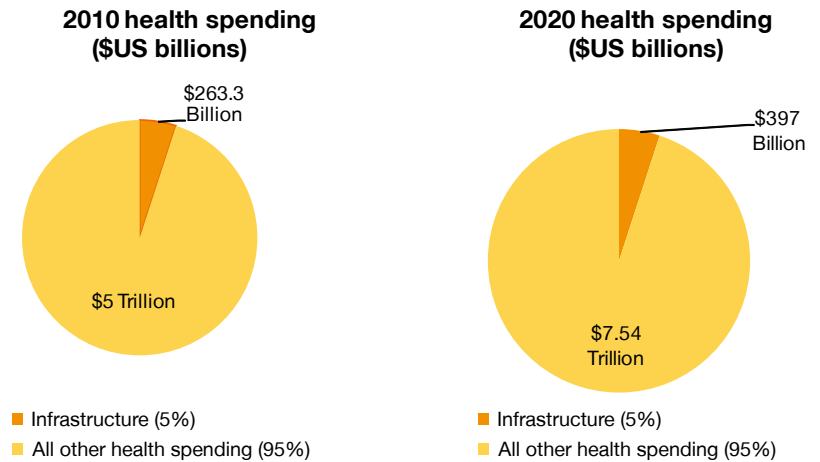
PPPs and speed up negotiations with the private sector by streamlining procurement and standardising contracts. In countries as small as Bangladesh and as large as China, interest is high in developing private hospitals and health systems that can improve care and control spending, yet remain under government oversight.

Partnerships like Spain's Alzira project, which includes hospital and primary care services, have saved government 25% of the cost of providing care. “The world's health systems will, within the next 15 years, find themselves in an unsustainable situation if they do not carry out a number of important changes in their health policies,” said Alberto de Rosa, general director of the Ribera Salud Grupo, one of the partners in the Alzira project. “Our particular challenge is to introduce the necessary reforms to improve flexibility, productivity, efficiency and innovation of the healthcare system, to face up to the global challenges.”

As the scope of partnership projects in healthcare grows, so too does the size of the potential market for private organisations. By 2020, infrastructure spending for OECD<sup>1</sup> and BRIC (Brazil, Russia, India, and China) nations will increase to \$397 billion, according to PwC estimates. However, the larger market will be in non-infrastructure spending, estimated to be more than \$7.5 trillion in 2020. See Figure 2.

Figure 2: Sizing up the market: Health spending for OECD, BRIC nations

## Sizing the trillion-dollar market for PPPs in healthcare



Source: PricewaterhouseCoopers' estimates. Projections calculated using 2010 US dollars, GDP forecasts from World Bank, and PwC projections of country specific spending based on most recent health spending growth.

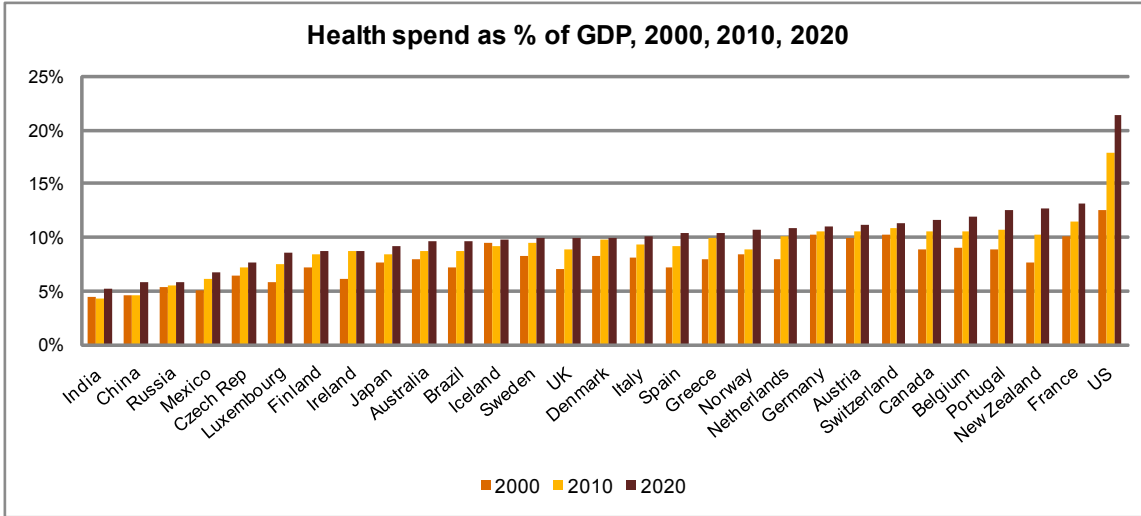
Between 2010 and 2020, the cumulative amount spent on healthcare infrastructure is estimated to be \$3.6 trillion, according to PwC projections. However, cumulative health spending beyond infrastructure is estimated to total \$68.1 trillion during that period, indicating an enormous and largely untapped market for private organisations to assist governments to improve both the efficiency and quality of their healthcare systems. Health spending in the US accounts for approximately half of all health spending among OECD nations, but the biggest growth will be outside of the U.S. According to PwC projections, the countries that are expected to have the highest health spending growth between 2010 and 2020 are China (166%) and India (140%).

As Figure 3 shows, health spending will expand, putting pressure on governments and spurring them to look for private capital and expertise. In fact, healthcare will grow much faster than GDP in the coming years, as shown in Figure 4. For OECD countries, health spending as a percent of GDP will increase to 14.4% in 2020, up from 9.9% in 2010, according to PwC estimates. The BRIC nations are expected to experience even stronger growth in health spending, as their economies grow and they build out their health systems. Health spending as a percent of GDP is expected to grow from 5.4% in 2010 to 6.2% in 2020. In actual spending, this amounts to a 117% increase in spending over the decade, with China leading the way.

<sup>1</sup> OECD is the Organisation for Economic Cooperation and Development, which includes 33 countries. PwC modeled spending projections for 25 OECD countries. Chile, Estonia, Hungary, Israel, Korea, Slovak Republic, Slovenia and Turkey were excluded because of a lack of historical data.

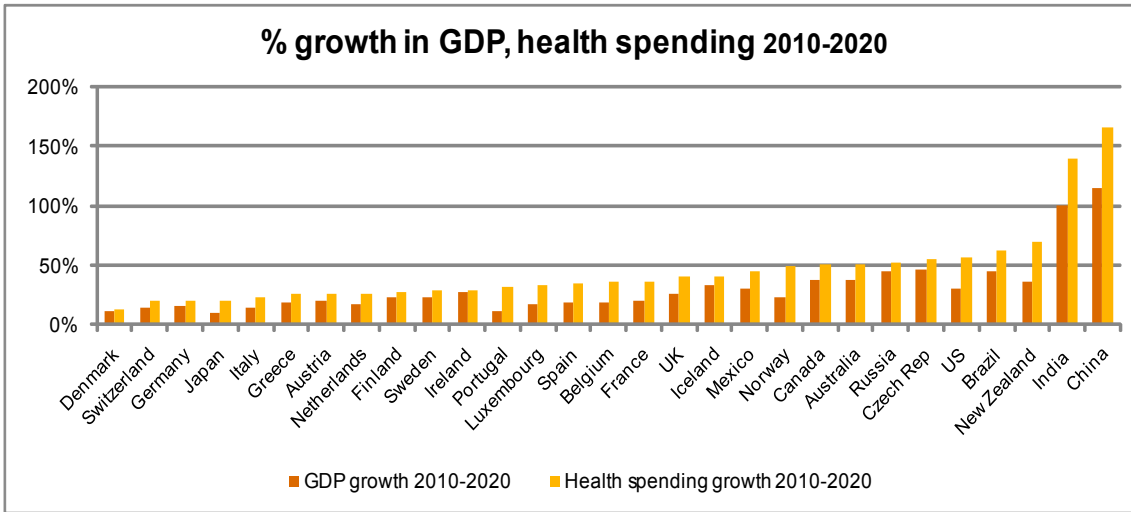
This means that governments in every country will be pressured to control the rate of health spending growth and achieve as much efficiency as possible from their budgets. PwC's projections were calculated using country-specific trends of health spending from the OECD, WHO and GDP forecasts by the World Bank. PwC's methodology for these forecasts is explained in the Appendix.

Figure 3: Current and projected health spending as percent of GDP in OECD, BRIC nations



Source: PwC Health Research Institute

Figure 4: Projected growth in GDP, health spending in OECD, BRIC nations



Source: PwC Health Research Institute

Healthcare has been largely overshadowed in the PPP market by super projects in energy, telecommunications, and transportation. While estimated at only about 10% of all PPPs, healthcare projects require a special understanding of the delicate balance of the needs in social infrastructure. For example, in other types of PPP projects, the physical infrastructure is the desired end product and any provisioning to maintain and run it is secondary. Health systems are different. For health systems, a hospital is a small part of what keeps people healthy; the desired end result for government is better health for a population. Increasingly, PPPs in health are built on common drivers, but with a new-found urgency in today's economic and social environment:

*Investment Need: A shift from assets to efficient operations*

Governments are spending increasing portions of their budgets on health. Spurred by ageing, chronic disease and technology, as well as the growing expectations of the population, health spending is growing much faster than inflation. While credit has tightened, interest rates have remained low, providing finance for well structured and executed projects. "In general, the financial situation will be a positive influence (for PPPs). If you look at the wealthy countries, the extreme tightness provides an incentive for national or local governments to look to private sector collaborations, not only for finance but to extract the efficiency gains," said Sir Richard Feachem, professor of global health at the University of California, San Francisco, and director of the university's Global Health Group. "The big efficiency gains are in the service delivery, not the building."

