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HealthCast: Global Best Practices in Bending the Cost Curve

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Introduction

The almost unanimous refrain these days in countries all over the world is that healthcare is 'in crisis'. Driven by the tsunami of ageing and chronic illness in developed economies and the skyrocketing demand for more services in rising middle classes accompanied by 'diseases of prosperity' (such as obesity and diabetes) in developing economies, almost no one feels that this industry is under control.

Many exciting and innovative practices are evolving to address these common challenges, but leaders lack the opportunities to share their successes and failures. So in February of 2011, PwC decided to create a new global forum in the form of an ongoing symposium series called *Bending the Cost Curve: Global Best Practices*.

Over 100 leaders, including renowned healthcare experts and industry CEOs, attended one of four symposia on four different continents to date. This *HealthCast* publication is devoted to distilling the lessons learned from the series and the verdant ideas that emerged from the discourse among leaders. The result is a preview of what the future looks like—the trends that are shaping healthcare systems of tomorrow—and the emerging practices that will bend costs to make that future sustainable.

About the case studies

No one is smarter than everyone, so Bending the Cost Curve provides a platform for some of the best minds in global healthcare to vet solutions among peers in an off-the-record, roundtable setting. PwC's case study approach focuses conversations around highly practical applications.

Twenty case studies (shown in the Appendix) were chosen to highlight methods for cutting costs, increasing quality of care and improving access:

1. Narayana Hrudayalaya (India): *Reverse innovation in an Indian hospital system dramatically lowered the cost of open heart surgery, while maintaining world-class quality standards at high volume.*
2. The Valencia Concessional Model (Spain): *A public-private partnership (PPP) in Spain delivered an end-to-end healthcare solution, achieving higher satisfaction at 25% lower cost.*
3. Headspace (Australia): *A mental health program incorporates technology and accessibility to break the mould in primary care and wellness.*
4. British National Institute for Health and Clinical Excellence (NICE) (UK): *Showing the strengths and weaknesses of comparative effectiveness.*
5. Dutch National Healthcare Authority (Netherlands): *The successes and unintended consequences of using privatisation to tame healthcare costs.*
6. Medco's Smart Medicine Approach (US): *Moving toward precision medicine with diagnostics that reduce waste and potentially save lives.*
7. Kaiser Permanente (US): *Redefining the integrated care model.*
8. The National Committee for Quality Assurance (NCQA) (US): *Pioneering the measurement of healthcare quality through voluntary incentives.*
9. Quebec Ministry of Health and Social Services (Canada): *Using Lean process techniques to improve hospital efficiency.*
10. Singapore Ministry of Health Holdings (Singapore): *The National Electronic Health Records Project promises "one patient, one record" to coordinate care among health systems and create efficiencies.*
11. Queen 'Mamohato Memorial Hospital (Lesotho): *A PPP model drastically improved quality of care in one of the world's poorest countries.*
12. Ontario Citizens Reference Panel (Canada): *How citizens helped shape health reform efforts.*
13. MedIC (US): *Trialling six models of geriatric care to test approaches that integrate and improve quality of care for the elderly.*
14. Apollo Hospitals (India): *Using mobile phones to increase access to healthcare for millions of Indians.*
15. Orange (France): *Fighting drug counterfeiting with SMS technology.*
16. WellDoc (US): *Empowering diabetics with mobile coaching.*
17. Daman (United Arab Emirates): *A partnership between the UAE government and Munich Health achieves near universal healthcare access for citizens and expatriates.*
18. Lesotho Ministry of Health (Lesotho): *The importance of political will in building a PPP.*
19. Netcare (South Africa): *How a private provider helped build a state-of-the-art hospital in Lesotho.*

The twenty cases are not meant to be a definitive list of solutions. Rather, the goal of this series is to shrink the world, ask better questions and traverse geographies to learn and apply the lessons at home more quickly.

What did we hear? Demystifying the cost curve

The case studies demonstrate that there is real potential to inject change into healthcare and that bending costs is possible. By learning from these leading global examples we can move our own policy and finance discussions from theory to implementation.

Across the case studies, we saw the following nine themes emerge:

1. Leadership

Leadership was a critical factor in the successful implementation of every case study, and a basic ingredient for each of the themes below. If health systems are to meet twenty-first century demands, they must embrace change as the new normal and, like many other industries, adopt new and evolving business models. This calls for strong, agile leadership to navigate complex political and economic environments.

2. Public-private partnerships (PPPs)

Neither the public nor the private sector alone can afford the entire financial burden of providing healthcare. One way to transform health systems is through a shared-risk approach of public-private partnerships. PPPs that move 'beyond the build' of infrastructure to include clinical service delivery are likely to bring more value. By leveraging the efficiencies and innovations of the private sector, governments can meet their promise of access and quality and move towards more effective integrated care models.

3. Integrated care

Health systems around the world suffer from some degree of fragmented care delivery, along with payment systems that drive up costs. Integrated care is a promising and proven way to counter these challenges; by aligning incentives between payers and providers, integrated, coordinated systems reduce costs and improve outcomes. But this transformation has to be carefully managed to win clinician and public acceptance. True integration requires a holistic approach supported by greater use of IT and information to improve measurement.

4. 'Care anywhere'—the enabling power of technology

Whether in the hands of individuals or institutions, technology frees patients to be treated anywhere, at any time, by a much broader array of providers. Consequently business leaders are embracing new models, such as mobile health (mHealth) and mobile applications, to offer high-value, low-cost chronic care to even the poorest and most remote populations. Although this revolution is powered by economic necessity, it will certainly migrate to wealthier nations facing a tidal wave of ageing and chronic disease.

5. Data analytics and measurement

Healthcare is joining other industries in embracing digital technologies, with the worlds' public sectors promoting electronic medical records. As the healthcare value chain 'wires up,' the next challenge is managing the deluge of data. Digitisation, makes new information suddenly available—from patient preferences to clinical outcomes. The potential for cost efficiencies and quality improvement is great, but to cope with the sheer volume of data, health systems and their leaders must urgently ask the right questions and measure the things that matter.

6. Process improvement in hospitals

Although in their infancy, hospital process improvement methodologies can significantly increase productivity. Aggressive adoption of such approaches not only cuts operating costs substantially; it also creates new capacity within existing infrastructure. Those leaders able to transform hospital care from expensive and fragmented to efficient and patient-centric will be at the forefront of tomorrow's health systems.

7. Caring for an ageing population

There is great potential for enhancing care for the elderly within both hospitals and the wider community. The traditional model of high-cost tertiary care can be radically overturned, to improve care quality for geriatric populations – even when patients are institutionalised. These advances can reduce the cost of care and free up institutions to become more productive in other service lines.

8. Precision medicine

Healthcare is moving from a population-based to a precision-based industry. Thanks to progress in genetic mapping, the sector is heading towards an era of customisation, disrupting traditional models of care to deliver "the right treatment to the right person at the right time." Although empiric, population-based studies will remain important, measurement is now becoming smarter and faster, cutting waste and raising quality. Precision medicine is playing a big part in the 'industrialisation' of healthcare.

9. Creating sustainable health economies through bioclusters

With the right vision and leadership, bioclusters can revitalise entire cities and regions through the growth of vibrant healthcare economies. They create jobs and innovation by providing specialty services, professional education, science and clinical research. These advances show that healthcare needn't always be viewed as a cost 'problem'. Instead, bioclusters often generate value and stand out as shining examples of public-private cooperation.

What this means for your business

The nine themes that arose from the case studies and symposia validate what PwC sees as three key trends that signal a turning point in the rapid transformation of the healthcare industry, as it seeks to provide faster, better, and cheaper service for all its stakeholders.

As the industry adapts to new demands, businesses and governments will have to change the way they deliver and pay for care. The following three key trends are to some degree common to almost all healthcare economies and will usher in a new era of productivity:

1. *There is a rebalance of the public and private sectors in the financing and delivery of care.*
   In a global economy where costs are climbing ever higher, health secretaries and ministers around the globe have repeatedly said that the public sector can't assume full responsibility for healthcare. Consequently there's a growing tendency to embrace private sector efficiencies and innovations, to enable governments to meet their social obligations of access and quality. The private sector in turn benefits from governmental regulatory frameworks that create an even playing field, allowing businesses to flourish.

How to thrive in this environment:

- Treat healthcare as an investment rather than a cost problem. New and innovative PPPs are emerging that go beyond buildings and operating structures, including the transfer of critical assets such as capital and knowledge. In places like Alzira, Spain, this exchange includes guarantees of access, quality and significant cost reduction. A similar approach in Lesotho in Africa has quickly revolutionised performance and produced a functioning clinical care centre, in a country that previously suffered some of the highest maternal mortality rates in the world.
- Extend partnerships beyond the walls of individual hospitals to create sustainable health economies. Bioclusters can open the floodgates of economic expansion, revitalising entire cities such as Pittsburgh in the US.

2. *The healthcare sector is industrialising*

The healthcare industry has a long history of tolerating waste and inferior quality. For decades, stakeholders resistant to change have maintained high prices for their services. Healthcare has been late to the game but is now catching up on both fronts and being reconfigured around the patient experience. The industry is learning to do things more efficiently at enterprise levels and transforming through the disruptive changes being wrought by personal technologies.

How to thrive in this environment:

- Adopt new methodologies that significantly increase hospitals' productivity, cut operating costs, and create additional capacity within existing infrastructure. Prominent among these new approaches are enterprise-wide information technology systems, to manage the clinical processes that are central to progressive hospitals and delivery systems.
- Transform care through disruptive technologies like mHealth and telemedicine. These advancements are empowering stakeholders through personal technologies and shaking up the traditional care paradigm between doctors and patients. Undoubtedly, emerging economies, where necessity is the mother of invention, are leading the way in these transformations. In India, for example, Apollo Hospitals Group is granting access to millions of people in that country, who otherwise couldn't afford healthcare, through their mobile phone.

3. Healthcare is becoming a precision-based industry

Like any industry, healthcare will enjoy lower costs as it utilises science and technology to become more precise. Genomics is leading healthcare towards precision medicine and ultimately to mass customisation; its effects are also enlarging the traditional healthcare ecosystem. In the past, the healthcare system was defensive, and not offensive, treating patients once symptoms occurred. However, rapid advances are helping to understand (sometimes as early as conception) individuals' disease vulnerabilities and recognise the smallest physiological changes before symptoms arise.

How to thrive in this environment:

- Invest in data analytics to yield the best returns. In the UK NICE incorporates social and economic factors when analysing medical treatments. This type of evidence based medicine can improve the quality and efficiency of healthcare systems around the world and lead to major breakthroughs.
- Invest in wellness and prevention, creating long-term cost savings and profitable new businesses. Through a better understanding of the human genome, precision diagnostics will take the guess work out of care delivery, allowing for a more efficient scope of practice and earlier identification of those susceptible to disease.

Conclusion

A combination of new public-private models, industrialisation and personalisation will help healthcare systems resolve the challenges of cost, quality, and access. Such cures will become commonplace as the industry focuses on productivity and outcomes.

Healthcare is at the dawn of a new era, belatedly joining other sectors to undergo a major transformation, in order to serve all patients more efficiently. In the face of ageing populations and exploding new technologies, it may be impossible to cut overall healthcare spending, but it's within our grasp to bend the cost curve to achieve faster, cheaper and better healthcare.

Innovative projects from many unlikely sources show it's possible to break down barriers to effective care. However, *Bending the Cost Curve* is not about mere replication; its main goal is to improve upon innovative ideas by discussing common problems and solutions. No two local healthcare systems are alike, but the challenges are similar from one region to the next and stakeholders around the world can learn from each other.

Leadership is the bedrock for these revolutionary changes. Visionary leaders recognise that current crises are a catalyst for positive action and one of their most important tasks is to convince all stakeholders to welcome the new epoch in healthcare.

Bending the Cost Curve Faculty Board

Bending the Cost Curve is supported by a distinguished Faculty Board, whose members help guide the curriculum and participate in the meetings

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Bending the Cost Curve speakers

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** Titles listed were current at the time of speakers' participation at the event.*

Appendix

Leadership

Redefining primary care and wellness

Case study

headspace, Australia's Youth and Mental Health Foundation

Presented in February 2011 by

Professor Ian Hickie, Professor of Psychiatry, University of Sydney; Executive Director, Brain and Mind Research Institute

Background

Australia has a population of roughly 22 million, spread out over a huge geographic region, and a universal healthcare system that provides subsidised access to doctors, subsidised pharmaceuticals, and free public hospital care for all. About 69% of healthcare is publicly funded, 8% is funded through private insurance, and 18% is paid out of pocket by citizens. State governments own and operate public hospitals, but more than 90% of primary care and more than 55% of surgeries are delivered by the private sector. While Australia has performed well on some aspects of healthcare, such as longevity, it has done a poorer job of guaranteeing access, safety and equity. In 2008, the government established the National Health and Hospitals Reform Commission to address these issues through a comprehensive evaluation of the country's healthcare system.

The commission delivered its final report in June 2009, offering 123 recommendations under four themes:

1. Taking responsibility for health and well-being, individually and collectively
2. Connecting care – providing comprehensive, coordinated care over the course of a lifetime, and focusing more on primary care and less on hospital-centric care
3. Addressing the inequities of the system that result in indigenous and rural populations receiving poorer quality care
4. Driving quality performance – developing leadership and systems to ensure the sustainability of the system by making the best use of limited resources.

During this process, the commission discovered *headspace*, an impressive programme that embraced all four themes. *headspace* was innovating in an area – mental health services for young people – that had been sadly neglected in the Australian healthcare system. In addition, mental health had been cited as the number three concern of Australians. Addressing this issue required a hard look at prevention.

As one expert noted: "If you want to make a really big difference in mental health, you don't wait (until problems have become severe). That's very costly. The social and disability costs are very high, and you have only small improvements. You end up actually with a disability support model. So, the peak incidence of onset of mental health problems is actually in the teen period, post-puberty and then up to about age 25."

Another added that the danger wasn't in mental health patients becoming violent. The real problem is that they "mainly sat on their own, at home, alone, disconnected from education, disconnected from employment and consuming very high levels of disability support payments for life."

Case study

headspace is a national, not-for-profit social venture company that operates independently of the government and delivers a variety of services, mainly focused on mental health, through local consortia of private providers. The organisation serves young people between the ages of 12 and 26, who can use their universal health insurance at any of the 30 *headspace* centres around the country. An individual can visit a *headspace* centre for any reason; there's no need for a referral from a physician, or a formal diagnosis.

headspace is based on the premise that investing in early identification and treatment of mental health problems generates a substantial return in the long run, for the individuals treated and for society as a whole. Mental health issues, if left untreated, can put young people at risk for problems such as substance abuse as well as physical health problems later in life, including heart disease and diabetes. When not addressed early, these problems often lead young people to drop out of school or the workforce, resulting in huge social and economic costs, in the form of disability payments, lost productivity and in some cases, incarceration.

headspace was established through a national government grant. Recurring funding comes from several public agencies, including agencies focused on education, employment and research as well as health, reflecting the programme's goal of achieving broad social objectives by addressing mental health issues early. Funders are interested not just in health outcomes but in keeping young people in school or at work.

Analysis: how to implement this model on a wider basis

Overcoming obstacles with the traditional medical system

In some ways, *headspace* bypasses the typical medical system. Traditionally, when young people seek treatment, they are seen by a general practitioner who may have little or no training in mental health issues. Noted one expert: "Most GPs that I speak to say, 'If only we had somewhere we could send them because this is just beyond us. It's beyond us in capability, knowledge and certainly not something we could deal with in six minutes, let alone 20 minutes.'" Others noted that primary care doctors are at capacity, and so patients with mental health issues don't get the treatment they need. Said one: "You have to actually create new capacity." One solution is group interventions, although one expert added: "Providers hate them. Providers love individual interventions."

Too often, mental health problems are addressed in emergency rooms and hospitals, after problems have progressed and become severe. It's an inefficient, costly, and largely ineffective approach that leads to high costs, poor outcomes, health challenges later in life, and the mistaken notion that mental health problems cannot be treated effectively.

One comment was: "My greatest frustration on a day-to-day basis is most professional organisations – not just the doctors, the psychologists, everybody else – wants to maintain very informal ad hoc arrangements and sees that as good enough."

Treating reluctant populations
headspace centres do not look or feel like health clinics. The centres employ a range of youth-friendly health professionals who offer not just mental health counselling but general health services, help in dealing with alcohol and substance abuse problems, and education, employment and other services, in an atmosphere that's inviting to youth.

This youth-friendliness is a key to improved access, particularly for males. Under Australia's traditional model, two-thirds of those who accessed mental health services were young women. By contrast, more than half of *headspace* users are young men. Typically, they're brought to a centre by a mother, sister or friend, and stay because they find the services relevant.

Another factor in the success of *headspace* is its patient-centred focus. *headspace* empowers young people to take responsibility for their own health and wellbeing, and provides the tools for them to do so.

Partnering beyond the medical system
headspace works closely with schools, which play a key role in identifying mental health problems, as these problems often manifest in declining school performance. The programme also provides support for families, viewing family involvement as critical to mental health, and strives to involve the young person's social network.

Redefining primary care through technology
Technology tools are a key ingredient in the lives of young people. *headspace* is developing online clinics and services and exploring social networking and other technologies that are relevant to a youth audience. E-health is an interesting battleground between the traditional provider-driven mental healthcare and new ways of having access to care. For example, young people seeking mental health treatment like the anonymity of e-health. One expert talked of a successful e-health programme for young girls suffering from eating disorders in which psychiatrists offered chat sessions on an anonymous basis. "The success was enormous, but the reason for success is that it could be done anonymously," she said.

Embedding technology in the process
The Australian government has funded a cooperative research centre that's working with IT partners to explore the commercial viability of social networks for delivering mental health services. And one Australian private insurer has funded an online information portal and moderated chat environment called DepressioNet. Added one expert: "Young people and their use of technology will defeat traditional providers. In the past it might cost us $15,000 to develop a solution that you can now buy in the form of an iPhone app for $1.99. Younger generations prefer to use technology tools and often will choose to bypass the healthcare system because it doesn't respond to their needs. Smart, entrepreneurial providers and private companies will recognise this and adapt to new technology much faster than government systems will."

Consumer-led health reform

Case study

The Citizens Reference Panel of Ontario, Canada

Presented in November 2011 by

Mr. Peter MacLeod, Principal, MASS LBP

Background

Conversations between the government and the public need to be informed by learning.

According to André Picard, a well-known Canadian health commentator: "The adult conversation we need to have about health care has not occurred, in large part, because politicians, policy-makers, experts and pundits have largely cast aside the public."[1]

All too often public debates about healthcare are characterised by mistrust. Many citizens appear to lack confidence in public institutions and politicians, while public authorities are sceptical about the capacity of the public to play a constructive role, as they believe people to be ill-informed, and over-concerned with the ideological pros and cons of public versus private delivery.

Yet as governments around the world struggle to get to grips with rising costs in the face of severe deficits, there is more need than ever to find solutions that meet the needs of citizens. Nowhere is this more so than in Canada, where the sustainability of its publicly funded healthcare system – possibly the most highly cherished public institution – is under threat, with calls growing for major reforms.

By regarding the public as a resource rather than a risk, a mature dialogue can give legitimacy to difficult policy choices, increasing trust and confidence in political bodies and improving the quality of decision-making.

[1] "Finally, a health-care paper that makes sense", André Picard, *The Globe and Mail,* 22 June, 2011.

Case study

"Finally, a healthcare paper that makes sense." How true public engagement can deliver practical, effective ways to improve healthcare and make better use of scarce resources.

The Citizens' Reference Panel on Ontario Health Services was a joint initiative between PwC Canada and MASS LBP, a respected Toronto-based firm specialising in public engagement. Over three full weekends, renowned experts and citizens together held thoughtful, informed discussions about the state of healthcare in the region and came up with recommendations on how to sustain and improve the system.

A six-member volunteer Advisory Board included respected former health administrators, a former assistant deputy minister, health researchers and clinicians, who helped put together a curriculum that would be seen as fair and balanced. The citizens who took part were selected by a civic lottery to achieve a balance of age, gender and geography that reflected the wider Ontario population.

Panellists received no financial incentives to participate although PwC paid for their travel and accommodation.

In the first phase the panel learned more about Ontario's health system with the help of 20 of the province's most respected health leaders, after which they debated the most pressing issues and looked at different potential health scenarios.

Members felt strongly that the existing Canadian healthcare system was sustainable and that greater efficiency rather than more money was the way forward, with a general acceptance of a continued mix of private and public funding and delivery. Discussions focused on issues such as primary care, accountability, incentives, information sharing, e-health, privacy and the future of community care.

Some of the key recommendations included: a need to get serious about preventative health; addressing the growing challenge of obesity and diabetes, as part of a general lack of fitness; shifting the funding model for physician pay towards outcomes rather than treatment; accelerating the adoption of family health teams to bring in more paraprofessionals; and finally, integrating the system more effectively to join up service providers and institutions.

To quote André Picard again: "All in all, a sensible, do-able package, and proof that the public knows full well what needs to be done to improve and sustain (the system). What is still lacking is action, and leadership." What such panels tell us is not that governments ask too much of the public; it's that to date they've been asking far too little.

Analysis: how to implement this model on a wider basis

Extending the concept of engagement

In the words of one participant: "This is great – but it doesn't go far enough. We shouldn't just ask the public what they think about the system; we should get them actively engaged in the process of running it." In the UK, for example, 1.2 million people around the country chose to become members of community hospitals, having a say in how they are run, with a significant proportion working as volunteers. An even more radical approach for state-funded systems is to hand some budgetary control over to individual patients, so they have some say in the type of treatment they receive, which could be particularly useful for chronic conditions. Ultimately, engagement is about individuals taking responsibility for their health and feeling part of the overall healthcare system.

Demonstrating a willingness to respond to the public's ideas

Governments and other authorities must visibly show that they are listening and acting on recommendations. In Ontario, senior members of the Provincial Parliament, including deputy ministers, asked for a presentation of the findings and included some of the ideas in cabinet submissions and policy memos, which should influence health policy to a degree. And customer feedback has to become part of a continuous improvement loop, rather than a static annual satisfaction survey, so that the system continually responds to what patients are saying.

Building engagement into the everyday process of government

Governments are constantly looking to different internal and external experts to supplement their own decision-making process. The public should be seen as just another source of potential information and ideas, as one participant observed: "I see this as being no different than any of the other kinds of expertise that government might reach out to when making tough choices." Citizens' engagement groups such as the Ontario Panel remind all leaders that they have to earn legitimacy, which applies not just to politicians but to hospital CEOs, the clinical directors of medicine and others in positions of authority and influence.

Making recommendations actionable

One of the successes of the Citizens Reference Panel was its practical suggestions, borne out of a real understanding of the issues. As a participant noted: "The experts involved stressed the need for actionable and 'directional' recommendations, and I think the panellists really took that to heart." By focusing on practical suggestions, the Citizens Reference Panel has had positive feedback, not just from Ontario, but from a number of health services leaders and agencies in provinces across Canada.

Taking account of all stakeholders

One attendee was concerned about the impact of people's panels upon physicians' earnings, commenting that: "We operate in a perfectly uncontrolled environment where we are very vulnerable to professional and non-professional interest groups, which means that apparently rational solutions are rejected." It's therefore vital to represent all the stakeholders such as doctors, nurses and other interest groups, so that their views are understood and taken into consideration.

How SMS technology can fight the spread of counterfeit drugs

Case study

The m-Pedigree programme in Kenya, Cameroon and Ghana

Presented in March 2012 by

Mr. Thierry Zylberberg, Executive Vice President, Strategic Partnerships and General Manager, Health Business, France Telecom

Background

The blight of drug counterfeiting is impacting markets around the world and causing death and misery to millions.

Drug counterfeiting is a worldwide phenomenon and a crime against society, with products containing inert ingredients packaged and sold in a deadly trade that kills thousands of innocent people. According to the World Health Organisation (WHO), 200,000 people die every year from sales of substandard, counterfeit malaria medication.[2]

There are a number of different variants: products without active ingredients; products with the wrong ingredients; products with incorrect quantities of active ingredients; products with correct quantities of active ingredients but with fake packaging; and finally, products with high levels of impurities and contaminants. If the product contains small quantities of the active ingredients, there is a chance of resistance spreading, which could be catastrophic for diseases such as malaria and HIV/AIDS.

It seems that few drug groups are immune to the threat, with antibiotics, antimalarials, hormones, steroids, anticancer, antiviral, analgesics and antihistamines all victims of counterfeit activity. Although nowhere is safe from the threat, it's in emerging nations that the practice is most rife, with the WHO estimating that in some countries as many as one in three drugs sold are fake.[3]

[2] World Health Organisation website: http://www.who.int/mediacentre/factsheets/2003/fs275/en/

[3] Medicines and Healthcare products Regulatory Agency (MHRA) (UK) figures 2012.

Counterfeiters are normally well-organised criminal groups, and tracing them is a major challenge, with manufacturing facilities hard to track down and easily dismantled. The complexity of the supply chain adds to the task. For example, in February 2012 it was announced that fake versions of Roche's cancer drug Avastin were circulating in the US, with the product travelling in a zigzagging route that may have included Turkey and Egypt before being sold to Swiss, Danish, UK and finally US wholesalers.[4]

Case study

Thanks to simple mobile technology, patients and clinicians in Kenya, Cameroon and Ghana can now check whether drugs are fake by sending a single SMS, receiving an instant verification.

It's hard to overestimate the cost of counterfeiting. One expert believes that the global market for fakes could be worth between US$75-$200 billion – a year[5] in lost revenue for pharmaceutical companies. The practice could even jeopardise national and international investment in research manufacturing facilities, marketing and distribution.

However the biggest cost is arguably to society as a whole in the form of additional treatment and especially in lost lives of those who could otherwise have made a productive contribution to a nation's wealth over a lifetime. The 200,000 deaths a year attributed to malaria alone could potentially cost billions to the countries affected. The WHO estimates that malaria can decrease annual gross domestic product (GDP) by as much as 1.3% in countries with high levels of transmission, while in some countries the disease accounts for up to 40% of public health expenditures, 30-50% of inpatient hospital admissions and up to 60% of outpatient health clinic visits.[6]

Given these staggering sums, it's no surprise that there are concerted efforts to help health systems and the pharmaceutical industry secure the global supply chain for drugs. The WHO has been working with government agencies and manufacturers around the world to create a database of products, giving each packet of medicine a unique number. And in an innovative new initiative from mobile phone company Orange (part of France Telecom), these markings can now be tracked at any point in the distribution pipeline using widely available and relatively inexpensive technology.

The system is a collaboration between Orange and a non-governmental organisation called m-Pedigree and is very simple for users and/or clinicians. Each pack has a batch number and expiry date, along with a one-time code that is only revealed by scratching the covering ink. The code number is sent by SMS to a server, which sends an instant response verifying whether the drug is real or fake.

The code on the packages is a one-off encrypted number that incorporates the batch code and expiry date, so the system is relatively foolproof.

The costs are minimal and initial trials in Kenya have been very successful, with thousands of messages sent to the server, suggesting that such an approach has a huge potential for wider application in both emerging and mature markets. Once trials have been completed, there are plans to develop a sustainable business model with non-profit organisations, government agencies and pharmaceutical companies.

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[4] *Drug Distributor Is Tied To Imports of Fake Avastin*, Wall Street Journal, 7 March 2012.

[5] *Poison pills: Counterfeit drugs used to be a problem for poor countries. Now they threaten the rich world, too*, The Economist, 2 September 2010.

[6] WHO estimates http://www.who.int/mediacentre/factsheets/fs094/en/

Analysis: how to implement this model on a wider basis

Applying the appropriate business model

There are a number of ways to approach this form of anti-counterfeiting:

a. **Existing model:** the m-Pedigree model has worked effectively in Kenya, where Orange has a large proportion of the consumer market. Ultimately the system must incorporate all the country's mobile telecommunications providers, who will have to view the venture as a purely non-profit activity in the interests of corporate social responsibility. However, if a consumer is given a 'false positive' – i.e. is told a drug is authentic when in fact it is not, this could damage the brand of those associated with the system.

b. **Government-controlled:** by insisting that all drugs sold in the country must be part of the verification system, governments can create a safety net for its citizens. Such an approach requires government and pharmaceutical companies to work together to ensure that all packs are labelled, with the telecommunications providers likely to offer unbranded network access. This would probably be free to citizens.

c. **Pharmaceutical industry-controlled:** the drugs manufacturers would be responsible for ensuring that products were genuine and would market the service to consumers. In most countries pharmaceutical companies are forbidden to communicate with consumers, so the various players could work together to carry out unbranded campaigns from the industry in general, which would benefit everyone. One major challenge is achieving certainty of authenticity, as the recent Avastin case illustrates.

Educating the consumer

Regardless of the business model, the various stakeholders – government and the pharmaceutical industry – need to invest in a long-term awareness programme to ensure that consumers, pharmacists and clinicians use the verification system. The m-Pedigree trial in Kenya found that usage dropped off quickly after the initial communication programme ceased. Every pharmacist should be trained in the system and encouraged to explain it to all their patients.

Creating a secure supply chain

This is by far the biggest challenge facing the industry, and one that mobile technology alone cannot resolve. One option is to simplify the chain by only working through carefully accredited wholesalers/suppliers to avoid a repeat of the recent Avantis episode, where it was very hard to trace the past movement of the products. These suppliers could then deal directly with the pharmacies and the database. However, the only way to gain greater universal security is to digitise the entire supply chain, enabling a package to be tracked in real-time anywhere in the world, comparable to the systems used by major global logistics companies. Such a move would take a significant and combined investment on the part of the industry as a whole, involving a wide range of stakeholders, amongst them the WHO, the Global Fund, pharmaceutical companies, wholesalers/suppliers, pharmacies and national governments.

Extending healthcare coverage across society

Case study

Daman National Health Insurance Company, United Arab Emirates

Presented in March 2012 by

Dr. Sven Rohte, Chief Commercial Officer, Daman National Health Insurance Company

Background

Abu Dhabi has an ambitious plan to improve access to healthcare for its nationals and its large expatriate population.

Health insurance has only come recently to Abu Dhabi. Nationals have traditionally enjoyed free healthcare in public hospitals while the Emirates' approximate 1.5 million expatriates, who make up around three-quarters of the population, have had to pay for services directly, (although these have been heavily subsidised).

So when the government decided in 2005 to roll out private health insurance via a public-private partnership with Munich Reinsurance Group, it had a broader vision of transforming the entire healthcare system to bring affordable access for expatriates, introduce world-class services and reduce the need for public subsidies. This in turn would encourage local and foreign private investment attracted by a predictable insurance revenue stream.

The Emirates' centralised government enables fast decision-making and its undoubted wealth means that there are significant funds available to invest in every aspect of the health system. Nevertheless its objective of comprehensive coverage in just a few years was highly ambitious and necessitated the development of an entire infrastructure to cope with claims and billing, plus a system of regulation in place for all major stakeholders, businesses, insurers, medical services and pharmaceutical providers and brokers.

The first step was a law making it compulsory for employers and business owners in Abu Dhabi to provide health insurance for their expatriate employees and creating a company named National Health Insurance Company-Daman to facilitate this law. Around the same time – February 2005 – a tender proposal was prepared, with Munich Re Group selected as a strategic partner in Daman which, at the time, was the first dedicated health insurance provider. Munich Re now owns 20% of Daman and the mandatory health insurance law has extended to include United Arab Emirates (UAE) nationals.

Case study

In less than five years, Abu Dhabi – through Daman – has managed to achieve near universal health insurance coverage of its population, with well over two million members subscribed to the scheme.

To support this fast growth, Daman has built a substantial organisation to manage every aspect of the business, including sales and distribution and a team handling more than 1.5 million claims per month. Such a high volume of data has also provided excellent market insights that have helped gauge the health trends across the population.