*Budget Constraints: Recession pushed public debt beyond 100% of GDP*

Exacerbated by the global recession and financial crisis, governments face frighteningly gaping deficits, making private investment and expertise even more vital to address their health system needs. In OECD countries, government debt as a percentage of GDP averaged 66% in 2007, grew to an approximate average of 86% in 2010, and is predicted to exceed 100% of GDP in 2011, an unprecedented level in peacetime<sup>2</sup>. Further, the Bank for International Settlements predicts the situation worsening by 2020, saying that debt/GDP ratios could rise to more than 300% in Japan, 200% in the United Kingdom; and 150% in Belgium, France, Ireland, Greece, Italy and the U.S. And, national governments are not the only ones suffering from budgetary challenges. The financial crunch has affected local governments as well, and this is where PPPs have found officials eager to hear more. "People are well aware of the deficits, and that quality is low," added Feachem. "The big carrot, if we go the PPP route, is that you pay no more than you paid before and you get greatly improved quality of service. The doubters say we don't believe you, but Spain has been doing this for 10 years."

*Better Procurement: Shifting government's role from provider to regulator*

Following two decades of refining PPPs in infrastructure, a number of private organisations have honed their abilities to work with governments on PPPs, and vice versa. PPPs in infrastructure are long-term contracts, usually 20 years or more, giving governments real-world experience in making long-term commitments to private

<sup>2</sup> The future of public debt: prospects and implications, Stephen G. Cecchetti, M.S. Mohanty and Fabrizio Zampolli, Bank for International Settlements, March 2010

**Today's drivers:  
PPPs in health  
infrastructure  
built a foundation  
for PPPs in clinical  
services**

sector arrangements. It also allows the role of government to evolve from provider of services to commissioner and regulator of services. "The public party needs to understand that they can institute a PPP to drive change and make wide ranging improvements to systems," said George Commander, of Interhealth Canada, a global firm that advises on and manages public-private partnership hospitals. "They can demonstrate there are checks and balances in place to show that when it is in delivery mode it is within the public framework." Privatisation of healthcare in many nations stems from dissatisfaction with the public provision of care. "Many countries have spent the last several decades trying to build something like the UK NHS, and the results have been disappointing," said Feachem. "So we have seen rapid growth in private provision to fill the gap, and these private providers are unregulated. In Africa, 50% of healthcare is provided privately; in India, 80% is privately provided. In India, the private system ranges from the best in the world and some of the worst in the world. There are no incentives to make the private system work with the public system. One of the attractions of PPPs is that they provide a way for the public system to reach out to the private system, and say can we work together in an aligned way? Can we harness the skills and capacities of the private sector to achieve public policy goals?"

### *Access to Skills and Knowledge: Health PPPs require more than dealmakers*

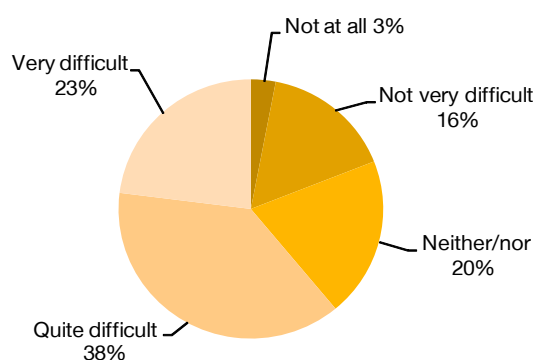
As PPPs move beyond infrastructure, the vision moves beyond the deal. This requires a broader team of experts in clinical, legal, technology, process engineering and strategy. "Public sectors can make significant savings by working with expert service providers," said England's Coates. The opportunity to tap expertise from around the world was a major reason the Stockholm County Council turned to the PPP model to build and design the New Karolinska Solna University Hospital. "Sweden is a very small country. We build one big hospital every, what, 30, 40 years? So, we had no expertise in building big hospitals," said Lennart Persson, M.D., managing director of the New Karolinska Solna. "But now, we have people from the UK, Australia, and other places." This also is true in territories such as the Turks and Caicos Islands, or Lesotho, where PPPs are a way of securing skills in short supply, such as nursing or medical manpower.

Most importantly, public and private partners must determine how the PPP team works together to improve care for patients. Today, healthcare knowledge is shared through broad networks of information technology. Old health systems are siloed and inefficient. PwC research has indicated that the flow of data is a key issue for global health systems (see Figure 5). Unfortunately, hospital infrastructure PPPs have often not included health IT, due to the difficulties in specifying such systems in a very fast changing environment, but that is changing. "Design the IT system the day you design the foundations," recommended Interhealth's Commander. As chronic disease drives spending, the lack of information sharing and coordinated relationships jeopardises scarce resources.

<sup>3</sup> The Global Brand of Philippine Medical Services, Jaime Z. Galvez, executive director, National Institutes of Health Philippines.

*Figure 5: Information technology and sharing beyond hospital walls is necessary for health systems to evolve*

**How difficult is sharing information across the health system?**



Source: PwC Health Research Institute, HealthCast: The customisation of diagnosis, care and cure

### *Service Capacity: Some territories still need new beds, but many need other types of social infrastructure*

A funding mechanism that focuses solely on hospitals leads to perverse incentives to overuse hospital care and weaken preventive efforts. The health needs of the world are changing, and so is the definition of infrastructure. For some nations, there is still a crucial need for beds. For example, The Philippines has reported a need for 152,000 new hospital beds to serve its population.<sup>3</sup> In other countries, there are sufficient beds, but buildings are ageing and dysfunctional. Indeed, the average number of beds per 1,000 in OECD countries dropped from 6.5 in 1995 to 5.5 in 2009. "A particular challenge for health PPP is that hospitals today are unrecognisable compared to those of 30 years ago, and the pace of change is continuing. Contrast this with a highway which remains a highway throughout its life," said Nicholas Jennett, head of the European PPP Expertise Centre of the European Investment Bank.

As PPPs in health are evolving, new pressure points are emerging in these relationships. Public and private partners need to recognise these pressure points well in advance.

**Paying to entice competition:** In countries where government provides all or most of clinical services, private partners can be disruptive. And, private partners may avoid markets where government health systems have an inbuilt competitive advantage (such as subsidised pension benefits that cannot be replicated within the private sector). For that reason, government often may have to pay more initially to entice private partners to enter the market in the hope of gaining long-term savings.

*Example: When the UK decided to create a PPP for selected surgical procedures, it accepted that it had to pay private organisations more to spark their interest in competing with NHS providers. The idea was that competition would increase productivity and lower costs in the long run. It would also offer patients more choice. The initial strategy was successful as private partners captured about 20% of the market. The UK is now in the process of re-letting the first wave of contracts, estimated at £1.2 billion, and the rates paid will be the same as NHS.*

**Labour costs:** When PPP projects include clinical services—or even if they do not—partners must confront workforce costs, which can be between 50% and 75% of health spending. Healthcare is a labour-intensive industry, and in many countries, it is heavily unionised with rigid compensation structures. In some countries, the public sector pays more or offers more benefits than the private sector. In others, the opposite is true. Labour markets must be addressed by both sides. Labour laws and unions may need to be more malleable to foster the growth of PPPs. "To reach a high service quality, you need to attract the best physicians and academics," said Burkhard Landré, director of market development, ÖPP Deutschland AG, an independent consultancy to the German public sector for PPP. "P3s can support this by offering a more attractive working environment" while minimising the risk of brain drain.

*Example: In Austria, 75% of hospital costs are in labour and nearly every hospital is owned by the government. Employees are civil servants who have a job for life, making PPPs difficult to implement, beyond the basic infrastructure model. The government opened a window of opportunity, however, with one PPP project, the Psychosomatic Centre in Eggenburg, because those services are outside the government healthcare plan, said Andrea Kdolsky, MD, who oversaw the project when she was the country's Minister of Health.*

**Transparency:** PPP players need to clearly articulate their motives and the benefits they can deliver. Strong partnerships require keeping both sides honest. Independent monitoring also helps keep the partnerships sustainable. The oversight function is critical for PPPs,

## Key risks for public and private partners as the scope expands

especially in low-income countries. "In the higher income countries, it's less of a stretch for the public sector to hold up its end of the partnership," said Feachem. "That's not trivial, even when it's just a building. But, when you get to a 20-year agreement to provide clinical services, the government has to be able to provide competent oversight of performance against very specific benchmarks over a long period of time. These functions are a challenge for all governments at all income levels. But, it's even more of a challenge for low- and middle-income governments, where the capacity is sometimes fragile."

**Example:** *In Australia, the Australian Council of Healthcare Standards publishes quality standards for all hospitals, allowing the public to review the performance of public, private and PPP facilities.*

**Technology:** Today's world is one of robotic surgery, point-of-care diagnostics, and telehealth. Technology is moving so quickly that it can be difficult to forecast costs and demand. In service-based PPPs, private partners are required to provide the consistent levels of technology throughout the life of the contract. Benchmarking against a group of peer hospitals is one way of measuring and ensuring that consistency. The latest technology is a major cost driver, but one that both patients and physicians demand in PPPs that include the provision of clinical services. "Under the PPP scope, long-term partnerships will drive a more efficient use of resources, including optimising technology deployment, clinical training to end users, a wider use of professional services, all of which will aim to provide better quality of healthcare for the patients," said Daniel Carreño, president of GE Healthcare, Spain and Portugal.

**Example:** *Tongji University of Shanghai, Siemens Project Ventures and the German private hospital chain Asklepios have signed a PPP contract to construct a 250-bed hospital at a cost of more than €100 million. Once the license is approved, the hospital is expected to open within two years.<sup>4</sup>*

<sup>4</sup> Ulrich, Miriam (2010): "Sino-German Friendship Hospital" lässt auf sich warten, in: kma - Das Gesundheitsmagazin, Issue 01/2010, page 33.

## Evolving beyond "Value for Money": New metrics needed to demonstrate the power of broader partnerships

Infrastructure PPPs have traditionally been measured by a common yardstick called Value for Money (VfM).<sup>5</sup> Many governments are required to publish VfM calculations (both monetary value and percentages) to justify the value a PPP is delivering compared to traditional government procurement. A PwC review of PPP healthcare infrastructure projects showed a published range of from \$3 million to \$56 million in various VfM reports in Canada and Japan. The percentage savings ranged from less than 1% to 20%. The basic VfM calculation compares the Net Present Value (NPV) of a hypothetical public procurement, against the NPV of the payments government will be expected to make to the private sector under the PPP solution.

While VfM seems straightforward (see Table 1), the University of Cambridge notes that "some elements may be subjective, difficult to measure, intangible and misunderstood..."<sup>6</sup> Because the calculation can be hypothetical, VfM should be only one of several metrics used for comparing public-private partnership projects.

*Table 1: Value for money calculation*

Estimated cost of the public sector delivering the project	\$100 million
Expected cost of private sector delivering the project	\$95 million
Difference in cost	\$5 million
Value for money	5%

However, the industry is moving beyond VfM calculations. As PPPs expand into improving care delivery and patient outcomes, governments and the private sector must agree upon more complex measurements that address both short-term and long-term goals. Such measures allow governments to target even larger savings and align quality goals. "The problem is that the health production function is complex. This makes it difficult to demonstrate quality, or even effectiveness, in health care interventions," said Jennett of the European Investment Bank. While difficult and complex, PPPs are finding ways to measure the power of these broader partnerships. Without them, PPPs will fail. Success factors can be clearly defined in the contracts, but they are often missing from many PPP contracts, and that leads to conflict. Table 2 provides a high-level view of types of performance metrics gathered through PPP projects globally.

<sup>5</sup> In some cases, the calculation is called a Public Sector Comparator.

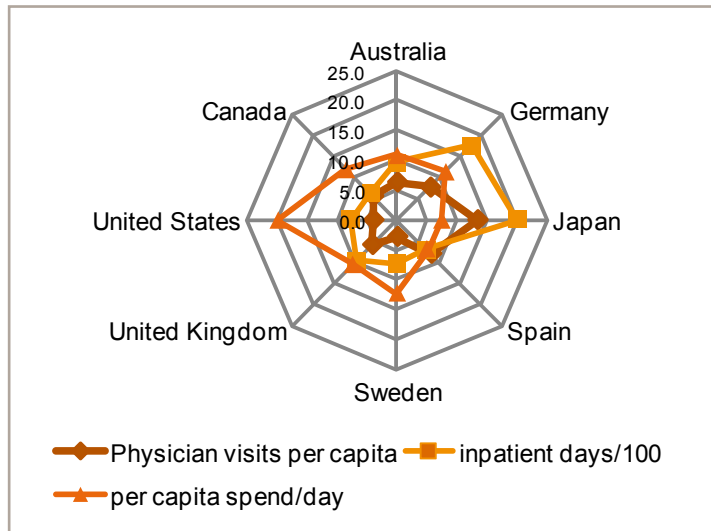
<sup>6</sup> <http://www.admin.cam.ac.uk/offices/secretariat/vfm/guide.html> - August 20, 2010

Table 2: Examples of PPP performance metrics

Patient Satisfaction	Organisational / Clinical Performance	Workforce Performance
Pain level after X amount of days following a procedure	Number of admissions, surgeries	Timely reporting
Waiting times	Provider cancellation of elective care operation for non-clinical reasons	Average of sick days of staff
Evaluation of catering	Patient safety indicators	Ratio of credentialed staff
Evaluation of cleanliness	Infection rates	Diagnostic reporting within one week of test
Evaluation of interaction with staff	Emergency readmission rates	
	Provider failure to ensure that “sufficient appointment slots”	
	Penalty for wrong-site surgery	
	Wait times	

However, performance metrics are meaningless without comparables. Wide variation exists in how medicine is practiced and how clinicians, drugs and medical resources are used—even within a single city. As Figure 6 shows, the US, which looked efficient in terms of hospital and physician utilisation is a cost outlier. Americans spend \$20 a day on healthcare, compared with \$7.50 a day in Japan and Spain.

Figure 6: Comparison of physician visits, inpatient days, spending



Source: Analysis by PwC Health Research Institute

Each public-private partnership is defined by the calibre of the organisations involved. The dependencies among the partners must be considered thoroughly. "We have learnt that respect towards the other party is important. Unlike the outsourcer-outsourcee relationship of the past, the public and private sectors should establish a 50-50 relationship for exchanging opinions," said Keiko Uemura of Yao Municipal Hospital, a PPP in Osaka, Japan.

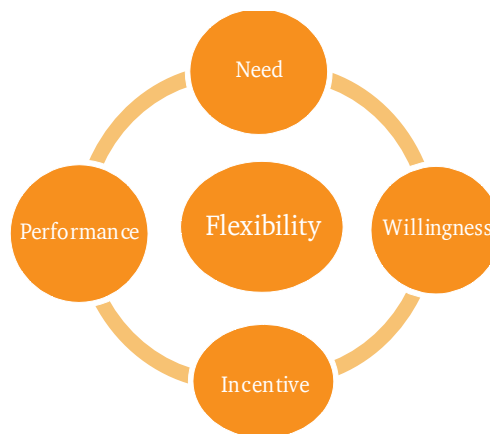
Table 3 categorises the range of players that are typically involved in a service-based PPP project in which clinical services are included.

*Table 3: Players included in service-based PPPs*

Operations	Funding	Legislation	Monitoring / consulting organisations
Hospital providers	Financial / Industrial	Federal health authorities	Independent consultancies
Insurers	Infrastructure funds	State health authorities	Non-governmental organisations
IT	Banks	Regional commissions	Financial
Medical devices		National health insurance boards	Legal
Pharmaceutical companies		Members of the Legislative Assembly	Technical advisers
Construction			
Facilities management			

## The Players: How PPP players determine success

*Figure 7: Critical roles for PPP players*



These organisations all play critical roles in successful PPPs: from ensuring an appropriate legislative framework that allows PPPs to take place, to funding institutions prepared to invest in project companies, experienced advisory capability to assist both public and private sectors navigate these complex transactions, and strong service providers that are able to assume the service obligations and manage the risks associated with them. Figure 7 shows a few of the characteristics that public and private sector parties need to understand and embrace if they are to be successful.

First, every PPP stems from a clear and well articulated **need**. The need is defined as the gap between the current situation and the optimal status, for example, the gap between current and optimal health outcomes. Secondly, there must be a **willingness** to work together in a real partnership. Thirdly, to bring that willingness into action, there must be appropriate **incentives** for each player. The fourth characteristic of a successful PPP is the ability of each player to **perform** to the required standard. Each player must be able to demonstrate the quality of its performance through agreed measures. All of these issues revolve around the need for **flexibility**. Whilst PPPs clearly need to be controlled by detailed contracts, the contract structure must accommodate technological innovations, information technology, and demographical development and the resulting changes in strategic aims of governments over time.

Each player tends to view the network from the perspective of its own organisation and how it affects or is affected by the relationships with others. A problem can occur if players have only a limited understanding of each other. For example, in Japan, professionals tend to work at one organisation their entire lives. If a healthcare professional has only worked for the government, it may be difficult for them to appreciate the business values and incentives of private industry, and vice versa. "Regular movement of staff between both the private and the public sector can help people to better understand the other sectors abilities and structure," said Yumiko Noda-San, member of the PFI Promotion Committee of the Japanese government. Such an understanding also enhances a community's capacity to combine diverse knowledge and skills to solve complex healthcare problems.

PPPs are not a model in themselves as much as an enabler of solutions. The following case studies illustrate the way in which PPPs have addressed health system problems.

### *Delivering an infrastructure solution for patient-centred care*

New Karolinska Solna University Hospital

To open in 2015

Sweden's first PPP in the health sector

## **Case studies: How PPPs can improve the sustainability of health systems**

New Karolinska Solna University Hospital is the successor to Karolinska University Hospital, which is considered the premier teaching hospital in Sweden. It is affiliated with Karolinska Institute, a world renowned medical university that appoints the annual Nobel Assembly which awards the Nobel Prize in medicine. Karolinska Institute is the highest-ranked non-American medical faculty in the world—number nine globally after eight US medical schools.<sup>7</sup> Dr. Lennart Persson, managing director of the New Karolinska Solna University Hospital, said a founding principal of the project is “organising care according to patients’ needs,” as opposed to subordinating patients to clinical structures or professional cultures. To illustrate how he and his colleagues expect the hospital to function, he gives the example of a woman who arrives in the morning with a lump in her breast. Within eight hours of admission, she is given a diagnosis, all the related information she needs concerning her condition, the date of surgery, and contact with a social worker and other specialists.<sup>8</sup>

Lessons learnt:

- Build in flexibility. As Dr. Persson said: “We are building a site that will be used as a hospital for at least 50 years ... and in no way can we decide now what its clinical operations will look like in five years, or 10 years, or 20 or 30 years. Instead, we are building a hospital that is very flexible, so that it can change.”
- Think comprehensively about the benefits of integrating health, science, and education. The project’s design will place the hospital within a dynamic, scientific cluster, Stockholm Science City. The ambition for this hub of research centres and laboratories has been concisely stated by Peter Bramberg, head of life sciences of the Invest in Sweden Agency: “Stockholm as a region has decided to be one of the world leading scientific clusters in 2025. Integrate health, research, and education.”<sup>9</sup>

<sup>7</sup> Academic Ranking of World Universities produced annually by Shanghai Jiao Tong University, <http://www.arwu.org/FieldMED2010.jsp>, which lists the 2010 rankings of the relevant universities in clinical medicine and pharmacy of the

<sup>8</sup> Reinventing healthcare infrastructure, Gridlines, PwC, October 2010, [www.pwc.com/gridlines](http://www.pwc.com/gridlines).

<sup>9</sup> See the interview in Presentation of the New Karolinska Solna, <http://www.nyakarolinskasolna.se/en/The-New-Hospital/Web-TV/Presentation-of-the-New-Karolinska-Solna-University-Hospital>.