Three different levels of product have been launched to address distinct market segments: basic, enhanced and a third category for UAE nationals. The Abu Dhabi government carries the risk of the subsidised basic product and the one for UAE nationals, while Daman/Munich Re carries the risk of the enhanced product range.

Daman's early days were very much focused on establishing an organisation that could immediately handle 1.5 million expatriate members. To achieve this, the management created a strong sales and back office function to enrol members from businesses and government entity members, and launched a 24-hours customer service call centre and a number of service points at key government and popular areas to serve the growing membership numbers.

Education has also been a major priority, with an extensive marketing campaign to explain the principles of health insurance and the level of coverage. Many of the 1.5 million expatriates are relatively uneducated construction workers from different ethnic and cultural groups, so the communication techniques used had to be tailored to such an audience, including the use of pictures for those who can't read.

Externally, Daman has worked hard to build consensus with key stakeholders and to ensure that the new system is simple and straightforward for the medical profession, the patients and the administrators. Over the past six years, Daman was a key driver in developing a health insurance industry with a professional infrastructure in Abu Dhabi. In collaboration with local authorities, it has built an insurance system infrastructure of international calibre within Abu Dhabi's healthcare and pharmaceutical providers.

The system supported providers in handling more visitors efficiently as 99% of the population are now able to access public and private health facilities. It managed to ease authorisation for claims processing and payment, and includes highly-automated claims adjudication.

As part of the push for greater efficiency, Daman also worked in partnership with the Abu Dhabi government health regulator Health Authority-Abu Dhabi to introduce cost control measures, including paying hospitals on the basis of diagnoses rather than the duration of a patient's hospital stay. Thanks to such advances, the treatment and cost structure have become far more transparent, with increased competition between clinics.

The outstanding success of the Abu Dhabi initiative has generated considerable interest among other health systems in the region and beyond, as they seek more integrated healthcare, alternative sources of funding and efficient treatment and payment processes.

Analysis: how to implement this model on a wider basis

Preparing the environment

When introducing what may be a new concept to the majority of the population, products should be as simple as possible to help customers understand their levels of coverage and the procedures for making claims. Any changes in laws could cause costly changes to products and procedures, so it's wise to maintain continuous dialogue with the regulators to ensure that all the products are in compliance. The insurance company should also work closely with the various service providers to create a smooth administration process that's clear to all parties.

Balancing universal coverage with a competitive market

While a competitive insurance market can bring efficiencies, it may deter people from taking up insurance due to excessive premiums. Although 80% government owned, Daman has to compete with over 30 other private insurers for the middle-income segment of the Abu Dhabi market. However, for the lower-income segment the government was keen to achieve fast adoption, so this group still receives a subsidised offering that is priced well below anything that the private sector could match. Over time, it hopes to gradually reduce these subsidies and create greater competition.

Improving the overall health system

Through close collaboration with clinical providers, insurers can help push for greater efficiencies, which should reduce pay-outs and government expenditure per patient. According to one senior healthcare leader: "This becomes a cost containment game, where the government takes an active purchasing role rather than just paying for healthcare. There are a number of ways for private insurers to put pressure on hospitals to be more efficient, including limits on treatment for a particular condition, and prescribed drug lists." And by encouraging a push towards greater primary care, the level of gatekeeping should rise, which ultimately leads to fewer expensive hospital visits. Insurers can also be a driving force behind preventative medicine by offering mHealth services to counter chronic diseases such as diabetes.

Clamping down on fraud

In certain countries, fraud is far more prevalent, so insurers need to allocate resources for analysing claims data, in order to track any unethical behaviour and reclaim money wrongly paid. By receiving regular statements of charges, individual members can become better informed about their medical bills, helping them to spot any unusual amounts.

Public-private partnerships (PPPs)

Managing rising costs in a fiscally constrained world: the role of public-private collaboration

Case study

The Valencia Concessional Model, Spain

Presented in February 2011 by

Lady Neelam Sekhri Feachem, CEO, Healthcare Redesign Group, US

Background

Healthcare public-private partnerships (PPPs) have emerged as one approach to balancing the roles of the public and private sectors in healthcare. Across the globe, PPPs are being formed to make government and private industry more accountable for maintaining the health of citizens, according to a recent report by PwC, which found that such partnerships can evolve to bend the cost curve.[7]

As one participant said: "There is an almost universal appreciation that governments can't do it all and the private sector can't do it all." By forming PPPs, governments seek to leverage the resources and capabilities of the private sector to achieve public policy goals. Public-private partnerships are distinguished from outsourcing or contracting in two important ways. First, in a PPP risk is shared between the public and private partners. This essential element, which ensures the alignment of incentives that is required for success, is missing in outsourcing arrangements. Secondly, the PPP is not a form of privatisation; the public sector does not hand over the reins to the private sector. Rather, the two sectors form a long-term partnership under which many assets remain in public ownership.

Studies in the UK have shown that where there are PPPs, there is greater competition on the provider side, higher staff productivity, higher patient satisfaction, and lower mortality rates.

The public-private investment partnership (PPIP) is an end-to-end solution that bundles finance, construction, maintenance and service delivery (Figure 1). The integration of service delivery distinguishes this model from other forms of PPPs. Most PPPs worldwide are infrastructure-oriented: the government turns to the private sector for help in rebuilding a crumbling facility, without changing the way care is delivered and without integrating primary, secondary and tertiary care. Because clinical and ancillary services account for roughly 80% of the costs of a hospital system (and infrastructure only 20%), adding integrated service delivery to the model gives PPIPs much greater potential to bend the cost curve.[7]

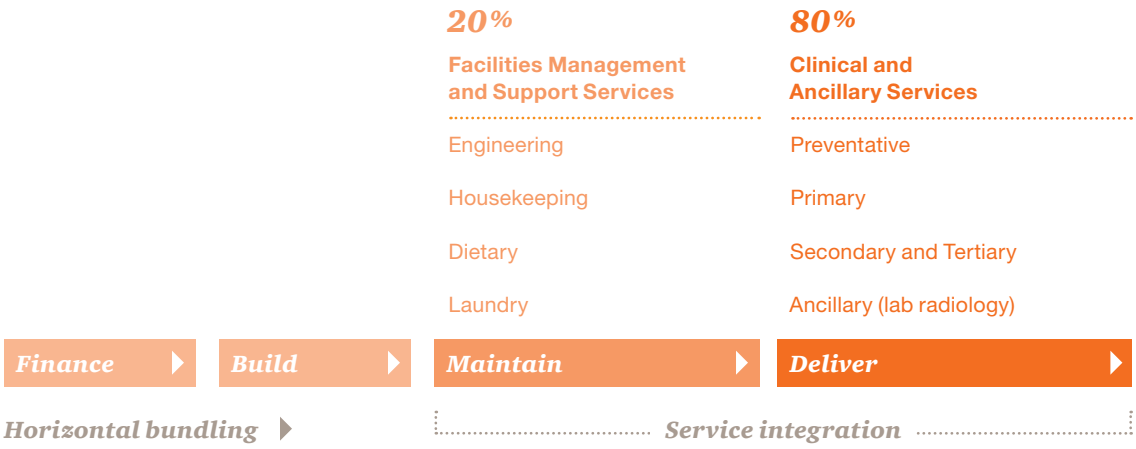
Case study

One of the most widely known and longest-running PPIPs is in Alzira, a district of a quarter-million people in Valencia, Spain. In 1999, the Valencia region was facing public budget deficits as well as inefficient, fragmented delivery of care and a deteriorating medical infrastructure. To address the problem, the government partnered with a consortium of private providers that would be required to serve all of the district's residents, regardless of income. By integrating both primary and secondary care, Alzira could boost efficiency and effectiveness through coordination of care.

[7] PricewaterhouseCoopers Health Research Institute, "*Build and Beyond:* The (r)evolution of healthcare PPPs," December 2010.

Figure 1

Public-Private Investment Partnerships



The PPIP model embraces the full spectrum from financing through integrated service delivery

The government set up the contract so that money follows the patient. Alzira residents are allowed to go outside the district for treatment if they are dissatisfied with the quality of care. However, if they do so the consortium must pay 100% of the diagnosis-related groups fee back to the government. That is a powerful performance incentive for the private consortium to provide quality care and service.

The consortium is paid a capitation rate set at 25% lower than the rate for public facilities. The government also capped the return on investment (ROI) that private investors could earn at 7.5%.

Analysis: how to implement this model on a wider basis

Political slant of elected leaders

The leadership of the centre-right government in Valencia, which favoured private sector innovation, made it possible to incorporate primary care services into Alzira's model. While political leadership should be open to private sector involvement, it doesn't necessarily need to be from the right. The UK PPP programme grew under the leadership of Prime Minister Tony Blair. Even so, many governments may be willing to partner on financing and building a hospital, but not delivery of care. For example, PPIPs that include clinical services may be more likely to emerge in the middle- and low-income countries.

Lack of bidders

One participant said she has seen a lack of private partners on such projects because of the recession. In some cases, bidders were not able to raise the capital needed. As a result, the government took over most of the financial risk in the project.

Opposition from physicians

One participant noted that organised medicine groups often will oppose PPPs: "They will always oppose every new reform and every new change. But they do not speak by any means for every senior doctor in the country. You can enlist the reformers; you can enlist those who would like to be part of the leadership of a new system, of a new way of doing things. And these individuals will provide you with your clinical leadership, your medical leadership and will bring colleagues with them."

At Alzira, physicians had been working short days at the hospital and supplementing their public jobs with private practices. Under the PPIP arrangement, the physicians were given salaries of 25% more than they had been earning, but required to work full-time at the hospital. Other staff members were given performance and productivity incentives, putting some of their compensation at risk.

Divergent assumption and expectations

One participant summed up the problem this way: "The public sector is – by and large – a bad contractor. It's a bad contractor because it hasn't ever been used to having to specify what outcomes it wants to achieve for a given pot of cash that a healthcare system or a healthcare organisation is being asked to deliver. And that creates huge problems both on the public sector side but also on the private sector side, too."

However, this expert noted the need for change on the private sector side as well: "I think the private sector was arrogant and thought, 'Oh, we've got this stitched up, we can do this so much better than the public sector.'" As a result, " To succeed, partnerships require flexibility and the recognition by both parties that when you transfer risk, there is a real cost to that risk."

One particularly illuminating comment was, "You need to be aware what private sector companies in the business are doing. They're not in the business of taking risk. They're in the business of eliminating risk. Government is in the business of taking risk, and I think has a great deal more experience in doing so."

Winning over sceptical citizens
Reduction in wait times proved to be a powerful selling point. One expert talked about reducing the wait time for surgeries, another had achieved a similar result in lab tests. Added one expert: "No one cares anymore what we did or how we did it. They care that we delivered a better quality service."

Communicate the benefits early and often
Emphasise that the PPP will be cost-neutral, that it will create transparency in terms of the ROI, that it will increase quality and access. Communicate clearly and often the benefits of the initiative, to make it more politically palatable to the general public and to unions and medical staff.

Post-recession challenges
The current economic environment is making it more difficult to maintain the Alzira model. The global capitation rate is based in part on the Valencia government's budget, which is shrinking, squeezing the budgets of public hospitals and the ROI potential of the private sector partners in PPPs. It's questionable whether private partners in new projects can generate a ROI of 7.5%.

Perception of privatisation
One participant said his government did not want to take on the controversial perception that the government was privatizing healthcare. Some populations are afraid that their safety net hospital might be taken away. There were major union protests when the Alzira PPP was launched, but these died down within a year, once union members experienced the PPP in operation. Painting a clear picture upfront of the benefits of the PPP may help to calm fears and win support from union members. Said another expert: "You can rationalise all of this stuff as much as you like, but in the end somebody somewhere has got to take a very difficult decision and upset quite a lot of people."

Integrating healthcare

Case study

The Queen 'Mamohato Memorial Hospital PPP, Lesotho

Presented in November 2011 by

Dr. Karen Prins, Operations Director, Queen 'Mamohato Memorial Hospital in Maseru, Lesotho

Background

Public-private partnerships (PPPs) are not just about managing costs; they're also about improving quality and making healthcare more accessible to the mass of the population.

With 80% or more of a hospital's operating budget dedicated to delivery of care, there is an enormous opportunity to influence both costs and outcomes by applying private sector innovation and management to clinical services. Although this represents a big step forward from traditional 'build-and-maintain' PPPs, it still doesn't go far enough.

To really get the most out of partnerships, the new health system must bundle its primary, secondary and tertiary care into an integrated network. Such an approach has achieved remarkable results in Valencia, Spain, where a private consortium provides a full range of services from prevention through to tertiary care, achieving cost savings of around 25%, with the hospital consistently ranked amongst the top three in the country in terms of quality and access.

Another critical requirement is to link payments with internationally recognised quality and performance standards, validated by independent bodies. This has a particularly important impact in developing countries, where public hospitals do not always meet such levels of care.

Models of integrated care are as appropriate to emerging markets as they are to wealthier nations and can help transform healthcare provision for the wider population.

Case study

In this groundbreaking PPP, a private provider has not just built a new hospital but is also delivering clinical services.

Lesotho is one of the world's poorest countries with an annual per-capita healthcare spend of around US$40. Like many African nations, it is burdened with excessive HIV rates as well as very high maternal mortality, pushing total health spend to 11% of GDP. The crumbling, 100-year-old Queen Elizabeth II facility – the country's only referral hospital – was symbolic of the low standards and urgently needed replacing.

In 2008 Tšepong Ltd, a consortium led by the South African healthcare group Netcare, was awarded a contract to build a new, state-of-the-art hospital as part of an integrated model involving maintenance, provision of clinical services, recruitment of health professionals and provision of medical equipment and pharmaceuticals. In addition to the hospital, the consortium is refurbishing, re-equipping and operating three primary healthcare clinics in the area, which can handle less severe cases to free up hospital capacity.

Full patient risk has been transferred to the new provider, who has been contracted to treat patients at the hospital and clinics regardless of the type of condition. And with the government paying a fixed, annual, inflation-linked payment for all services, there is reliability of payment. Performance standards are also safeguarded through a series of reward and penalty clauses related to both clinical and non-clinical indicators, overseen by an experienced independent monitor, jointly appointed by the government and the consortium.

The 425-bed hospital came in on time and on budget, and since opening in October 2011 it is already achieving impressive operational efficiencies, handling 25% more patients than its predecessor.

Early clinical results are also very encouraging. In the new natal intensive care unit (Lesotho's first ever such facility) newly-born infants that would almost certainly have died previously are now surviving. Another benefit has been the influx of highly qualified medical staff, attracted by the excellent work environment and new technology.

The hospital's success has shown the applicability of integrated PPPs into even the poorest countries, introducing more efficient processes and raising standards of healthcare.

Analysis: how to implement this model on a wider basis

Strengthening the overall healthcare system

As the Valencia example demonstrated, a single, privately funded facility cannot work in isolation. In a deprived country like Lesotho, patients will naturally flock to any new central hospital due to the low clinical standards elsewhere, putting intense strain on the resources and pushing up costs. By taking over three local primary healthcare clinics, the consortium was at least able to filter less critical cases from the main hospital; but one hospital and three clinics do not make a system. The only way to effectively manage demand is to improve the overall healthcare system, so the government must have realistic expectations about what one private provider can bring.

Managing the budget

Where the contract between the government and the provider stipulates a maximum number of patients, then excess demand will push up public healthcare costs. Depending upon the nature of the contract, this can lead to over-treatment (where the provider is paid per patient) or under-treatment (where there is a fixed annual charge for the entire facility). While these issues should be contractually stated, there should also be ongoing dialogue into how to manage demand, as it's not in the government's interest for the provider to fail due to excess costs.