## *Better integration of primary and secondary care services*

University Hospital and Primary Care, Alzira, Valencia, Spain  
1999-present  
New hospital, inpatient clinical services, primary care services

Perhaps one of the most widely cited clinical services PPPs in the literature, this project is known as “the Alzira model.” As a model for other PPPs, it carries the advantages of a decade-long track record that illustrates the need for flexibility and ongoing review. Since the €75-million Alzira hospital opened, at least 20 other PPPs, a mixture of Infrastructure and Clinical service projects, have been completed in Spain. “Adjusting responsibilities to demand changes is not a question of infrastructure, but a cultural change, and the work system between the board of directors and the professional staff in hospital and primary care,” said Alzira director de Rosa. “A new culture among professionals was needed to become a ‘flat’ organisation. The aim is granting the citizens the best healthcare service, best infrastructure, best quality, best equipment.”

Lessons learnt:

- Citizens of the region have the choice to visit any hospital within the region, with their catchment hospital being responsible for 100% of the cost when that happens. Conversely, when outside patients attend the Alzira hospital, the operator only recovers 85% of that cost. This is a strong incentive to provide high quality services to maintain patient confidence.
- Flexibility and transparency are vital. In 2003, the partnership was on the verge of failure, so the agreement was altered in two major aspects:
- Initially, the contract was for hospital services only, but it was renegotiated to include primary care. This underlines the importance of structuring incentives. By managing primary care, the hospital operator can reduce unnecessary hospital admissions.
- In addition, the government initially agreed to pay the hospital a capitated rate that increased annually with general inflation. However, medical costs were increasing at two to three percent above the inflation rate. Consequently, the contract was renegotiated so that payment increased in line with the rate of medical inflation.

## *Balancing delivery of private and public hospital services in the same building*

Jondaloo Health Campus, Perth, Australia  
1996-present  
Replacement hospital and clinical services

Ramsay Health Care partnered with the Western Australian government to open a new campus, using a 20-year agreement that requires regular reporting on a wide range of indicators. Key issues included ensuring that a viable private hospital would be eligible for full private health insurance rates (this was in a context in which private health insurance paid only a subsidised rate for private patients in public hospitals), making arrangements for doctors to provide privatised public hospital services and for the transfer of public hospital staff to employment by a private operator.

Lessons learnt:

- Commissioning services from both private and public sector doctors for public patients adds more complexity.
- Managing labour costs is crucial for a successful PPP. The hospital employs private employees, but provides compensation to ensure that pay is equal to that of civil servants working in a neighbourhood hospital.
- Governments must remain responsible for the quality of care as citizens associate healthcare services with public services.

## Applying and maintaining new technologies

Albert Luthuli Hospital, South Africa  
2002 to present  
Hospital management, but not services

This project was the first health PPP in South Africa as well as the first filmless and paperless hospital in the southern Hemisphere. The hospital was owned and built by the Kwa-Zulu Natal (KZN) Department of Health, which then found it did not have the financial resources to equip and service the hospital. The PPP was set up through a special purpose vehicle (SPV) to procure, finance and maintain all medical equipment and IT, as well as the provision of facilities management services such as cleaning, building maintenance and catering. The SPV, in turn, subcontracted its obligations to specialists such as Siemens for the medical equipment. The long-term nature of the contract made future proofing of IT and medical equipment a major issue, which is dealt with through a combination of incentives. Payment from government is dependent on equipment and IT being available to the required standard. Replacement of medical equipment (in terms of model and capability) is linked to a group of benchmark hospitals.

Lessons learnt:

- Governance is shared through a senior panel that includes the head of the Provincial Department of Health, head of the PPP unit at the National Treasury, head of the provincial Treasury, head of the National Department of Health and head of the PPP unit in the UK Treasury private transaction advisers who had knowledge of the project and PPPs.
- To keep the facility up to date, the agreement requires that medical equipment be refreshed every five years and IT equipment every three years. A minor refurbishment of the facilities is required in year seven and a major refurbishment is required in year 13. Siemens is a partner in the SPV, but was not allowed to create a Siemens-only hospital.
- A single SPV enables the government to deal with just one entity rather than several contractors, and allows for the interface risk to be managed by the SPV and not the public sector.

## Filling a dire need for clinics and clinicians

National Referral Hospital, Lesotho  
2008 to present  
Hospital management, clinical and non-clinical services

The 2 million residents of the Kingdom of Lesotho face numerous health challenges: the world's third highest HIV/AIDS prevalence rate (23% for adults aged 15-49) and low life expectancy (45 years).<sup>10</sup> The Lesotho government needed to replace its main 100-year-old public hospital, the Queen Elizabeth II, but knew it also faced a shortage of nurses and physicians. The PPP wraps all of these needs together. The private operator, Tsepong (Pty) Limited is led by private partner, Netcare, which manages hospitals and clinics in the UK and South Africa. Figure 13 shows the relationship among the parties. The 18-year contract with the Lesotho government called for designing and constructing a 425-bed referral hospital, feeder clinics, and provide all clinical services. The hospital is the country's main teaching hospital for physicians and nurses. The arrangement, which included a full scope of clinical services, was a first for Africa. The private partner is required to obtain and maintain accreditation standards and is monitored by an independent services firm.

Lessons learnt:

- A review of existing healthcare costs allowed the partners to determine what services were being delivered and where there was room for improvement. This helped determine which key performance indicators were to be measured as part of the contract.
- Bidders were required to confirm the services they could provide, commit to a number of patient visits, and design a management approach that enhanced quality, effectiveness, and efficiency.
- A minimum service coverage list defined what clinical services would be offered in the hospital. This list required the partners to strike an optimal balance between affordability and expansion of services.

<sup>10</sup> *New Public-Private Partnership Set to Boost Access to Health Care for the Poor*, *The Pak Banker*, June 23, 2010

Independent Sector Treatment Centres, UK  
2003 – Present  
New facilities, elective care services

The NHS historically suffered from long wait times, poor health outcomes, and low staffing levels when compared with other similar EU and OECD countries. It aimed to create competition to reduce wait times by allowing patients to pre-book appointments and increase patient choice through mobile and modular units. By partnering with private organisations through Independent Sector Treatment Centres (ISTCs), the NHS hoped to increase capacity, drive productivity and innovation, and improve overall health outcomes. The procurements were carried out in two waves, with learning from Wave 1 being applied to Wave 2, which included the abolishing of volume guarantees.

As far as possible, the Independent Sector was encouraged to collaborate with local healthcare economies to provide solutions tailored to local needs. Within four years, ISTC elective procedures accounted for 20% of the overall decline in waiting list numbers, whilst theatre utilisation measures rose 33% compared with NHS providers. The Department of Health in England is currently in the process of reviewing where there is the demand, re-letting the first wave of ISTC contracts.

Lessons learnt:

- Government providers often have a competitive advantage. Encouraging private partners to compete with government health service requires an incentive that may initially be higher than the cost of the service. In this case, the UK Government provided volume and income guarantees to private partners
- Volume and income guarantees over the long term inhibit true competition with the public sector. Therefore, in the second wave of contracts, all providers were paid the same rate. The guarantees were in effect as part of the set up costs of the project.
- Performance metrics evolved with the ISTC contracts to raise the level of improvements for both the private and government partners.

## Proton therapy centres

2007 to present

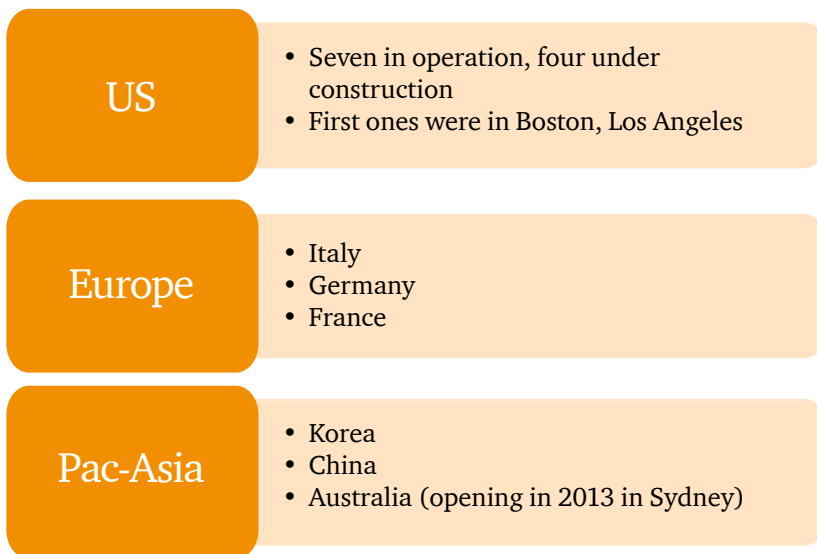
Precision treatment and research of tumours

With an upfront cost of \$125 million and up<sup>11</sup>, proton therapy is one of the world's most powerful tools to fight certain types of cancer but is often too costly for government health systems. A proton therapy centre delivers powerful radiotherapy that precisely and selectively kills cancer cells while reducing damage to surrounding tissues. As these centres, which initially were government research units, grew into first-class cancer treatment centres, funding as well as operational challenges appeared. Operational challenges included lowering the risks of the treatment through further clinical studies. A proton therapy treatment often requires further academic evaluation. These centres pose a thorny issue for governments that seek to fund successful cutting-edge therapies. Proton therapy advocates say the therapy improves the quality of life of those with cancer, one of the leading killers globally. Protons deposit the majority of their energy within a precisely controlled range, hence more healthy surrounding tissue can be protected. As a result, patients suffer fewer side effects as well as less long term complications. In short, the quality of health outcome is increasing.

However, the number of patients treated is relatively small (See Figure 8). Some 35 proton therapy centres are in operation, according to the Particle Therapy Cooperative Group, an international group of scientists.<sup>12</sup> The ability to put together public-private partnerships made many of them possible, including ones in the U.S., France, and Germany. For example, in France, a private partner took over financing, building, operating, and maintaining of the technical operations. The government rents the beam time over the course of the contract.<sup>13</sup> In Germany, Siemens is both manufacturer and equity partner for two centres.

PPPs in proton therapy also show that the private and the public sectors can shoulder large technological healthcare projects together in order to reach a common goal: improve the quality of health outcomes in innovative ways.

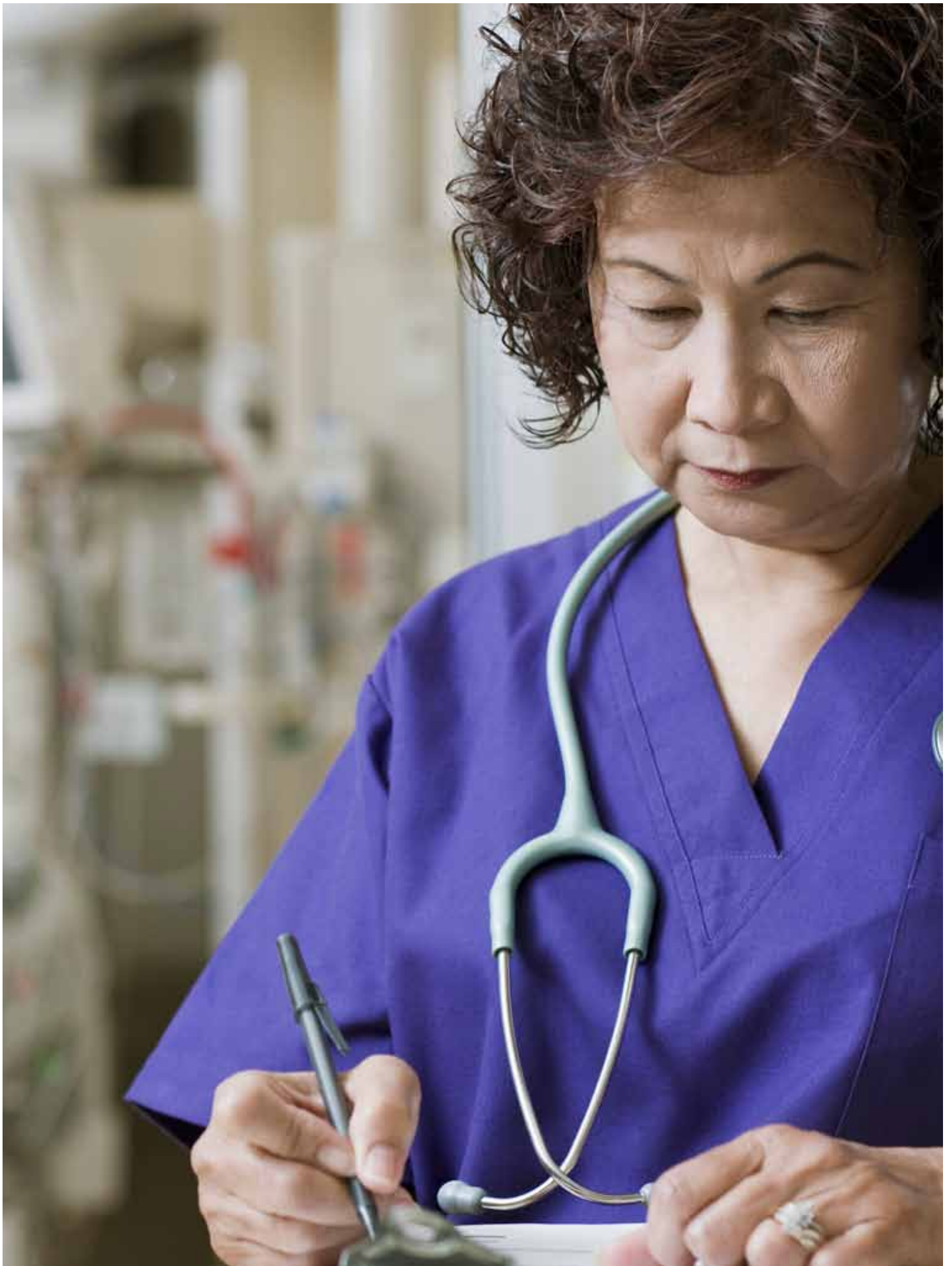
Figure 8: Proton therapy centres



<sup>11</sup> <http://www.proton-therapy.org/hhnarticle.htm> - August 20, 2010

<sup>12</sup> <http://ptcog.web.psi.ch/ptcentres.html> - August 19, 2010

<sup>13</sup> [http://accelconf.web.cern.ch/accelconf/p07/TALKS/MOZBC02\\_TALK.PDF](http://accelconf.web.cern.ch/accelconf/p07/TALKS/MOZBC02_TALK.PDF) - August 19, 2010 - page 15



## Government

### *Establish a national PPP framework that enables local governments to tailor solutions*

The lack of standardised processes, risk management, and contracting expertise will lengthen the duration of the partnership process or kill it altogether.<sup>14</sup> National governments can set the regulatory framework in which the local government can work; local governments can listen and respond to the needs of the local health experts and patients. In Japan, 75% of the projects were administered by local governments.<sup>15</sup> In Romania, where PPPs have included small clinical departments, new regulations are focused on simplifying procedures that make PPPs more flexible. The new legislation also requires the compulsory payment of a financial guarantee (2% of the project value) by each PPP project contestant. This ensures that partners have the appropriate financial commitment. German consultant Landré added: "We need to move away from the socially romantic view of a partnership, but bring professional discipline to the system."

### *Invest in skills and resources*

These projects are, by their nature, complex legal, technical and financial undertakings. The public sector needs to invest in appropriately resourced and skilled teams that can deliver deals that demonstrate clear value for the public purse. In addition, those skills should, where possible, be recycled to future projects, thus creating a core of expertise to match that of the private sector. Experience from past infrastructure deals can be beneficial in PPPs that include clinical services. PPPs in infrastructure have given some governments—Spain, the UK and Australia—a testing ground for broader partnerships.

### *Be flexible*

As technology and equipment, as well as clinical demands of the population are ever changing, the contract needs to move with it. "Flexibility can help ensure that the private sectors offer cutting-edge technology without altering the contract each time," says Ivan Planas, director for health area state-owned enterprises, of the Government of Catalonia in Spain. Some experts from the private and public sector stressed the need for changing agreements towards shorter contract lengths. José Luis Pardo, director of the Adeslas Hospitals Group, said the contract length can vary within the project: "I would like to see two arrangements in an ideal model: One with a construction company including the investment, construction and maintenance of the building and perhaps some non-clinical services. The second one with a private insurance healthcare company that is responsible for the operations, including clinical and non-clinical services."

## What this means to your business

<sup>14</sup> Baumgärtner, Essler, Scharping, *Public-private Partnership in Deutschland, 2009*, page 259.

<sup>15</sup> *Japanese Policy and Implementation on PFI, 3rd Annual Meeting for PPP/PFI Promotion between Japan and Korea, Oct. 9, 2008.*

### *Think like an entrepreneur*

"The cost pressure on the one hand and the rising quality demand from patients towards hotel standard on the other hand requires the PPP protagonists to think and act like an entrepreneur," said German consultant Landré. Entrepreneurs often create new efficiencies and do not think in limited time frames. Business plans should follow innovations and go beyond the time frame of an election period. In healthcare PPPs, the private partner is often more attuned to consumer preferences. To overcome doubters and alleviate the fear of privatisation of the healthcare system, the performance and outcome should be transparent and accessible to the population.

### *Demonstrate political will*

Attracting private sector interest into PPPs requires a high degree of certainty that projects will go ahead on a sensible timescale. The lack of political will is very often a key reason for project failure. Bidding for PPP projects is a time consuming and expensive business, and bidders will not spend precious limited resources on projects that do not have clear political commitment.

### *Know what you want*

Projects should be well-defined and clear. As more projects come to market, investors will become much more discerning about which projects they pursue. At one point in the UK, so many projects were coming to the market that ones that were not clearly articulated and well defined struggled to attract bidders. This issue is particularly important when local PPP markets are still in their infancy.

## Private sector

### *Focus on ability to lower costs*

As PPPs expand to include clinical services, they may awaken detractors. To counteract critics, the private partner must prove that it is possible to deliver the same service quality at lower cost. For example, in a PPP in Australia, the hospital defined metrics for evaluating the performance of relevant services, made the methodology transparent, and the results publicly available. Private sector agencies should push on moving the focus from measuring the input towards measuring the output of a PPP-structured deal. "We need to move the debate away from the private financing. The principal driver [of a PPP] should be value for money and efficiency," said Sean Fitzpatrick from the European PPP Expertise Centre.

### *Share the risk according to competencies*

Government deputies pointed out that the risk should be shared according to the core competencies of each participating actor. "Governments have to transfer the risks that can be better managed by the private sector. This includes, for instance, new technology, and professional development," said Ivan Planas from the Department for Health in Catalonia, Spain. For governments, private partners bring vital expertise to keep up with technology, diagnostic equipment, and pharmaceuticals.

### *Accept fair margins*

"PPPs and privatisation are ultimately publicly financed ..."<sup>16</sup> stated author Dexter Whitfield in "Global auction of public assets." Critics believe PPPs are a means of retreating money out of the public system for a private companies' selfish interest under the social umbrella of healthcare. To counter this, private organisations must show responsible behavior. The capital structure should be efficient and competitive. In turn, government needs to acknowledge fair margins while keeping a sustainable long-term partnership in the focus.