Defining outcomes clearly

Assessing and pricing risk is very challenging and, as one participant noted: "The public sector is accustomed to 'command and control' and is often not that good at commissioning, where it has to specify both costs and outcomes." In Lesotho the contract includes both construction and clinical objectives, with two bodies (one of whom is independent) monitoring performance, and penalty clauses payable in the case of service failures. The private provider should view the relationship as a partnership, where it progressively disinvests over the period of the contract to a low level of stakeholding, which encourages close involvement from the government. Having such a strong relationship also introduces flexibility to amend some contractual processes – as happened in Lesotho.

Winning public permission

Despite improvements in efficiency and quality of delivery, there are still ideological concerns over the profits that private providers can make from PPPs, and even calls to contractually specify profitability and/or return on investment. According to one participant: "You won't get the politicians to be courageous unless they feel that they have public permission, which comes not just from efficiency but from clinical success." This permission must be earned by emphasising these clinical benefits, and continually taking out costs by increasing productivity and improving outcomes, bringing value to the entire community. Providers want to make a difference in healthcare delivery but also to generate a reasonable return, an outlook summed up by another participant: "I don't think people should fantasise about why the private sector would get involved in something like this. It's because they believe that there's money to be made."

Attracting and retaining clinicians

Human resources are a major challenge and can impact the provider's ability to comply with the contract. The Lesotho case shows that, despite relatively low salaries, doctors are drawn in by new technology, improved working conditions and a sense of excitement in making a difference.

Working towards an integrated private/public health system

Case Study

The Queen 'Mamohato Memorial Hospital PPP, Lesotho

Presented in March 2012 by

Honourable Minister Tim Thahane, then Minister of Finance and Development Planning, Lesotho

Background

To improve healthcare in poorer, emerging countries, governments must embrace cultural change by introducing the kind of operational efficiencies commonly associated with private sector providers. However, such a transformation calls for strong political will and commitment.

Behind most major health sector reforms is a senior political sponsor with two important characteristics: firstly, a clarity of vision enabling her/him to 'sell' the reform effectively to win the necessary consensus from a range of stakeholders; secondly, the boldness to push forward change, often against the prevailing political mood.

Such qualities are especially relevant when attempting to increase the role of the private sector in a public-oriented health culture, where the government has a near-monopoly in health finance and provision and the population is accustomed to the state delivering healthcare.

Yet many government-run health systems across the developing world are in disrepair, with dilapidated facilities, lack of equipment and chronic staff shortages, which, along with inefficient management, can lead to low service quality and poor clinical outcomes. Faced with a growing burden of chronic conditions as well as infectious diseases such as AIDS, tuberculosis, malaria and diarrhoea, governments lack the resources to develop the healthcare infrastructure they need – and the experience and technical knowledge to get the most out of existing private providers.

Lesotho, a landlocked state in Southern Africa and one of the world's poorest nations, faced this challenge. Its only tertiary hospital was outdated and consuming increasing amounts of public funds, while delivering poor and deteriorating services. With limited investment resources and a de-motivated workforce, the government urgently needed a modern facility that would raise standards and attract talented doctors and health professionals to work in Lesotho. Certain key figures in the government felt that private providers could bring in much-needed efficiencies, yet the strong socialist ethic that had pervaded the country meant that any external involvement in healthcare was regarded with extreme scepticism.

Case study

Lesotho's new Queen 'Mamohato Memorial Hospital is a bold collaboration of the public and private sectors, with the new provider co-financing, building, operating multiple public health facilities and delivering all clinical and non-clinical services. This groundbreaking initiative has been made possible through the political courage and commitment of leaders in government.

Hon. Tim Thahane, Lesotho's then Minister of Finance and Development Planning had a vision of an innovative public-private partnership (PPP) that went far beyond the traditional 'design-and-build' concept to include full provision of clinical and non-clinical services. He believed that such an arrangement would maximise the commitment of the private operator and improve performance.

In order to bring the private and public sector together in this way, Minister Thahane first had to convince the Prime Minister, the cabinet and – most importantly – the Minister of Health of the value of such a relationship. By passionately arguing his case, he gained consensus, agreeing that any PPP must be highly transparent in order to win public permission. The Ministries of Finance and Health have subsequently developed a close working partnership to retain a focus on fiscal and healthcare policy goals. Employees from both ministries sit alongside each other in the same building to cement the team atmosphere.

Having produced a detailed business case, the procurement process began, with an implicit understanding that any bidders had to have good prospects of a reasonable return on their investment. Minister Thahane believed that to attract interest, the public sector had to provide a stable legal and regulatory environment that would reduce the risk for the new operator, along with a fully transparent tender process.

The Lesotho government is keen to recruit and develop talented healthcare professionals, and therefore the contract with the winning bidder (private provider Netcare, who heads a consortium) includes training healthcare workers from all over the country, with the intention of strengthening the entire Lesotho healthcare system.

The success of the new hospital has meant that there is very high demand, with patients travelling long distances to attend clinics, which puts pressure on the Lesotho government to bring the country's other facilities up to the same standards.

Through a clear political vision and strong, continued commitment, the new hospital is a major step on the road to improving healthcare across Lesotho at an affordable and predictable cost to the government. By bravely challenging the accepted approach and opening up the state health service to new, private sector ideas and ways of working, Minister Thahane has helped to educate public policymakers about the benefits of integrated PPPs, also known as public-private integrated partnerships (PPIPs).

Analysis: how to implement this model on a wider basis

Building new skills sets within government

As the government changes its traditional role from service provider to commissioner, its staff will have to learn new skills in business partnering, contract management, procurement, regulatory affairs, measurement and monitoring. One participant noted that: "By and large, the public sector doesn't have the capability or capacity to act as a sophisticated commissioner, and so to make PPPs work, it has to bring in new forms of additional capacity and capability, alongside a quite different mindset." Health ministries therefore need to train existing staff, recruit new talent and utilise outside assistance when necessary.

Digging in for an extended debate

Experience in other markets such as the UK and the Netherlands illustrate the embedded views of politicians, trade unions and the general public, many of whom believe that healthcare should always be controlled by the public sector. Even after the initial PPP process has begun, opponents (quite possibly from within their own party) will seek to undermine the venture and may even pay consultants to carry out critical reviews that show it's not offering value for money. One symposium attendee summed up the resilience required when she said: "To win public support you must be prepared to bite the bullet, stand up for what you believe in and above all make sure there's evidence to back up your argument."

Coping with political change

Political champions and indeed governments will inevitably move on, so it's vital to integrate the PPP philosophy into the everyday thinking and operations of government. Training, workshops and cross-departmental initiatives can all play a part in institutionalising the concept, so that projects can survive changes in leaders and parties.

Maintaining competitiveness and value for money

In a regulated market with long-term contracts with terms typically 15 years and longer, each provider has a virtual monopoly in its own region and there's a danger that the government may be locked into inflexible agreements that offer less value than anticipated. By constructing a highly open and competitive bidding process and applying strong negotiating skills to the procurement process, the public sector reduces the risk of an unfavourable deal. An independent advisor/assessor can be of great benefit, both before and during the negotiations, as well providing ongoing assessment of the service levels.

Choosing the right partner

Potential partners should have a deep understanding of the risk and return appropriate to the market, particularly when considering investing in emerging regions such as Africa. Governments must be careful to select partners with a genuine long-term commitment, and engage in continuous, open and transparent dialogue, with any problems positioned as joint challenges and not blamed on either party.

Breaking down the barriers between private and public service

Case study

The Queen 'Mamohato Memorial Hospital PPP, Lesotho

Presented in March 2012 by

Dr. Richard Friedland, Chief Executive Officer, Netcare Limited

Background

Although potentially a higher risk venture, a fully integrated PPP can help health systems enjoy the full benefit of private sector knowledge and experience – and over time bring strong returns to investors.

Eighty per cent of healthcare costs involve delivery of services, but the vast majority of PPPs are restricted to the design, build and operation of the facilities. Until recently, the only notable examples of fully integrated partnerships were in Valencia, Spain and the Turks and Caicos Islands, where the private operator combined infrastructure and clinical services.

So, when the Lesotho government issued a tender for its new Queen 'Mamohato Memorial Hospital, observers from Africa and beyond were intrigued to see what kind of bidders would take on the risk of a comprehensive PPP in a poor, emerging country. Despite these concerns, the chosen partner – a consortium headed by South African healthcare group Netcare – was confident that it could meet the demands of the contract and give a respectable return to its shareholders.

The pressure to succeed is intense, with both Netcare and the Lesotho government staking their reputations over such an innovative and high-profile initiative. With the hospital now completed and up and running, the early results are very positive and suggest that this new transformational approach could be a model for the rest of Africa and indeed the world to follow.

As demand for healthcare continues to rise rapidly, there is a pressing need to bend the cost curve to offer affordable care for all. Integrated PPPs give private providers greater scope for efficiencies, as they have more control over practitioner practices and primary care screening. In taking on this project, Netcare, the largest private hospital group, primary care network and medical emergency service in South Africa, is focusing heavily on enhancing performance through the introduction of new, improved practices and procedures. In addition to enhancing Lesotho's healthcare system, such improvements also enable Netcare to realise positive cash flows.

Case study

Through standardisation of procedures, intensive staff training, independent monitoring and a strong commitment to a fully integrated care system, private provider Netcare is helping to enhance the region's healthcare and justify the faith of the Lesotho government and Netcare's investors.

Netcare considers the Queen 'Mamohato Memorial Hospital to be its most important and high-risk undertaking anywhere in the world. From the moment the tender was awarded, it has strived to demonstrate that a private sector provider can enhance the service to all patients and offer the Lesotho government value for its investment, as well as providing a sound business case to its own shareholders.

This initiative is viewed as a wonderful opportunity to break down perceived barriers between the public and private sectors, by offering what Netcare Chief Executive Officer Dr. Richard Friedland refers to as a 'low-cost airline model', where public and private patients use the same facilities, doctors and nurses.

Efficiency is at the heart of everything that Netcare does, with a high level of standardisation of procedures based upon clinical evidence, and a strong focus on outcomes. Digital fingerprinting requires all staff, regardless of rank, to 'clock in', which ensures that every employee works his or her full contractual hours – which is quite unusual in the region.

Training and skills transfer is another top priority in order to raise the standards of clinicians, nurses and other healthcare workers – not just in the hospital but across the country, which should also reduce the flow of patients from more remote regions, as their local primary services would be improved. Netcare is providing extensive education on clinical techniques and practices, as well as building technical ability to get the most out of the new, advanced facilities such as MRI scanners, ventilators, intensive care units and a level one trauma unit. The hospital will ultimately become Lesotho's primary clinical training facility for health professionals, a further sign of the value it brings to the overall health system in Lesotho.

The Queen 'Mamohato is arguably the best hospital that Netcare has ever built and, not surprisingly, is attracting huge numbers of patients. To cope with such a deluge, there is a gateway clinic at the entrance of the hospital that filters people, prioritising important cases and passing on less-critical patients to the local primary care network.

Given the high-profile nature of the PPP, the Lesotho Ministry of Health and Netcare are both keen to be completely transparent to maintain credibility amongst all stakeholders and soothe any mistrust of the private sector. Through robust contract management (which has benefited from external technical experts) and totally independent monitoring, the new hospital's achievements have been verified objectively and impartially, which gives great credibility to the venture.

Netcare's total commitment to clinical excellence is combined with a strong commercial edge, with the company on target to deliver the planned financial results. Investors must be patient, as ventures of this nature typically take 10 to 12 years before showing a positive return on capital.

Despite huge opposition to the original idea, the hospital is proving an undoubted success, justifying the faith of the Lesotho government (and in particular of Hon. Minister Tim Thahane, Lesotho's then Minister of Finance and Development Planning) and acting as a beacon of public/private collaboration to offer high-quality, affordable healthcare even in the poorest of nations.

Analysis: how to implement this model on a wider basis

Putting together a realistic investment case

PPPs of this nature require a long-term commitment, as the private provider has to maintain and refurbish the facility and return it to the government in pristine condition at the end of a lengthy contract. To create value for its shareholders, Netcare is seeking a return on invested capital over the 18 years of the project, using a model based upon cash flow return on investment. Given the relatively high borrowing, the first returns are expected around year 10, which is not uncommon for such a capital-intensive undertaking. From the public sector's perspective, the full benefits of the investment must be calculated and broadcast, as an attendee noted: "You can't just look at the cost of the facility; benefits will accrue in time and include factors such as greater workforce productivity and fewer days lost in school due to a healthier population."

Tailoring the design to current and future needs

The Queen 'Mamohato's design reflects the mountainous terrain of Lesotho and has a huge outpatients' department, plus wide corridors and space for family members, as many patients travel long distances with close relatives, who cannot return home during the treatment period. Any facility should also have the capacity to cope with anticipated demand in 10 or even 15 years' time, to avoid additional capital expenditure in future years.

Building trust

As one participant explained: "Failure isn't an option." With many critics waiting for an opportunity to highlight any failures, providers should be sensitive to potential negative publicity. Although demand may be high, it's unwise to turn patients away as this could be construed as 'cherry picking' more profitable cases. As mentioned, independent monitoring will help confirm that standards are being met; by developing key performance indicators jointly with the medical staff, doctors will be more motivated to achieve the agreed target.

Changing the clinician culture

In certain regions the overall working conditions are not considered attractive, which makes it hard to attract high quality health professionals. It's not uncommon for doctors to insist upon a number of perks, including the option to work shorter hours in order to hold private clinics. By providing state-of-the-art facilities, the Queen 'Mamohato is seen as a highly desirable place to work for clinicians from all over the world, who subsequently agree to fair contracts that ensure a full working week.

Moving towards full integration

The greater the control that the private provider has over primary care, the more chance it has of making a positive impact upon overall health levels. Netcare rebuilt and has responsibility for three separate primary care facilities that feed into the main hospital, and is closely involved in community public health programmes. All of this will help to influence issues such as immunisation and other forms of health education and prevention, which should help improve overall levels of health and wellness. Integration also leads to better clinical decision-making, as the provider can take a more holistic view of a patients' health, knowing that it is responsible for all the primary and tertiary costs.

Integrated care

Redefining integrated care

Case study

Kaiser Permanente's Integrated Care Model

Presented in June 2011 by

Dr. Jack Cochran, Executive Director, The (Kaiser) Permanente Federation

Background

Most countries suffer from reactive, ad hoc and fragmented care. This is often the result of a history of disconnected and incremental healthcare reforms. In turn, these piecemeal reforms have produced payment systems and patterns of supply that drive up costs throughout the health system. Understandably, the need for integrated care has been recognised as a solution. The ingredients that make it work have been well researched and include:

- Mission (quality and value for money)
- Leadership
- Governance
- Aligned incentives (financial and non-financial)
- IT and information use
- Time

However, the research evidence on how much integrated care "bends the cost curve" is somewhat mixed. One example is the 10 physician group practice demonstrations set up by Medicare in the US. In the 2005 study, physician groups earned incentive payments based on the quality of care they provide and the estimated savings they generated in Medicare expenditures for the patient population they served. Only five of the group demonstrations produced some kind of savings, although all 10 produced increased quality.

Yet, the consensus is that if care was more proactive and systematic, and integrated along a pathway, this would produce more value at lower cost. Experts say that only 20% of an individual's well-being is attributable to healthcare, while 80% is due to the environment, habits, and DNA. No matter how good the healthcare system is, a lot of factors need to be controlled and they are better applied through a team-based approach.

Case study

Founded in 1945, Kaiser is one of the largest not-for-profit health plans in the US, covering nearly 9 million members. It provides health insurance coverage and owns the entire provider system where members are treated. Generally, its physicians are paid salaries, and they are eligible for bonuses based mostly on quality, though some are based on service and financial measures.

While it has always been an integrated system, Kaiser has really honed its model in the last 10 years. A key factor was adopting a culture of measurement. Kaiser started measuring itself, and also was increasingly measured by external organisations. The implementation of a health information system, HealthConnect, enabled more ways to measure and at the same time supported the integration of care.

HealthConnect gives primary care physicians a holistic view of their patients' health records, makes it easy to coordinate care with specialists, and offers other features designed to improve the quality of care, such as clinical decision support tools and bar-coding to prevent medication errors. It enables members to view their medical records online, send secure emails to their physicians, view lab test results, locate services, refill prescriptions, enrol in a range of health classes, and access the latest medical knowledge at all times.

Implementation was completed in March 2010, after some well publicised technical problems and physician anxiety about the new system. The system was developed as more than converting paper to digital media. It was designed to truly transform the way Kaiser delivers care. Today, the system is used by 58% of Kaiser members, and satisfaction rates are high. The system has significantly reduced the number of visits to Kaiser medical offices and emergency rooms and strengthened the doctor-patient relationship.

Analysis: how to implement this model on a wider basis

Leadership is important, but how?

"Leadership needs to know how to communicate, needs to learn how to listen," one participant said. "And I think the most important trait, other than communication and listening, is relentlessness. It's not going to get easier today or tomorrow." This leadership begins with trusting physicians to do the right thing, and engaging them in context of today's reality.

IT doesn't make doctors more productive

"The day you put in a new IT system, it has two impacts. It slows down your doctors and increases your costs," said one participant. Many agreed that IT implementations can be daunting for doctors, noting that doctors are afraid that "I'm going to look like a fool." Being honest with doctors is key. Don't make IT implementation look easy; make it look like they can handle this process. Doctors want to see how their peers are handling the challenge. They want to know what "the guy who's out there seeing 30 patients a day thinks." It helps to have superusers who can guide them.

Delivering care without doctors
Many other industries have been transformed by an online, wireless economy. Before ATMs existed, customers went to the bank for cash. Before iPads and Kindles, they went to a store for books. Now, healthcare is moving towards similar models. For example, patients can have their blood pressure checked with a wireless cuff at home. Some tasks can be performed by a nurse, others by a pharmacist, and others with a physician. It doesn't all have to circle back to this hub called the doctor's office. However, one participant raised the overarching question: "How do we persuade clinicians to give power away? Until we do, we're not going to make the changes we require."

Email between physicians and patients
While Kaiser encourages e-mail exchanges between patients and their physicians, e-mail is never the introduction to care. It's a way to stay connected. Patients increasingly go online for healthcare information. Kaiser views e-mail as extending a trusted relationship with primary care physician who you know, you believe in, and you trust. Then you use this bond to stay connected. The approach was described as "supporting people through emotional connection rather than imparting knowledge."

Personalising change management
Change management is a one-on-one course. One participant told this story about an IT implementation: " My chief of surgery, walks up to a receptionist and says, "How you doing?" "Oh fine doctor, really fine." He says, "Really? Any problems?" "No, no, it's all going well." He says, "You know what I really had trouble with?" "What?" "I had trouble with knowing how to transfer a patient's name and their ID." Then he sat down next to her on one knee and she says, "I don't have any idea how to do any of that stuff." And he just sat there next to her and went through it. But it was frame of reference of "you know this was really hard for me. Can I just sit down and talk to you?"

‘Care anywhere’ – the enabling power of technology

Mobile health

Case study

Apollo Hospitals Group, India

Presented in November 2011 by

Ms. Sangita Reddy, Executive Director, Operations, Apollo Hospitals Group

Background

Telehealth has the potential to offer much-need healthcare to millions of people living in remote regions in developing countries.

Mobile phone ownership is rocketing even amongst the poorer sections of society, with networks expanding rapidly across Asia Pacific and thousands of health apps available. And with clinicians starting to embrace the concept of mobile health, the question is no longer "should we use the new technology?" but rather "how do we implement it"? One of the biggest challenges facing healthcare systems is balancing the speed of innovation with appropriate regulation to maintain clinical safety and quality assurance.

As providers assess the business case for telehealth, they must factor in a wider range of partners including electronics, IT, media and telecommunications companies. This convergence of technologies is sprouting some exciting and creative ways to address the healthcare needs of large sections of emerging countries' populations, giving the rural poor access to the same kind of services that the urban dweller has long taken for granted – at an affordable cost.

Case study

Trials in India suggest that remote triage advice and health monitoring via mobile phones can bring healthcare within reach of millions of poorer rural dwellers.

As one of the leading Indian healthcare providers, Apollo Hospitals is aware that its private hospitals only serve a tiny proportion of India's huge 1.2 billion population. However, with half of the subcontinent's citizens owning a mobile phone, the opportunity for developing mobile health (mHealth) is considerable, opening healthcare to an estimated 700 million who currently have no access to physicians.

Apollo's first steps into mHealth involve triaged health information and advice via contact centres staffed by paramedics, physiotherapists, nurses, doctors and health advisers, using an IT platform with a structured query database to give appropriate health information. This service is offered via partnerships with leading telecommunications companies, and boasts an impressive track record:

- Over 700,000 calls handled by the triage service since it launched;
- Country-wide coverage, reaching a potential audience of 70 million, 24 hours a day and 7 days per week;
- Both 2G calls and 3G video consultations provided.

For the next stage, Apollo is trialling remote analytics through a range of devices monitoring symptoms such as blood glucose count, heart rate, blood pressure and peak flow, all carried out from a patient's own home, creating a 'mobile health system' that also includes lifestyle, diet and educational support. For example, with their diabetes management programme called SUGAR, diabetics may upload their blood sugar count to the clinician through SMS and mobile applications, with an SMS text delivered back to the patient explaining the readings and advising whether further action is required. Further support comes from the contact centre staffed by medical professionals, and customers also have access to customised personal health records. Early signs are very encouraging, with the diabetes monitoring in particular raising compliance to an appropriate diet and exercise regime, with plans for further expansion.

In many ways telehealth complements wider healthcare trends, with a move away from large hospitals to smaller, local settings, and a greater emphasis upon prevention and health education. However, it cannot succeed without a stronger infrastructure, including mobile clinics to carry out primary care and access to urban hospitals for more serious cases.

Over time the network will become more integrated to link health providers, payers and mobile phone suppliers, with new phone customers asked to enter health records at point of purchase as a standard procedure, and a button on the phone to access the telehealth provider at a single touch. And by partnering with health insurance companies, Apollo hopes to make mHealth less costly to extend coverage.

Healthcare is the world's most information-intensive sector, so mHealth involves a natural convergence between providers of health, IT and telecommunications. In India, the 'Health Highway' is emerging as a national industry platform with common standards for electronic medical records, enabling exchange of health information between different providers. This could ultimately free the hospitals from managing the health information systems via an on-demand pay-per-use model.

Analysis: how to implement this model on a wider basis

Achieving critical mass

Like any new service, mHealth will take time to grow, and Apollo is experimenting with various marketing initiatives such as a month's free access to mobile customers in selected regions. Expanding into the corporate market offers some potential, giving employees medical services as well as additional support such as psychiatric counselling. Partnering with micro-insurance companies could also help increase demand by making the service more affordable. In the longer term, mHealth could expand internationally, with centres serving customers all over the world, and providing monitoring and health advice to individuals and particularly to care homes for the elderly.

Making mHealth profitable

Early attempts at mHealth in India have yet to return a profit for health providers, due to the high fixed investment costs of setting up and running call centres, along with advertising expenses. A participant suggested that: "Advertising is the fastest growing area in the mobile industry and could be used to subsidise services and make them available to those unable to afford mHealth." Given the overall benefits mHealth brings to a society – and the potential it has to relieve overburdened government health resources – then it may be prudent to integrate it into a wider state-funded capitation system.

Providing real-time support to hospitals

Hospital groups can boost efficiency by accessing certain activities from a form of 'shared service' medical centre either in-house or outsourced, including X-rays, CT or MRI scan pictures. Apollo has enjoyed considerable success offering cancer smear tests for women from a mobile van, the results of which are transmitted to a central hospital, which responds with a full report in less than two hours. A participant commented that: "it's also possible for a remote pathologist to gather data from a surgical theatre during operations and provide real-time feedback to the surgeons."

Meeting legal and regulatory requirements

There are clearly some risks involved with the level of advice offered through mHealth, given that the patient does not present in person. Apollo's doctors are not permitted to comment on certain conditions and there are significant disclaimers. All the various providers need to work together with the health authorities to agree to a suitable protocol to avoid restricting what is a valuable service. One attendee mentioned that: "Patient- and device-entered data will inevitably be less reliable than that performed by professionals, so the IT system should have a way to segregate this information. But it's important not to dampen innovation through excessive regulation, so some of the more basic services such as calorie counters should be treated with a lighter touch." Ultimately all reliable information needs to be shared and interoperable, so common standards for data quality, storage and retrieval are essential.

Changing patients' behaviour through compliance programmes

Telehealth is an excellent way to motivate patients with chronic conditions to make lifestyle changes. As mentioned, diabetes patients have shown improvements in critical measurements as the testing is so convenient and reinforces any improvements instantly, which encourages further behavioural change. These programmes need not be restricted to rural populations. It can be equally successful in an urban environment.

Relieving the burden on the health system

As one participant noted: "Telehealth is not just applicable to dispersed populations. It has the potential to link up nursing homes and private residences to hospitals and specialist clinics, to shift people out of the acute care sector, thus avoiding costly A&E (accident and emergency) visits and hospital stays."

Keeping up with technology

With such a rapid pace of IT change, users and healthcare professionals are demanding ever more sophisticated applications and functionality, of which mHealth is a prime example. Larger hospitals and other institutions must find a way to build sufficiently flexible legacy systems to avoid falling behind, so they need to carefully consider how and when to invest in new infrastructure. In emerging economies, where funds are limited, the new 'distributed' environment is helping the smaller clinics, hospitals and nursing homes to build IT systems at much lower cost. However, such development needs to be collaborative, so that all the different healthcare systems can benefit from any advances. As one participant commented: "The knowledge is coming from the same place, and if we can work towards that collectively, I think we would have changed the way the world looks at healthcare."

Fighting chronic disease through mobile coaching

Case study

WellDoc Inc., US

Presented in March 2012 by

Dr. Anand K. Iyer, President & Chief Operating Officer, WellDoc Inc.

Background

The rise in mobile phone ownership creates huge opportunities for remotely tackling chronic diseases, helping to cut costs and empowering patients to take greater control over their own health.

Chronic conditions are the number one cause of death and disability globally, putting an enormous and increasing burden on all healthcare systems. Prevention and early intervention are a big step towards the ultimate aim of making populations healthier through better lifestyles.

In the consumer age, a more informed and engaged patient can be at the centre of new, cost-effective models of care that have less dependence upon facilities and practitioners. This requires a big leap of faith for providers, who must avoid deluging patients with excess information and also overcome issues such as privacy and data security.

Technology is the force that brings together the various stakeholders including patients, clinicians, complementary healthcare providers, informal caregivers, government, insurers and employers. By applying information technology (IT) intelligently to integrated care, it's possible to change behaviour, bring down the incidence of disease and cut the cost of treatment.

Mobile health (mHealth) is growing exponentially, with hundreds of millions of people already using various mobile applications. Diabetes, obesity and hypertension are seen as the three chronic diseases with the highest potential for mobile management through the application of phones and web-based solutions.[10]

[10] *The impact of smartphone applications on the mobile health industry* (vol. 2), Mobile health market, Report 2011-2016, research2guidance, 9 January 2012.

Case study

A recent US trial demonstrated the benefits of mobile phone-based coaching and online clinical decision support for diabetes patients, cutting the costs of treatment and empowering patients to take greater control over their condition.

Traditional approaches to managing diabetes have focused too heavily on the costly treatment of acute, episodic events rather than on prevention and on-going patient self-management. Patients tend to be assessed on a periodic basis using general clinical guidelines that fail to recognise each individual's unique personal (and changing) physiology, levels of health literacy and a plethora of psycho-social and behavioural determinants.

Although telephone-based disease management has been around for several decades, the practitioner typically relies on verbal responses from the patient which only enables broad advice. This is particularly limiting for a condition such as diabetes, where patients need to manage their blood glucose levels, medications, diet, exercise, etc. frequently on any given day.

By taking advantage of the near universal coverage of mobile technology, WellDoc has created a system of instant feedback and coaching driven by clinical, evidence-based guidelines and behaviour science. Patients can enter blood glucose levels and other self-care data into their phones – both feature as well as smart – and receive real-time responses from "virtual case managers" (in the form of an expert cloud-based software system), providing assistance on managing the condition as well as more general tips on diet, exercise and other aspects of their lifestyle.

The system can also produce ongoing, evidence-based reports of great use to the patients' clinicians, helping them monitor their conditions more accurately. WellDoc's application has been approved by the US Food and Drug Administration, works on the vast majority of data-enabled mobile phones and can be integrated into the standard software and electronic health records used by doctors. The company is now looking at potential applications in other disease states and parts of the world.

A 2009-2010 US trial of the WellDoc system sought to reduce blood glucose levels in 163 patients suffering from diabetes, with each participant receiving a glucose meter and supplies, along with a mobile phone application and access to a web-based portal.

The results showed a mean decline in A1c (glycated haemoglobin – the gold-standard measure for diabetes control) by 1.9% in the intervention group (against 0.7% in the usual care group). A clinically significant change in A1c was seen, regardless of whether patients began the trial with a high or low A1c. As an indication of how impressive these results were, the US Food and Drug Administration considers a new drug that is able to reduce A1c by 0.5% as clinically significant.

Such results offer real hope for slashing the estimated $218 billion spent annually on diabetes in the US,[11] with potential annual cost savings per patient of as much as US$10,000 in reduced healthcare charges and increased worker productivity.[12 13 14] Perhaps even more importantly, the approach enables patients to gain more control over their condition and make better decisions on a daily basis, which should enhance the lives of millions of patients who suffer from diabetes. Remote-based coaching of this kind also has considerable potential for other chronic diseases.

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[11] Figures for the Centers for Disease Control and Prevention (2010) and the American Diabetes Association, 2009.

[12] Milliman, 2011.

[13] *Medication adherence leads to lower health care use and costs despite increased drug spending*, Roebuck MC, et al. Health Affairs (Millwood) (1):91-9, Jan 30 2011; *Hospital Stays for Patients with Diabetes*, Fraze T, et al. 2008; Statistical Brief #93. Healthcare Cost and Utilization Project (HCUP) Statistical Briefs [Internet]. Rockville (MD): Agency for Health Care Policy and Research (US); Aug 2006-2010.

[14] Testa MA, et al. *Health Economic Benefits and Quality of Life During Improved Glycaemic Control in Patients With Type 2 Diabetes Mellitus.* JAMA 280 (17):1490-6, Nov 1998.

Analysis: how to implement this model on a wider basis

Aligning solutions with the health system's infrastructure

As applications of this type proliferate, there should be common standards and infrastructure that can receive, process and store the data within the healthcare system on a single, accessible database. This requires collaboration between health systems, software vendors, large care networks and hospitals and physicians' associations. Telecommunications companies also have a role in enabling connectivity within patients' homes. However, care must be taken to avoid building huge, expensive monolithic systems that are too rigid to handle new solutions such as WellDoc, so flexibility is a key ingredient to encourage continued innovation.

Integrating mobile coaching into everyday healthcare

The WellDoc solution has a number of business models: firstly to help pharmaceutical companies increase compliance to their products; secondly to assist existing call centres in serving their patients more effectively; thirdly to allow general practitioners to prescribe the service to their patients and be reimbursed, which benefits the doctor and the patient and saves costs for the overall system.

Complying with legal/medical guidelines

The contract with the health systems should cover the possibility of patients entering incorrect data and thus receiving potentially harmful responses. It's also vital that the doctor is not obliged to respond continually to changes in the patient's condition and controls how he/she receives reports, with the patients recommended to call emergency services or attend a hospital in the event of an emergency.

Sustaining results over time

According to one senior healthcare leader: "By personalising the messages very closely to the recipient's personal style, it's possible to keep the system fresh and interesting and dynamic. This could include games and other tactics to encourage patients to stay involved and committed." Over time it may be possible to combine a mobile phone and the medical device into one handset, which makes the testing more convenient. And because many people have more than one chronic disease, it will be possible to manage diabetes, hypertension, obesity and other conditions off the same application, which will manage the comorbidities and improve compliance.