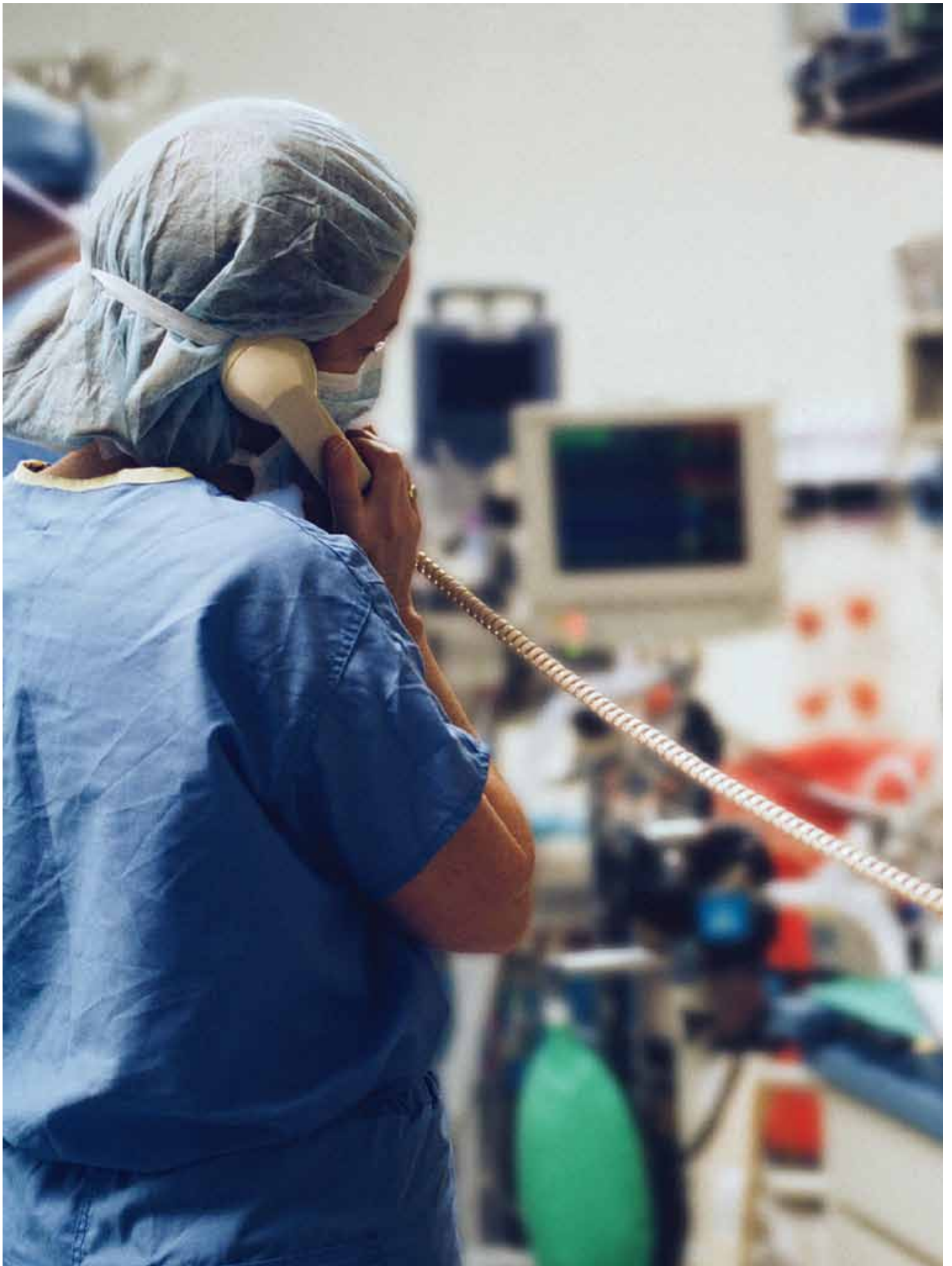
### *Understand Investors*

As the range of PPP options moves from infrastructure to the provision of clinical services, a new type of investor will be needed. Over the last 10 years, the number of infrastructure funds has exploded with investors looking for assets and long-term cash flows. Those investors understand and accept the risks associated with buildings. Tim Pearson, a director at Innisfree, an infrastructure fund that has successfully invested in many projects in the healthcare space in the UK and in Canada, believes that investors in his funds "would not easily move into investing in projects with very different risk profiles, such as those involving clinical services." He believes that the challenge for the public sector is "how to create an environment that allows the people that have the skills to get on with it."

### *Reassess what information is proprietary and what should be published*

Performance metrics and financial details are frequently viewed as confidential. However, transparency can boost public support for PPPs. Our research found that other than VfM, performance metrics can be difficult to find or vague. This can lead to misinformation or distortion of the limited information available. Many countries do not regularly monitor the performance of their PPPs, which gives ammunition to detractors. By encouraging transparency, private partners can expand their reach and publicise their successes. Resistance to PPPs stemmed from the public's feeling that private firms were profiting on health. Partners need to emphasise how the PPP will increase access and quality for patients.

<sup>16</sup> Whitfield Dexter (2010): *Global Auction of Public Assets*. Pg 328.



## How partnerships in health are working around the world

Application of the PPP models varies, according to each country's social and economic demographics. In the broadest sense, PPPs are about government looking to private industry to finance or deliver healthcare. PPPs fit into part of a broader movement to tap private expertise and capital globally. This is illustrated below by examples in which government and private industry have partnered differently in many different countries. Each example includes a statement on the government's share of overall spending, spending as a percent of GDP, and elderly dependency ratio in 2030. Countries with higher elderly dependency ratios will see more pressure on GDP as their population ages and uses more healthcare resources.

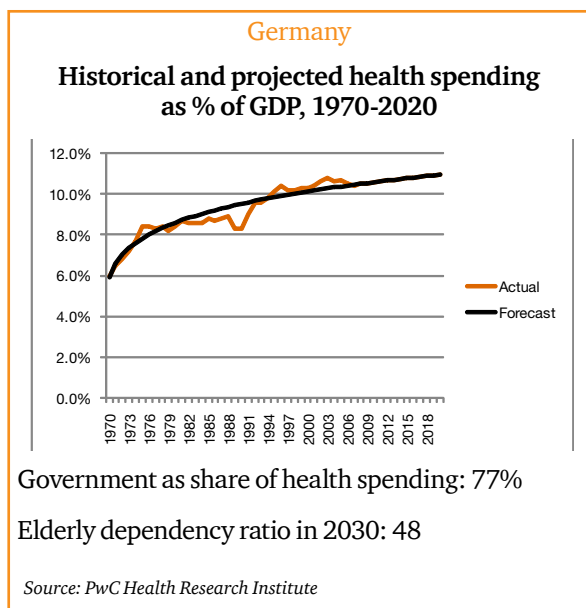
### Germany: A continuing evolution of moving hospitals towards private control

The ownership and management of hospitals continues to evolve as more governments look to exit the business of operating complex and financially stretched programmes.

In Germany, the proportion of hospitals that are private has increased from 14.8 % in 1991 to 31.9 % in 2009.<sup>17</sup> The German privatisation wave began in the 1970s when the financial system was changed into a dual financial planning system. In this dual system, current costs are covered by health insurances, and investment costs are covered by each federal state. To narrow healthcare costs while at the same time keeping insurance premiums at a stable level, several reforms were undertaken. Amongst them were the budget capping for current cost as well as the introduction of the DRG (diagnosis-related groups) system. However, this put pressure on many hospitals. In 2009, approximately 11 % of all German hospitals were facing financial distress.<sup>18</sup> Several local authorities see privatisation as the only way to escape from increasing costs of municipal loss-making hospitals.

Even though federal states are responsible for investment costs, they are facing their own financial difficulties and funding for their hospitals has been scarce. In 2009, the German Hospital Federation estimated the investment backlog at €50 billion,<sup>19</sup> up from €14.4 billion in 2002.<sup>20</sup> In Germany, privatisation is often associated with the hope of receiving money for urgently required investments.

One of the largest sales took place in 2006 when the private hospital chain, Rhön-Klinikum, purchased the entire university hospital, Giessen-Marburg, which included 10,000 employees, for about US\$145 million. The state kept a minority stake of 5% to safeguard academic research and medical training. Further public hospitals followed that wave.



<sup>17</sup> Federal Statistical Office Germany (2010): <http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Navigation/Statistiken/Gesundheit/Krankenhaeuser/Krankenhaeuser.psm1> (own calculation, see sheet "Development of beds in private and public hands")

<sup>18</sup> <http://idw-online.de/pages/de/news368100> - August 30, 2010

<sup>19</sup> [http://www.bdpk.de/media/file/691.Frankfurter\\_Allgemeine\\_070710\\_DIHK.pdf](http://www.bdpk.de/media/file/691.Frankfurter_Allgemeine_070710_DIHK.pdf), August 30, 2010

<sup>20</sup> Arnold, Michael, Schellschmidt Henner (2003): *Krankenhaus-Report 2002: Schwerpunkt: Krankenhaus im Wettbewerb*, page 77.

### U.S.: Shifting single-payer services to private management

In the U.S., the lack of PPP healthcare infrastructure deals stems in part from a paucity of government-owned hospitals. Only about one-fifth of all U.S. hospitals are owned by government, and that number has been dropping as financially strapped local government sell their stakes to either for-profit or not-for-profit operators. Funding hospital construction has always been left primarily to private organisations in the U.S. Private investment in healthcare construction has accounted for about 80% of all spending during the last few years.