Adapting the solution to other markets

In emerging countries, some segments of the population are less educated, with limited access to healthcare, and won't understand blood glucose levels – some may not even test their levels. In these cases the communications would have to be pitched at a more basic level with information on diet and activity as part of a wider awareness campaign. Applications should also be customised to different cultures and languages, different forms of medicine and different forms of communication (in China, people approach logic in a radically different way). And the solution will also have to be deployed and hosted locally, as information can often not be exported over geographical boundaries due to data protection laws.

Data analytics and measurement

Comparative effectiveness: change accelerator or barrier?

Case study

Britain's National Institute for Health and Clinical Excellence (NICE)

Presented in February 2011 by

Sir Michael Rawlins, Chairman of the National Institute of Health & Clinical Excellence (NICE)

Background

A new science is emerging that focuses on how to assess and compare different medical treatments, programmes and potentially, even healthcare systems. This movement toward comparative effectiveness is analogous to the emergence three decades ago of evidence-based medicine, which sought to leverage the best scientific evidence in making clinical decisions. Comparative effectiveness leverages an even broader base of data to produce what might be called evidence-based policy.

Policy experts see comparative effectiveness research as "a tool in the box" to bend the curve on healthcare cost. As one participant said: "The global recession has shattered the old assumption in healthcare policy that the only way to drive improvements in performance is through more investment. That world is over. The public no longer is willing to sign a blank check. They want to know what they get for what they pay."

Case study

Since 1999, NICE has provided comparative effectiveness guidance to the National Health Service (NHS) of Great Britain. NICE follows four principles:

1. Clinically robust data based a systematic review of the evidence;

2. Stakeholder inputs;

3. Transparency so that whenever possible, the evidence used is in the public domain;

4. Independence based on work informed by clinicians, not politicians.

Over the years, NICE has produced roughly 700 forms of guidance, and the number of programmes has expanded to address a variety of areas, from the public health systems to recent innovations in medical technologies and diagnostics. In 2010, the agency began to produce quality standards which it expects high-performing institutions to meet; organisations that measure up will receive additional funding. In addition, recently NICE developed a search engine, NHS Evidence, to enable health professionals to mine the Internet to find reliable sources of information.

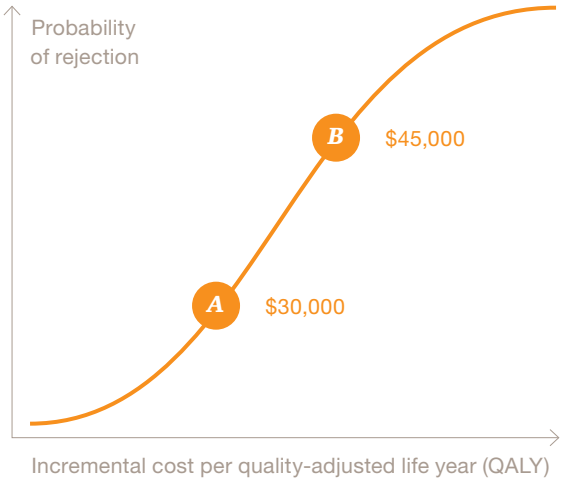
Today, NICE routinely assesses healthcare providers based on quality and efficiency. Now the agency is exploring a third metric that will focus on patient-reported outcomes. Combining all three metrics will enable NICE to develop a better understanding of how healthcare organisations are improving the quality of life for patients – the ultimate objective of the organisation.

In determining the comparative effectiveness of a given intervention, NICE considers economic costs as well as social and scientific factors. In assessing cost-effectiveness, the agency focuses on incremental costs and benefits, expressed in terms of the quality-adjusted life year (QALY), defined as the improvement in quality of life resulting from a particular intervention multiplied by the number of years it adds to the patient's life. The agency is not allowed to consider the affordability or budgetary impact of treatments.

NICE also considers the social value of interventions, addressing questions such as whether to consider the severity of disease and whether special attention should be given to treatments for children, or to end-of-life interventions. To make those social value judgments, in 2002 NICE established the Citizens Council, which includes a broad range of representatives of the general public.

Figure 3

Cost Ineffectiveness



Source *National Institute for Health and Clinical Excellence*

Several changes to NICE are on the horizon. Under the new administration, NICE will add social care to its areas of responsibility. As the field of personalised medicine advances, the agency also will be performing more assessments of new personalised therapeutics and companion diagnostics.

One open question is how NICE will perform in a new era of budget constraints. Thus far, NICE has operated in an environment in which the NHS budget has been increasing annually at a rate of roughly 7.5% in real terms. As budgets tighten and national resources shrink, how will this affect the agency's decisions about new treatments and technologies?

Analysis: how to implement this model on a wider basis

A perception that comparative effectiveness is about rationing care

For some people, NICE has been accused of rationing care or limiting choice. However, as one participant said: "The truth is every healthcare system in the world has to find matching desirable outcomes with pretty limited resources." If people are uncomfortable with judgment, you can use this process to get their input into developing an evidence base.

Keeping up with the exploding amount of research

Already, volumes of medical research emerge daily, and there is a need for intermediaries to monitor the research and synthesise the results. NICE plays this role, but even NICE could get submerged under the deluge of data at some point.

The healthcare industry isn't alone in dealing with information overload, but it's more difficult to analyse healthcare data, which often is not transparent to buyers and is not reported in a standardised way. Greater transparency and the development of data reporting standards could make it easier for any healthcare organisation to do its own data analysis.

For-profit companies may have a role in digesting research and determining comparative effectiveness, for example. This is already occurring to some extent. For instance, in 2008 Medco Health solutions, then one of the largest pharmacy benefits managers in the US, launched a research partnership with the US Food and Drug Administration to evaluate the link between genetics and the efficacy of prescription drugs, to help them determine whether to include personalised medicines in their menu of benefits. However, consumers may still want verification by independent organisations such as NICE that medical tests and treatments are effective.

Comparative effectiveness by country

Would every country need its own NICE? More countries are considering or implementing their own independent organisations to evaluate comparative effectiveness, including Canada, Australia, Germany and France, among others. Rather than starting from scratch, some are leveraging data from NICE and from the US. This approach is particular useful for lower-income countries with limited resources to conduct their own comparative effectiveness research. However, each country must decide for itself what it considers cost-effective. Treatments and technologies that may pass the test in the UK or Canada might be unaffordable for Mexico, Hungary or Poland. In addition, countries have different social values and priorities which should enter into the equation.

Using research to determine prices

In some cases, comparative effectiveness is altering how much government pay for treatments. In Great Britain, the new administration is moving forward with value-based pricing of pharmaceuticals and is seeking estimates of cost per quality from NICE to use in pricing negotiations. As one expert said: "You negotiate the price for the value you believe your product brings."

Applying comparative effectiveness to traditional treatments

While comparative effectiveness is typically used to evaluate new treatments and procedures, it could yield even bigger rewards by evaluating existing ones. Noted one participant: "We are very conscious of the need for disinvestment. In terms of clinical disinvestment, yes, there are things that people should stop doing." Another agreed, saying: "the current system needs to be more systematically evaluated to create space for innovation and to say, "Look, what we're doing is rubbish in some areas."

Clinical autonomy
When NICE was launched, there was great concern that physicians would resist the agency, fearing that it would erode their freedom to make clinical decisions. In fact, the overwhelming response from the medical community has been one of support, not resistance, because NICE relieves physicians of the burden of making difficult, real-time decisions for which they often they feel ill-equipped. Thousands of physicians have contributed their expertise to NICE on a voluntary basis, helping the agency to gain major credibility within the medical community. Said one participant: "It's estimated that, for a general physician to keep up to date, he needs to be reading between 18 and 20 peer-reviewed articles every day of the week, including the weekends, including public holidays."

Political support against private sector demands
The first decision made by NICE after its creation in 1999 was to determine that the flu medication Relenza did not pass the test of comparative effectiveness; the incremental benefits it delivered were not worth the incremental costs. Tony Blair, then the prime minister, took an enormous amount of criticism for the decision from the drug's manufacturer but sided with NICE, saying he had created the organisation to make such difficult decisions and would not overrule it. That support from the head of the government helped the agency to get off to a strong start.

Making comparative effectiveness mandatory, not advisory
Before NICE was launched, there was much discussion of whether it should simply offer advice or if the NHS should be required to implement the agency's decisions. Ultimately, it was decided that implementation would be mandatory. This decision has been critical to the effectiveness of NICE, as advice only makes an impact when it is translated into action.

Wiring-up health care

Case study

Singapore Ministry of Health Holdings
National Electronic Health Records Project

Presented in June 2011 by

Dr. Sarah Muttitt, then Chief Information Officer, Ministry of Health Holdings, Singapore

Background

Health systems around the world recognise that a prerequisite to the industrialisation of health care is a robust information technology infrastructure that is the necessary enabler to patient-centred, high quality and efficient care. Few – if any – countries have achieved this goal. Singapore is perhaps one of those countries farthest ahead, embarking on an ambitious project that promises "One Patient, One Record" for each of its 5 million citizens.

The city-state, which is ranked number six in overall quality by the World Health Organisation and the top-ranked health system in Asia, sees this project as a necessary step to sustaining a high quality, cost-effective system. National health spending as a percentage of GDP in Singapore is about 4%.[8] Some of this modest cost stems from the fact that Singapore is a fairly young country. However, much credit goes to the structure of the public and private delivery systems and the compulsory government savings scheme, Medisave, which requires patient co-payments. However, the government's low level of spending is a double-edged sword, prompting some critics in Singapore to accuse the government of not spending enough.

Singapore has an IT-savvy population. A next generation broadband is being rolled out with a goal of reaching every household by 2012. In addition, the government is establishing a national authentication framework, which includes a single token for citizens to be able to access their securities, their banking, and their health information.

Singapore's ability to execute on an IT strategy has benefitted from having an unusually stable political environment. Despite some notable opposition in the May 2011 election, the ruling People's Action Party's has won every general election since 1959.[9]

Case study

In 2008, Singapore developed the National Health Informatics Strategy, which included developing the National Electronic Health Record (NEHR) that extracts and consolidates in one record all clinically relevant information across the healthcare system throughout each resident's life. As part of that, the Singapore government made a 10-year investment of $1.2 billion dollars Singaporean, which is $800 million US roughly, or about $400 per citizen.

Sarah Muttitt, MD, MBA, led this effort. Formerly the vice president for innovation and adoption at Canadian Health Infoway, Dr. Muttitt was recruited to join the Ministry of Health Holdings in Singapore to be its Chief Information Officer.A first task was to conduct a 10-year investment strategy to forecast what the total costs would be to implement the NEHR as it was envisioned. It was estimated the cost would be $1.2 billion dollars Singaporean – a moderate investment over the course of 10 years for infrastructure that can be reused, recycled and enhanced over time. The Singaporean government announced in 2009 that it was setting aside $176 million Singaporean for Phase 1 of the NEHR.

Singapore envisioned the EHR (Electronic Health Record) as a subset of the EMR (Electronic Medical Record), which is already in use in its public sector hospitals. EMRs are deep rich electronic records within hospitals or doctors' offices that contain every data point about a patient. Singapore wanted to craft an EHR, which comprises a subset of critical information that needs to follow the patient as they move through the system and be available regardless of the point of care. To determine what went into the EHR, Singapore drew on the expertise of about 250 clinicians organised through task forces. In addition to ensuring the EHR had the right clinical content, this process actively engaged physicians.

The EHR (see Figure 4) is now rolling out, and Singapore officials are beginning to plan the next phase of development, which will centre on analytics, research informatics, and consumer outreach. The process of engaging stakeholders will now extend to a whole new community of practice.

By providing each citizen with an electronic health record that he or she can access at all times, Singapore expects to empower each one with a personal health management platform. A task force of citizens and clinicians are working on what this would look like and how patients could access their own personalised portals. This is expected to be both exciting and challenging amid the pervasiveness of smartphones and next generation broadband.

In terms of analytics and informatics, Singapore officials realise that the second phase will bring the most value as they move from collection to utilisation of health data. Because using data for secondary purposes can raise public concerns, the Ministry is designing another transactional system for real-time analytics. This requires a second infrastructure and includes working with a number of the community stakeholders, including the Singapore Clinical Research Institute.

Analysis: how to implement this model on a wider basis

The role of competing public and private organisations in a national IT strategy

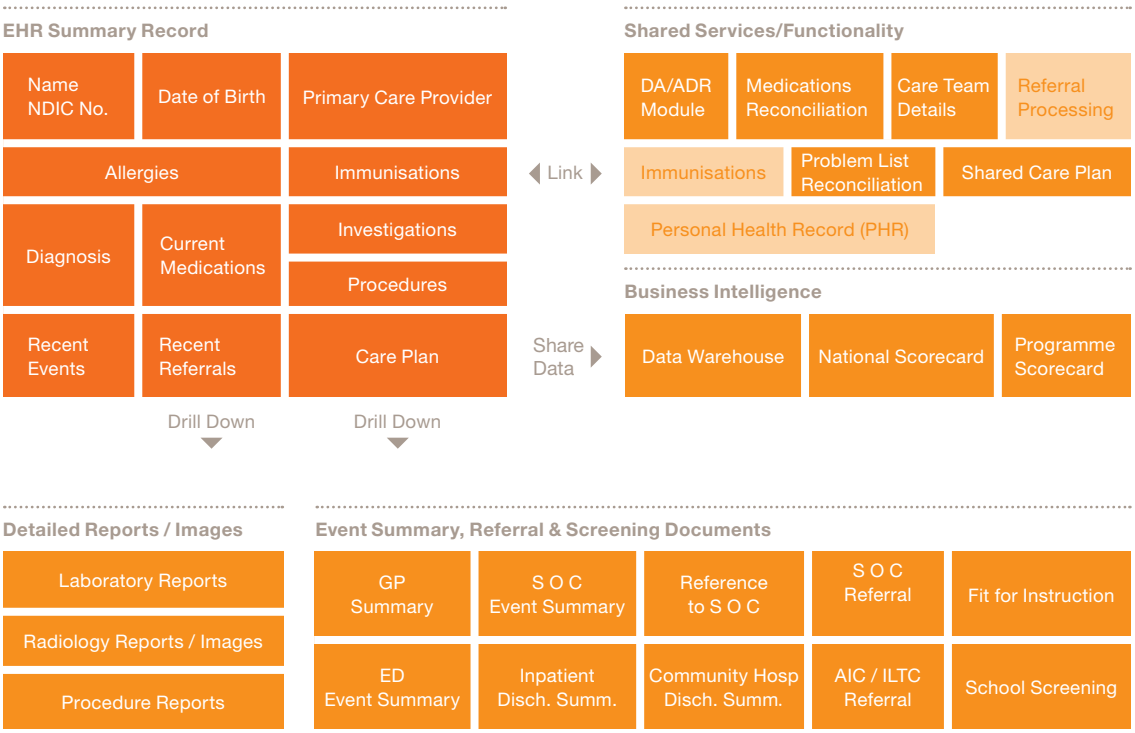
Singapore has a history of competition. Two government hospital clusters, the National Health Group and Singapore Health Services, compete on the island. While these clusters were established to gain the advantages of competition – such as promoting effectiveness and efficiency, and containing costs – competition can lead to reluctance to share. Competitive institutions want to keep their information to themselves. An EMR exchange (EMRX) was established for the hospitals to exchange inpatient information. However, the same issue is now occurring with private general practitioners, who also view information as their competitive advantage.

[8] Source: http://www.who.int/countries/sgp/en/ WHO, Global Health Observatory

[9] Congressional Research Service, Singapore: Background and US Relations http://www.fas.org/sgp/crs/row/RS20490.pdf

Figure 4

EHR – Conceptual View



Applications that are not part of the EHR Solution, but will be integrated with the EHR

Source *Singapore Ministry of Health Holdings*

Managing the size and scope of an EHR project
Some participants questioned whether Singapore's success benefitted largely from the relatively small size of the city-state. One participant talked about a similar project where the population was almost identical to Singapore's but older and not nearly as IT literate. However, the discussion came back to how, regardless of size, these implementations must ensure "the right input and people come on the journey. It becomes their journey, not your journey." Also, governance is critical. Using examples in Canada and the UK, participants discussed a national governance structure that allowed flexibility at the local or regional level.