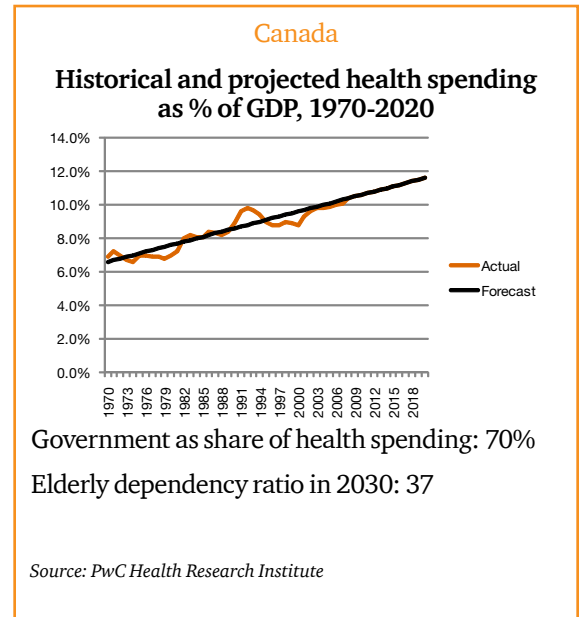
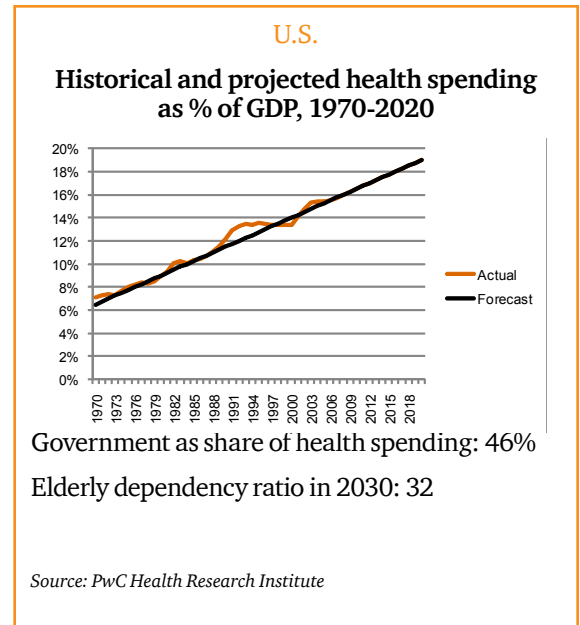
However, a big shift in the private provision of care management has taken place during the last 10 years. Increasing numbers of Medicare beneficiaries, who are 65 and older, have chosen to have their care managed by private health plans. Among the Medicare population, one-fourth are now enrolled in private managed care plans. These private plans coordinate all aspect of a beneficiaries care.

Medicaid, another public plan designed for the poor and low-income, also has been moving toward privately managed care.

### Canada: Modernising ageing infrastructure

Over the last five years, health infrastructure renewal has been a top priority for many Canadian provinces. Faced with a significant requirement to adapt and modernise ageing facilities, British-Columbia, Ontario and Quebec have turned to PPPs to guarantee on-time and on-budget delivery of nearly 50 new healthcare facilities and have committed almost \$10 billion in funding. Ontario has procured 27 healthcare projects, including the first two healthcare PPP projects in Canada, which were concluded in 2006. Under the PPP approach, private consortia have the responsibility of designing, financing, and building the facilities. In many cases, they are also responsible for the maintenance and renewal of the facilities and in some cases, are asked to provide certain support services. Using the PPP approach is estimated to have yielded average savings to the provinces of 15% of the project costs, with Value for Money estimated at between 10% and 30% with on-time, on-budget delivery representing the most significant sources of savings.

In July 2010, the McGill University Health Centre (“MUHC”) project achieved financial close. This PPP contract, worth C\$1,3 billion, will be the largest hospital PPP in North America and will consolidate the services of the MUHC into one state-of-the-art, LEED silver-certified, academic medical centre, which will include adult and children’s pavilions with 100% single patient rooms, a research centre and an ambulatory oncology wing. When it opens in 2014, MUHC will vacate several pavilions dispersed around the city of Montreal, some of which were built more than a century ago. Through the design-build-finance-maintain contract, the private partner is responsible for ensuring that the facility meets certain predetermined standards including air quality, lighting, humidity, and temperature. Failure to meet these standards will lead to financial penalties.



## Latin America: A land of opportunity

In May 2010, the first Brazilian public-private partnership transaction in health, the Hospital do Subúrbio in Bahia, was completed to improve emergency hospital services in one of the most underserved districts of Brazil. The International Finance Corp. (IFC), a member of the World Bank Group, was engaged by the local government to implement the PPP structure for this new hospital. The project will create 1,600 new jobs and is able to treat 175,000 patients annually.<sup>21</sup> A second Brazilian hospital PPP in Belo Horizonte is also being planned.<sup>22</sup>

In addition, governments in Mexico and Peru have established regulatory frameworks for PPPs. In Mexico, health spending has been relatively low (5.9% of GDP in 2008), but growing as the government launched Seguro Popular, an insurance product designed to move the country to universal coverage by 2010. Many regions lacked the infrastructure to serve the previously uninsured, so the Ministry of Health has been developing a PPP programme of eight “greenfield” hospitals. The first hospital is in Leon, north of Mexico City.<sup>23</sup> Also in Chile, (e.g. in Maipú and La Florida) and Peru (mostly in the Lima area), the first healthcare PPPs have emerged.<sup>24</sup>

## Japan: Using flexibility to overcome risks

In Japan, there have been several instances where inflexibility in the PPP contracts led to problems later with fixed payments to the private partners for 30 to 40 years. Service provision became so expensive that the government could not continue to make the payments.

“When a risk is actualised, it is important that the public and private sectors together determine how the risk should be shared,” Keiko Uemura, who is in charge of Yao Municipal PFI Hospital, that opened in Osaka in 2004. It is difficult to determine the optimal risk allocation from the start. New factors arise after the operation starts and by leveraging on the flexibility of a PPP scheme, it is important that the contract can be revised flexibly. Uemura and others see a need for PPPs to help with the nationwide shortage of clinicians. For example, PPPs could be used to develop housing for doctors and nurses.

<sup>21</sup> [http://www.ifc.org/ifcext/psa.nsf/AttachmentsByTitle/PPPseries\\_HospitalSuburbio/\\$FILE/SuccessStories\\_BahiaHospital.pdf](http://www.ifc.org/ifcext/psa.nsf/AttachmentsByTitle/PPPseries_HospitalSuburbio/$FILE/SuccessStories_BahiaHospital.pdf) August 31, 2010

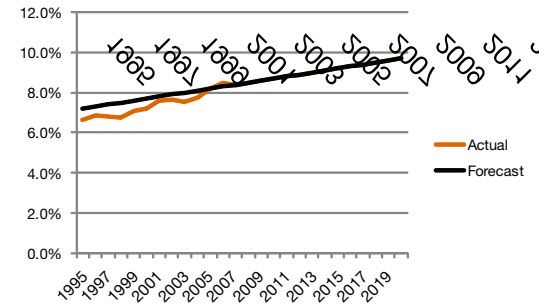
<sup>22</sup> [http://www.bndes.gov.br/SiteBNDES/bndes/bndes\\_pt/Institucional/Sala\\_de\\_Imprensa/Noticias/2010/saude/20100826\\_ppp\\_bh.html](http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Sala_de_Imprensa/Noticias/2010/saude/20100826_ppp_bh.html) August 31, 2010

<sup>23</sup> <http://www.ijonline.com/GenV2/Login.aspx?ReturnUrl=%2fGenV2%2fSecured%2fDisplayArticle.aspx%3farticleid%3d51858&articleid=51858> - August 25, 2010

<sup>24</sup> <http://www.ijonline.com/GenV2/Login.aspx?ReturnUrl=%2fGenV2%2fSecured%2fDisplayArticle.aspx%3farticleid%3d51858&articleid=51858> - August 25, 2010

### Brazil

#### Historical and projected health spending as % of GDP, 1970-2020



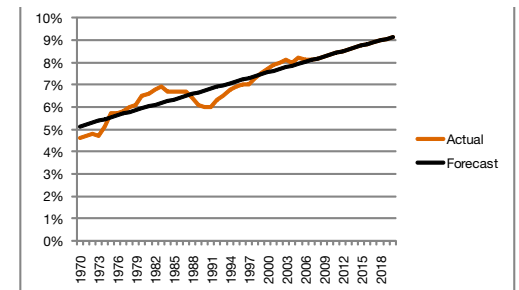
Government as share of health spending: 42%