Getting general practitioners on board
In Singapore, general practitioners are primarily based in private practices. They are more reluctant therefore to adopt IT or share information because it undercuts their competitiveness or bottom-line. Singapore may not be able to force all practitioners to join their wiring-up efforts, but officials believe there is enough buy-in for the quality improvements promised by the EHRs that widespread compliance can be achieved. Noted one participant: "I'm asked a lot of questions that start with the same six words: How do you get doctors to...? You don't do it by fooling them or manipulating them or browbeating them. It's engagement. And it's a very profound long-term engagement where you're continually sharing context and trying to create a learning environment. The selection process to get into medical school is grades in chemistry. That's not necessarily how you find the most well balanced, team-playing people."

Privacy issues
Some countries have seen consumer opposition to a single EHR because they are doubtful that their information will be sufficiently protected. When paired with physician opposition, this can be a formidable barrier to EHR implementation. Said one participant: "[General Practitioners] all realise that data means business. And as long as they can form a coalition with public interest groups around privacy issues, I'm afraid we're never going to win that." Singapore has tackled this by putting in a national identifier and a national patient index. Role-based access is embedded in the system. For sensitive information, access is limited and clinicians must identify who they are. Yet, privacy remains a paradox. "On the one hand, people are preoccupied with it in the medical record. And then they go on their Facebook account and talk about their lupus to 1,000 people," said one participant.

Global interoperability
While getting to a single patient record is a huge challenge, participants discussed how the next step would be one that could be shared globally, or even regionally. Could we set an international construct that would allow us to drive industry the way we want industry to be driven? Singapore found that the need for national level standards includes standards around technology, terminology, privacy, and interoperability. Moving that to a multi-national platform would hinge on a governing body that could take on that challenge for multiple countries. One participant asked about the possibility of vendors driving the process. "It's really hard to get the vendors to participate in a really meaningful sustained way," said one participant about these collaborations, "I wonder if one of the problems is that we don't provide industry with clarity and cohesiveness around our message. Because if they're getting a scatter gram of messages they've got to pick how to prioritise, who to respond to."

Measuring impact
The Ministry of Health recognised the importance of measuring the impact as it went along. The EHR's biggest benefits were in medication management and adherence to best practice. By understanding where these benefits were, IT leaders can optimise those benefits and get to an ROI faster.

Regulation of quality

Case study

The National Committee for Quality Assurance (NCQA)

Presented in June 2011 by

Ms. Margaret (Peggy) O'Kane, President, NCQA

Background

Those who receive healthcare services and those who pay for them are demanding more and more transparency and accountability. While the motivation for this demand may be slightly different between patients and payers, healthcare organisations that provide care are under pressure to measure, report, and compare.

It wasn't always this way. The idea of measuring and rating has grown slowly and erratically over the past two decades, primarily because the publication of ratings has been controversial due to contentious debates over validity. Nonetheless, despite admittedly weak measurement systems, the power of publishing is deep and wide. For example, during the last administration, England implemented a star system to rate hospitals, and found that transparency does change behaviour. In the first year of the star-rating system, 13 hospitals received zero stars. The following year, several were 1-star, some were 2-star, and many had made it to 3-star. The lesson was clear: published ratings can drive performance.

Launching and sustaining measurement and reporting for providers of care is almost always the beginning of a battleground of stakeholders. Strong and relentless leadership is required to move the environment from one of contention and scepticism to performance improvement.

Case study

NCQA accreditation has become the de-facto quality standard by which US health insurers are measured. It is a seal of approval for employers who offer group health plans on behalf of their employees for consumers in group plans who want to compare offerings among different insurers, and for governments that purchase healthcare for their employees and social beneficiaries (Medicare and Medicaid). When the not-for-profit NCQA was founded in 1990, the idea of measuring quality in healthcare was revolutionary. Some laughed and many were angry at the notion of publishing quality metrics for US health plans. Today, NCQA is a private sector initiative that has resounding public sector endorsement. It is an example of a regulatory agency that has thrived by its relentless pursuit of quality on behalf of patients. It reports yearly on its impact-quality improvement, mortality and morbidity reduction.

NCQA's unique measurement tool – the Healthcare Effectiveness Data and Information Set (HEDIS) was developed over twenty years ago, and is constantly modified and improved. As the industry has changed, so has it. Early on it focused uniquely on provider measures, but in later years has developed and incorporated consumer and patient-centric measure as well.

While NCQA accreditation is voluntary, most large employers require it. In addition, the federal government contracts with NCQA to collect HEDIS data on Medicare plans for the elderly. Thirty-eight states now recognise NCQA accreditation. So, the effort is a true example of public and private sector collaboration.

Structure and process measurements fall into these categories:

Quality Improvement
Example: How does the plan manage and coordinate care?

Utilisation Management
Example: How does the plan decide what care to provide?

Credentialing
Example: Does the plan verify doctors' credentials?

Members' Rights & Responsibilities
Example: How is information about the plan explained?

Member Connections
Example: Are self-care and member services available online?

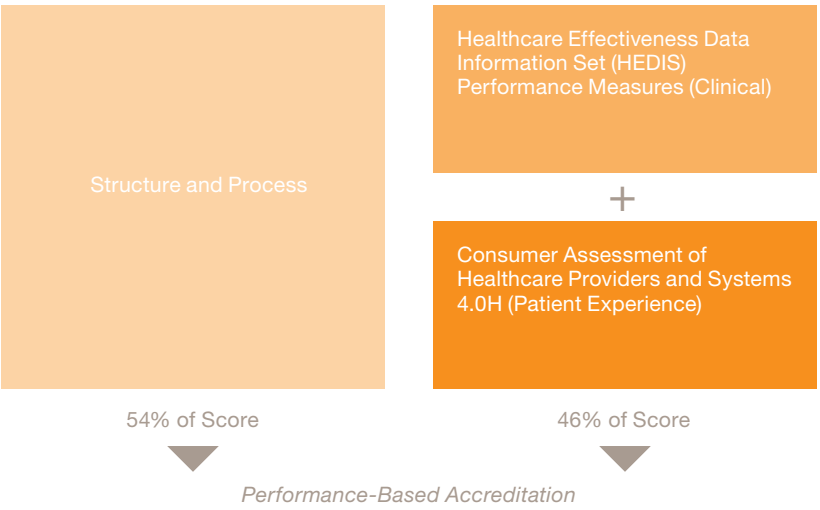
Analysis: how to implement this model on a wider basis

The possibility of faulty ratings

In certain cases, regulators have bestowed high ratings to organisations, which don't deserve them. When the organisation fails, the regulator loses credibility. One participant said, "I worry about this all the time, because we're measuring certain aspects of care, but in terms of the total picture of care, we're only measuring what we think is legitimate to measure, and so you could have catastrophic failures in the things where the evidence isn't very strong, and that would undermine the credibility of what you are able to measure."

Figure 5

NCQA Accreditation is Performance-Based



Source *The National Committee for Quality Assurance*

Allowing exceptions

One participant described how their country's regulator allowed exceptions to a pay-for-performance system. "If the GP had tried very, very hard to convince a member of the public, for example, they got paid to help smoking cessation, even if that member of the public had resisted all their best efforts, then you could exempt them," he said. "What that did was worsened health inequalities, because those people with the greatest need actually were the easiest to let go and say, well, we don't have to target those...What we really should have done is that last 10% of the population, we should have given an extra payment rather than saying you can exempt yourself."

The advantages of a private accreditation body

Public regulators can be confrontational, which can impede or reverse progress on quality. Said one participant: "A department is less likely to engage, becomes more defensive. So as a general rule, a more collaborative approach, in my experience, is more likely to improve the quality of the service that's being delivered."

Healthcare costs and privatisations

Case study

The Dutch Healthcare Authority

Presented in February 2011 by

Mr. Theo Langejan, Chairman, NZa (Dutch Healthcare Authority)

Background

Healthcare reform in the Netherlands is a cautionary tale of ups and downs, the partial successes and unintended consequences of making major changes to a well-entrenched healthcare system. The issues that drove the Dutch health reforms began back in the 1980s, when healthcare costs began accelerating. The Netherlands had mandated universal healthcare coverage for all citizens since 1942, but access was poor. And despite the growing national tab for medical care, patients faced long waiting lists and had little choice of providers. The government granted hospital budgets, fixed prices, and made all investment decisions. As a result, providers focused all their creativity and money on influencing the government to raise prices and safeguard their market.

Case study

In the late 1980s, Wisse Dekker, the then CEO of Phillips Electronics, one of the world's largest electronics companies, was asked to evaluate the Dutch healthcare system. His recommendation was to liberalise the Dutch system by introducing competition between insurers as the key reform. When this recommendation was introduced in 2006, the Dutch Healthcare Authority was established with the goal of improving competition among providers, which previously received set budgets from the government. Under the reform, the government pays private insurance companies, and they pay providers, using market pressure to increase quality and reduce costs. While the government continues to set some prices, many are done through negotiation between insurers and providers.

Thanks to the bargaining power of insurance companies, many medical procedures that formerly were performed in hospitals have been contracted out to nearby private clinics that guarantee they will deliver the services at a cost substantially below the hospital's price. But the volume of procedures has increased sharply as providers, who are paid on a fee-for-service basis, strive to compensate for the lower price per procedure. As a result, overall healthcare costs continue to climb.

While reforms in the Netherlands thus far have not succeeded in bending the cost curve, they have eliminated waiting lists – a key concern of the public, and a major reason why reforms were initiated. Patients also have access to a wider range of private providers – another popular feature of the new system. What has been less popular are the difficult decisions the government made about what is excluded from the basic benefits package (e.g., dental care above the age of 18). The pharmaceutical industry also is concerned because insurance companies have won major pricing concessions for generic drugs.

It is not clear yet how the Netherlands' new system will impact insurers over the long term. Will they be able to sustain profitability, given the mandate to provide a minimum level of benefits and the requirement to offer coverage to everyone, regardless of risk profile? And will the government offer the support required to drive quality improvements? For instance, if an insurer refuses to contract with a hospital because of a track record of poor quality, will politicians back the effort or try to save the facility for political reasons? On all of these questions, a great deal of uncertainty remains.

Analysis: how to implement this model on a wider basis

When prices decline, volume increases

In healthcare, competition does not necessarily lead to lower overall costs. In the Netherlands, it increased demand. Both providers and consumers generated more demand, which increased overall spending. One solution that has been implemented incrementally is the use of co-payments to temper demand. Since 2012, for example, patients have to pay a fee between 100 and 200 euros per treatment for secondary mental care. These co-payments have been extensively discussed in public debates and are not popular with patients. In addition, co-pays may prompt consumers to forego necessary care to save money, which could impact overall health outcomes.

Sustaining a market in which private health plans can compete and profit

Every health insurance company in the Netherlands is required to accept every patient, regardless of pre-existing conditions, and all insurers must offer the same basic package of benefits. To create the right incentives for insurance companies to participate, the government had to provide risk adjustment payments. That created a level playing field, sustaining competition even if the insurance market is highly concentrated (as it is in the Netherlands). If an insurer delivers poor service or raises premiums too high, plan members can simply switch to another insurer that offers better service and rates. As in the case of Australia's *headspace*, money follows the patient, providing a powerful incentive for insurers to deliver quality service at a competitive price.

Under the new system, insurance companies are obliged to accept every patient, regardless of pre-existing conditions, and each insurer is required to offer the same basic package of benefits, which is written into the reform law. Consumers who are dissatisfied with one insurance company can simply move to another, since all offer the same basic benefits package. Consumers also can choose to purchase higher-cost plans that include additional features, such as more options of providers they can see and hospitals they can access.

Benchmarking quality
The Netherlands has no comprehensive, objective database of quality information and benchmarks. Such a database is needed to give insurers the information and data they need to lean on hospitals and providers to boost quality. After years of discussion, but no action on the government's part, one major insurer declared it would no longer contract with hospitals that did not perform a minimum level of procedures. But without an objective source of quality benchmarks, the company had little basis for the number it chose.

Insurance companies have asked the government to develop an objective common knowledge base around quality issues and outcomes. This is a difficult challenge, but a necessary step in strengthening competition, improving quality, and reducing costs. The availability of a reliable, objective source of quality data would enable insurance companies to engage in more sophisticated negotiations with hospitals – for instance, to offer financial incentives for achieving certain quality benchmarks. The challenge is that the quality improvements paid for by one insurance company would benefit competing insurers that contract with the facility.

Using reform to drive integration of care
The Dutch healthcare system provides some incentives to encourage integrated care. For instance, insurance companies pay more to general practitioners who coordinate care for patients when they are diagnosed with diabetes, with the goal of avoiding hospitalisation. But to succeed, the Netherlands must eliminate the remnants of its previous healthcare budgeting system, which separates primary and secondary care.

A greater focus on prevention also could help to improve health outcomes and reduce costs. Prevention has grown in importance along with the increased incidence of chronic diseases such as diabetes, but the issue is not addressed easily through the insurance system. There is little incentive for insurers to invest in preventive care in the short term, knowing that a competitor might reap the benefits down the line if the patient switches insurers. It may be more appropriate to address the issue of prevention via public health initiatives.

That said, in the US, there is a growing recognition on the part of health insurers that it is in everyone's best interests to address prevention. While an insurer may lose out on some investments in preventive care when policyholders leave, they also may reap returns on investments made by others, as members swap health plans.

An appropriate pace for change to occur
Optimists view the reformed Dutch system as halfway there, while pessimists see it as stuck in the middle, with incentives not fully working because many prices continue to be fixed by the government. Some important reforms have been delayed. For instance, specialisation of hospitals is being postponed by individual hospitals because many prices are still fixed, and doctors want to retain whatever fixed pricing remains.

Process improvement in hospitals

The power of process and downward innovation

Case study

Narayana Hrudayalaya Hospital of Bangalore, India

Presented in February 2011 by

Dr. Julius Punnen, Senior Consultant Cardiac Surgeon, Narayana Hrudayalaya Hospital

Background

In the healthcare industry, costs rise rapidly and relentlessly, and the extra costs often yield only incremental value. By contrast, many other industries innovate continually to improve quality while reducing costs simultaneously – often dramatically. Japanese automakers rose to the top of their industry through radical rethinking of processes in the 1970s and 1980s that led to dramatic increases in quality and reductions in cost.

The technology industry is a prime example of a sector that delivers significant performance improvements and cost reductions year after year. Technology manufacturers have coined the term "downward innovation" to describe how they redesign complex, costly machines into simple ones that cost a fraction of the price and can be manufactured and sold in mass quantities. This approach can also be applied to radically re-engineering health-related processes and leveraging economies of scale to achieve similar results for patients.

Case study

The Narayana Hrudayalaya (NH) health system in Bangalore, India, performs a high volume of open heart surgeries at a fraction of the cost of such procedures in other countries, and achieves equivalent and, in some cases, superior outcomes. The system was founded in 2001 by Dr. Devi Prasad Shetty, a world-renowned cardiologist who was the personal physician to Mother Teresa.

In 2004, the typical cost of an open heart surgery at NH was 90,000 rupees, or about US $2,000. Since then, NH has driven down the cost to $1,700, in part due to the high volume of procedures it performs. For instance, in 2010, NH performed about 2,600 pediatric heart surgeries; by contrast, the busiest centre for such operations in the US completed roughly 800 pediatric procedures. This high volume of surgeries gives NH the bargaining power to drive down the cost of materials, which account for 40% of the organisation's total costs.

The rest of the cost reduction comes from a relentless drive to improve processes. To bend the cost curve downward, NH focuses on standardizing procedures and breaking down processes into their component parts – an approach akin to that of the automotive industry. For instance, highly paid senior surgeons perform only the main part of the operation; more junior physicians open and close the chest. Prepping 84 infants for cardiac surgery – a process that takes up to two hours in the US – was completed in 12 minutes during a recent visit by PwC. During the same visit, PwC observed 84 infants in cardiac post op neonatal unit receiving individual care; at major US medical centres, two to four is the norm. A strong telemedicine network improves the efficiency of operations further, and makes it easier to follow up with patients from remote villages.