Elderly dependency ratio in 2030: 19

Source: PwC Health Research Institute

### Japan

#### Historical and projected health spending as % of GDP, 1970-2020



Government as share of health spending: 81%

Elderly dependency ratio in 2030: 53

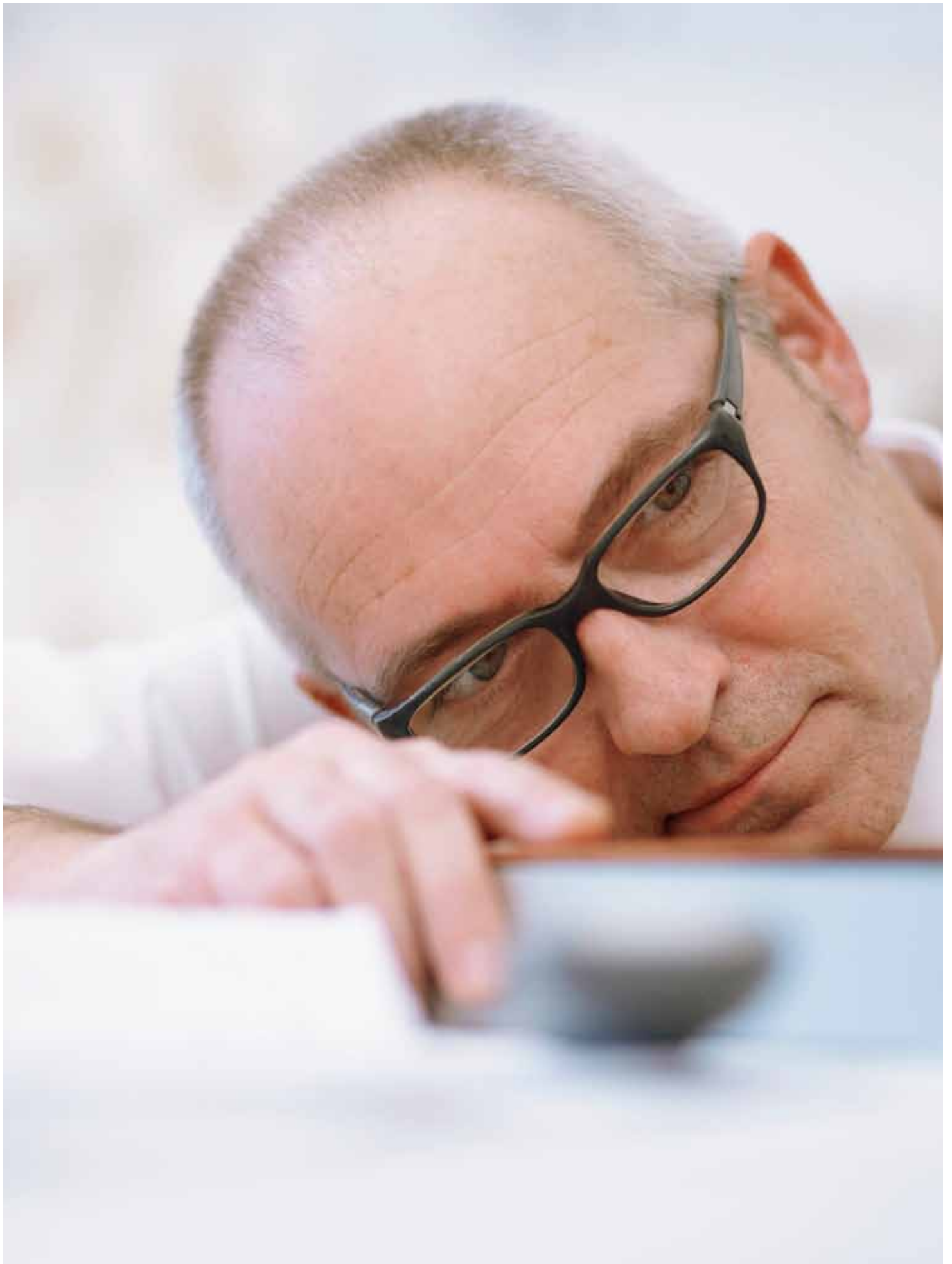
Source: PwC Health Research Institute

### Middle East: New motivations for considering PPPs

The concept of PPPs has been enshrined in law in some Middle Eastern countries for over a decade. It is only much more recently, however, that governmental multi-sector PPP units and/or specific PPP deals have emerged as real contenders to develop infrastructure and social sector services. The definitions and value add relating to PPPs remain relatively fluid in this environment.

The motivations for looking at PPP type solutions also vary widely across the region. Whilst in other parts of the world financial and risk transfer considerations often dominate and this is also true of certain countries in this region, too. However the primary motivator towards greater use of PPPs in much of the Middle East focuses more specifically on skills acquisition and transfer and the development and retention of related IP in content and process terms. As countries increasingly look to either upgrade existing facilities and/or bring on significant new capacity, particularly in the hospital sector, PPP solutions look increasingly attractive to governments facing huge capacity challenges over the coming decades. They also offer potentially attractive opportunities to investors and operators given the significant gap between current healthcare spend in this resource rich region and international norms.







# *Appendices*

## Methodology behind National Projections of Health Spending, 2008-2020

The projections of national health spending in 2010 dollars, which are reported in the aggregate, were based on country-by-country trends of health spending. They are called "projections" instead of "forecasts" because they are based solely on country-specific trends of health spending as percent of GDP multiplied by forecasts of GDP from the World Bank. As a simple formula, the arithmetic is as follows:

$$E(t) = s(t) \times \text{GDP}(t)$$

$E(t)$  = Real National health spending in year  $t$

$s(t)$  = share of GDP devoted to health spending in year  $t$

$\text{GDP}(t)$  = Real GDP in year  $t$

$\text{GDP}(t)$  in 2005 US dollars is available for most countries from OECD from 1970 to 2008. GDP forecasts in 2005 US dollars are available from the World Bank for 2009-2020. The share of GDP spending devoted to healthcare is available from OECD and WHO for a similar period for most countries. PwC developed projections of healthcare spending as a share of GDP for the period, 2009-2020. (In a few cases, the last data point was 2007. In these cases, the PwC projections began in 2008.)

### Projecting healthcare spending as share of GDP

PwC used the past trends in health spending as a share of GDP to project into the future based on a trend line that best met the following criteria:

- The trend line fit a common pattern of flat, linear, logarithmic, exponential, power, or polynomial.
- How well the trend line fit the data as measured by the R-squared statistic.
- The selected trend fits the most recent five to 10 years fairly well and is not too far from the actual share in 2008 (or whichever year is the final year of actual data). In some cases, the trend line was re-estimated based on the last five to 10 years of data points.
- Healthcare spending as a percentage of GDP does not decline over the period 2008 to 2020. This restriction is based on the accepted principle that healthcare is a superior good and the share of spending to it is expected to rise with GDP.
- Generally, healthcare spending as a percentage of GDP is expected to grow at a lower rate in the future than in the past.
- The growth in the share is expected to be within reasonable bounds. Generally, the share is projected to rise at most about 2 percentage points over the 2008 to 2020 period.

- The projections are increased by a fixed percentage ("add factor"), which forces the 2008 projected share on the estimated trend line to match the actual data.

In several cases, the trend line had to project into the future based on completely different methods. Specifically, in Brazil, China, India, and Russia, PwC was faced with actual share data that began only in 1995. Also, the trends were erratic within the short periods of available data for China, India, and Russia, both China and Russia had distinct downward trends in the share of GDP devoted to healthcare spending. In the case of China, we found a poor fitting trend line that exhibited growth in the share of GDP devoted to healthcare. For Russia, we chose a flat share of GDP devoted to healthcare spending. The China choice was based on the strong belief that a country which is rapidly industrialising would experience the growth in share that we have witnessed in the OECD over past decades. Russia is already well-developed and has had a sophisticated healthcare delivery system with universal care for decades. In that case, overriding the declining trend with a fixed percent seemed like a reasonable compromise.

### Projections of National Healthcare Spending

Healthcare spending was projected to 2020 by multiplying the projected share of spending in 2020 by the forecast of GDP growth from the World Bank as follows:

$$E(2020) = s(2020) \times \text{GDP}(2020)$$

Projections for 2009 to 2019 were then constructed by multiplying the projected by multiplying the healthcare share of GDP for each year by a smoothed version of GDP for the same year. The forecast of GDP was smoothed by interpolating actual GDP in 2008 and the forecast for 2020. If this was not done, the projected growth in health spending would follow GDP more closely than it does in practice. Growth in spending does not usually decline as much as GDP in recessions and does not jump up immediately to reflect the rapid growth of GDP in recovery. This adjustment lead to growth in health spending that tracks long-term growth in GDP. For example, if the 2008 spending level was \$20 billion and the 2020 projection was \$30 billion dollars then health spending must grow by about 3.4% annually to attain the 2020 level in 12 years.

One final adjustment was made to our projections. The World Bank projections of spending are in 2008 US dollars. We preferred to report our projections in 2010 dollars. To do this is quite simple. The values for each year are adjusted by the ratio of the 2010 US GDP deflator to the 2005 US GDP deflator to obtain projections in 2010 dollars. We used the published data from the US Congressional Budget Office to make this adjustment.

Finally, the projections for the US were overridden with forecasts of health spending from the official CMS, the official US agency that makes GDP forecasts.

The projections of national health spending should be evaluated with a number of limitations in mind:

- These are projections and not forecasts. In other words, they are based totally on trends. Forecasts would be based on a more sophisticated model that estimates healthcare spending based on a large number of known factors that drive healthcare costs such as government policies, demographics, number of healthcare professionals, obesity, and exercise.
- The projections are not based on any specific knowledge of the countries other than past data and GDP forecasts. For example, we know that most industrialised nations face huge "baby boomer" populations who are entering old age and high healthcare spending patterns. In addition, many countries are facing fiscal crises and may severely cut healthcare spending in the next 5 to 10 years. The trend picks this up only to the extent that these trends began in the past.
- The projects are "smoothed" and thus do not take into account year to year variations in the share that could be predicted with a more sophisticated model. For example, when a recession hits, health spending tends to be affected much less than other spending. Therefore, the share of health spending as a share of GDP tends to rise faster than it did in the years leading up to the recession. Similarly, we would expect to see the growth in health spending as a share of GDP grow slower or even decline as countries pull out of recession. In other words, the projections are intended to give some idea of where each country's health spending is headed rather than giving a good projection for 2009, 2010, etc.
- The projections are in "real" not nominal dollars. So, the actual projection for 2012, for example, might be 5% higher in a country if we adjust to 2012 US dollars.
- The projections in the currency of any particular country would grow at that country's rate of inflation. So, a country that was experiencing 8% inflation might see more than 16% additional growth in health spending between 2010 and 2012 beyond the projected growth.

The projections should be a useful tool. In many countries, the share of spending has been fairly close to the trend line for years. Also, some of the forces that are not modeled tend to be small annual changes rather than abrupt shifts in patterns. For example, the ageing of the population has been going on for years and some of it may be included in the trends. To the extent that it is not in the trends, the ageing of the population may increase the trend growth by only 1/4 to 1/2 percent.<sup>25</sup>

<sup>25</sup> *Ageing plays limited role in health care cost trends, Bradley C. Strunk and Paul B. Ginsburg, Centre for Studying Health System Change, September 2002.*

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PwC ([www.pwc.com](http://www.pwc.com)) provides industry-focused assurance, tax and advisory services to build public trust and enhance value for our clients and their stakeholders. More than 163,000 people in 151 countries across our network share their thinking, experience and solutions to develop fresh perspectives and practical advice.

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