The results speak for themselves: The volume of coronary artery bypass graft (CABG) surgeries performed at NH exceeds those of the leading US institutions with equivalent or better outcomes than the rates of the top US institutions (see Figure 2). This high volume of procedures enables NH surgeons to pursue subspecialties, further enhancing quality and driving up efficiency. While CABG procedures account for the bulk of the work, if a surgeon decides to specialise in another procedure, such as valve replacements, there are plenty of cases available.

The quality of NH's work has enabled it to secure accreditation by various national agencies, and most recently, by the Joint Commission International. To ensure quality is maintained, NH has an ongoing post-graduate training programme in cardiac surgery, cardiology, pediatric cardiology, and various other areas. To improve quality further, NH plans to launch a six-year cardiac surgical training programme. Rather than rotating trainees through three years of general surgery, they will be rotated through various cardiology procedures, enabling them to develop relevant skills more quickly than if they spent more training time doing general surgery.

Dr. Shetty's ultimate goal is to drive down the cost of heart surgery to $800 per operation. To do that, NH plans to grow the organisation to a 30,000-bed operation by 2017, by opening a national network of 55 low-cost, 300-bed heart hospitals.

Analysis: how to implement this model on a wider basis

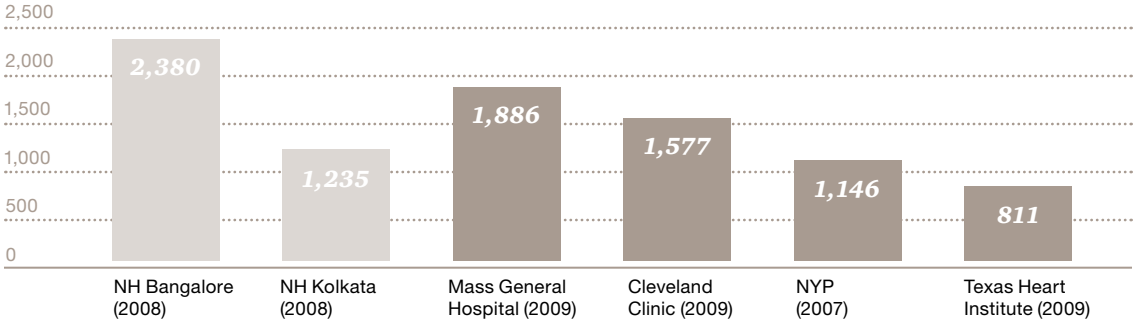
Achieving collaboration among physicians

Surgeons work for the NH organisation because they believe in Dr. Shetty's vision and respect his skills as a surgeon. Despite long hours, burnout is not an issue because NH provides a satisfying work environment where surgeons freely help one another. In the decade since it was founded, only one surgeon has left NH.

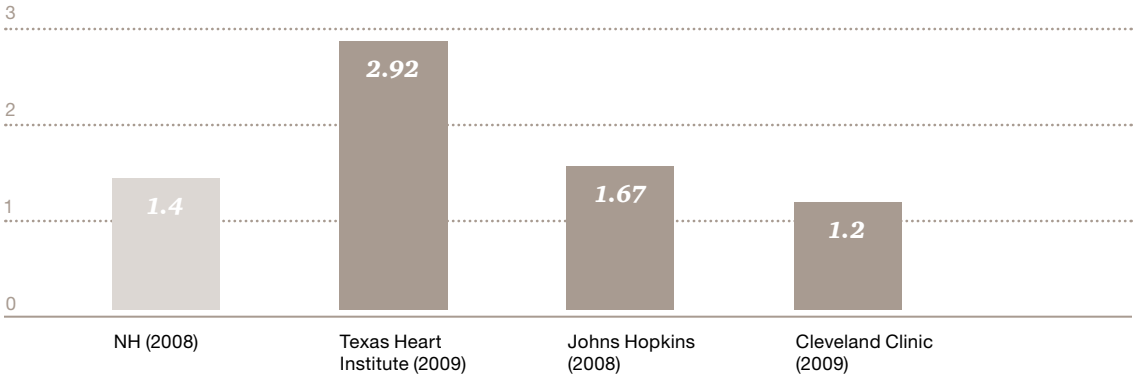
However, this culture may not be transferable to other countries. As one expert noted, one medical organisation chief espoused a similar philosophy: "You do them more often, you do them better. You do them cheaper. And you do them with less complication. But somehow this is not what his membership wanted to hear. And now he's no longer the chairman of the association."

Figure 2

Volume of CABG surgeries, Narayana Hrudayalaya and top U.S. cardiac hospitals



CABG observed mortality rates, Narayana Hrudayalaya and top U.S. cardiac hospitals



NH's surgical volumes exceed those of leading US institutions, and outcomes are in line with or better than many of these institutions. (Mortality rates for NH are observed, while the rates for US institutions are risk-adjusted)

Sources

Massachusetts General: Massachusetts Office of Health and Human Services: www.mass.gov/?pageID=eohhs2terminal&L=4&L0=Home&L1=Government&L2=Special+Commissions+and+Initiatives&L3=Health+Care+Quality+and+Cost+Information&sid=Eeohhs2&b=terminalcontent&f=dhcfp_quality_cost_archives_qc3_reports&csid=Eeohhs2#heart_surg

Cleveland Clinic: Heart and Vascular Institute "Outcomes 2009." my.clevelandclinic.org/Documents/outcomes/2009/hvi-2009-outcomes.pdf

NYP: New York State Department of Health. "Adult Cardiac Surgery in New York State." Revised 2010. www.health.state.ny.us/statistics/diseases/cardiovascular/heart_disease/docs/2006-2008_adult_cardiac_surgery.pdf

Texas Heart Institute: Texas Department of State Health Services: www.dshs.state.tx.us/thcic/DataAndReports.shtm

Johns Hopkins: Johns Hopkins University HealthSystem Consortium Mortality Statistics: www.hopkinsmedicine.org/quality/performance/mortality/uhc.html#cardiology*

Developing a funding model

Annually, about 2.5 million people in India require heart surgery, but only 90,000 procedures are performed each year. While the country has a large number of doctors, nurses, and medical technicians, patients cannot afford to buy the care they need. NH and the government of Karnataka designed a micro finance scheme called *yeshasvini* to help cover the costs of serving the poor. Under this novel scheme, residents of the Indian State of Karnataka pay a tiny amount monthly (initially, the equivalent of 11 cents) in insurance, and the government matches the amount. The funds raised from the large population are sufficient to cover a substantial portion of the costs of surgical procedures, including complex heart and brain surgeries. In addition to helping provide insurance to the masses, the government offers heavily subsidised land to NH, and some cases, provides land for free.

While $1,700 for open heart surgery – the current cost at NH – is shockingly low by US standards, it is a huge sum for a poor farmer in India. The *yeshasvini* insurance pays roughly $1,300 of the cost. To cover the rest, NH has implemented a tiered pricing scheme under which wealthy patients subsidise those who are poor. The organisation offers a wide range of packages, and patients with higher incomes have the choice of staying in a better ward with more amenities. At the time of admission, NH performs a financial risk analysis, categorises patients into one of three risk-based levels, and tailors a package of care based on the patient's risk profile.

Health system as charity

Dr. Shetty's goal was to bring heart surgery to the masses. NH is not striving to make the most money but to deliver the best care to everyone, regardless of their ability to afford it, a noble vision and atypical business model. Noted one expert in the discussion: "But can we think about this social business model and a wilful reduction in cost based on a charitable notion? Does that work anywhere?"

In the developed world, it's unrealistic to expect that the cost of cardiac surgery could be reduced to $800, but by radically reengineering processes through this goal, it might be possible to reduce costs and increase the number of surgeries by 25% or more.

Medical staff recruitment, compensation and training

Labour accounts for 30% of NH costs. This percentage is far lower than in the developed world, but on the basis of purchasing power parity basis, NH's cardiac surgeons are paid well; in fact, they are among the highest paid professionals in India. In general, NH does not recruit surgeons at the senior level but rather allows its medical professionals to grow up in the organisation. Skills develop quickly because of the volume of operations performed, which increases quality. Some surgeons run two operating theatres and may perform four or five surgeries each day. A few have completed 5,000 Tetralogy of Fallot surgeries to correct congenital heart defects – likely an impressive record.

Improving hospital efficiency

Case study

Quebec Ministry of Health and Social Services

Presented in June 2011 by

Dr. Yves Bolduc, Minister of Health and Social Services of Quebec, Canada

Background

Canada provides universal health coverage to its residents, but sustainability is threatened by the increasing costs of care for an ageing population with a high incidence of chronic diseases. In Canada, every province has its own healthcare system. Each system has integrated primary care, hospital, long-term care, and social services around a single principle: for one territory, for one population, there is only one organisation.

In spite of this integration, Canadian patients often have difficulty finding the help they need. In the province of Quebec, creating hospital capacity is what led the Health Ministry to adopt a universal Lean approach to the entire hospital system. The benefits of Lean management, a concept started by the automaker Toyota, improves the delivery of healthcare by reorganising processes for care delivery. Lean helps organisations move from physician to patient-centric, while simultaneously reducing waste and errors. Lean has also been adopted by many healthcare organisations outside Canada. One prominent example was described in the recent book, *Transforming Health Care: Virginia Mason Medical Center's Pursuit of the Perfect Patient Experience*.

Case study

Few regions have applied Lean as broadly as Quebec. The credit for this goes to Dr. Yves Bolduc, who was appointed Minister of Health and Social Services of Quebec in June 2008 and almost immediately put Lean to work across the province. Dr. Bolduc, an early champion of Lean Healthcare, had been responsible for health operations in the Val-d'Or region in Quebec and used Lean to reorganise processes in operating rooms. The result was a 25% increase in the number of surgeries that saved $200,000 a year. The project took just six weeks from conception to implementation.

By September 2008, all of Quebec's 100 hospitals were urged to use Lean to improve performance, and indeed most have. The management system has become so pervasive that universities have started Lean educational programmes, with the goal of teaching it to healthcare workers. In the summer of 2011, forty hospital CEOs from Quebec will take a one week course in Lean at a major university.

Today, all of Quebec's hospitals have at least one Lean project, and the projects cut across all sectors. Through Lean, the hospitals hire engineers who measure everything–the steps, the delays, the time. The engineers aren't healthcare experts, but they are empowered to implement change. One example is at Centre de Santé et de Services Sociaux de Trois-Rivières Hospital. Serving a population of 131,000, The Trois-Rivières CSSS has three missions: a hospital centre, a residential and long-term care centre, and a local community service centre. The emergency room has 31,000 visits annually.

After one week of intensive brainstorming outside the hospital (physicians, nurses, pharmacists, radiology technologists, attendants, etc.), the Lean team came up with an action plan to eliminate 67 of the 73 sources of waste identified. For example: medication registration in three places; inadequate patient preparation; use of a nurse rather than an attendant to prepare patients' beds; etc.

The Lean approach produced results:

- The average length of stay (ALS) for ambulatory patients was reduced from 4.9 hours to 1.8 hours, and the ALS for patients on a gurney was reduced from 17.4 hours to 4.2 hours;
- New capacity has been created to accommodate the rise in number of visits to the ER, from 85 to 90 per day;
- Increase in overall client satisfaction (from 76% to 95%) and an increase in client satisfaction with wait times (from 56% to 76%);
- Over 50% decrease in the number of patients leaving the ER without having been seen by a physician.

For Quebec, Lean has proven to be a way to hold costs in line while creating new system capacity. Health spending for the province increased by less than 5% last year. At an annual inflation rate of 4%, officials believe that the system will be sustainable for the next 20 years. Thus, officials see Lean not necessarily as a cost cutting revolution, but a rational pathway to system sustainability and customer satisfaction.

Analysis: how to implement this model on a wider basis

Change management

Lean healthcare projects typically take six to eight weeks, and doctors and nurses are always part of the project team. Lean has enabled doctors and nurses to do more and work less. Often hospital workers complain that they are overworked. Lean has taken out unnecessary work steps. "We waste 25% of our investigations because junior doctors tick boxes that are not necessary," said one participant. "So getting to that clinical variation through evidenced-based, you know, approach and pathways, is to me where the real savings are." Added another participant who has used Lean: "We've had one project roll out so far, and the empowerment of the staff that came out of that, and the excitement as they were presenting their results to the rest of the organisation, was palpable."

Getting buy-in beyond leadership
One participant described how Lean had been used by managers in one organisation, and each of them became disciples after visiting both Virginia Mason and Toyota. "They sort of get to understand it pretty deeply and come back imbued with a sense, if I can say this, of religion about it," he said. The challenge is spreading that religion among clinical and non-clinical staff. What Lean supporters have found is that once an organisation does a Lean project, that project's champions become the best sales people for Lean.

Possible controversy about quality of care
The goal of Lean implementation is to improve care by reducing delays and making care more standardised. However, controversy is inevitable. One example that was discussed was a hospital that sent spine patients to a physical therapist instead of the neurosurgeon. "If you ask a doctor like a back neurosurgeon, they want to operate on almost everyone, but now the studies show that most of the surgeries are not necessary," the participant said. Lean forces medical teams to think about the final results to the patient.

Embedding Lean into medical education
Participants identified a root challenge to infusing Lean methods in healthcare: too few medical practitioners, from doctors to nurses, are interested in spending precious time on system management. And too few medical schools devote any length of time on systems-based care or management methodology. As one participant said, "We need to see a revolution in medical education that is far greater than what Flexner impelled 100 years ago. And I think Lean management techniques need to be taught from the very beginning when patients are being introduced to the curriculum." In Quebec, many universities have started to teach Lean.

Caring for an ageing population

Caring for ageing populations

Case study

The Medicare Innovations Collaborative (MedIC), US

Presented in November 2011 by

Dr. Bruce Leff, Professor of Medicine, Division of Geriatric Medicine, Johns Hopkins University School of Medicine

Background

In order to manage chronic disease amongst the elderly, healthcare systems need to move away from traditional styles of hospital-based treatment to more cost-effective models of care that acknowledge the importance of managing patients with chronic illness in the acute care setting.

The age profile in most societies is heading upwards as people live longer and have fewer children. An increasing majority of healthcare spend in most developed countries is absorbed by the treatment of chronically-ill patients. Even in emerging nations the traditional diseases of tuberculosis (TB) and malaria will be superseded by chronic conditions such as diabetes, Chronic Obstructive Pulmonary Disease (COPD) and Alzheimer's.

All of this puts immense pressure on already overburdened health services, where the favoured treatment regime tends to be hospital-based, which is expensive, takes up scarce bed space and often leads to poor outcomes with subsequent readmissions. In many South East Asian countries the decline in family size is depriving the elderly of a vital support network, so the responsibility for care inevitably falls on the health services.

Healthcare systems around the world are urgently trying to address this challenge by trying out new approaches to care, with some promising results. In adapting and integrating these fresh ideas more widely, health providers must overcome natural inertia and structural barriers, in particular the fee-for-service model that pushes patients towards costly secondary care. Technical assistance materials and support have proved beneficial in helping other clinical networks to adopt new initiatives.

Case study

A US demonstration project showed how health systems can rapidly introduce a number of new approaches to the care of the elderly, to optimise scarce hospital resources, improve patient outcomes and reduce costs.

Over the last 20 years, a number of evidence-based models of geriatric healthcare delivery have been developed, but their dissemination and implementation on a widespread basis have been quite limited. The Medicare Innovations Collaborative (MedIC), a project sponsored by The Atlantic Philanthropies, has worked to encourage the wider take-up of innovative models of geriatric care. Six different US healthcare systems were given the opportunity to trial a variety of proven approaches to improve both efficiency and quality, with the objective of: keeping some patients out of hospital altogether; moving those that required treatment through the hospital safely and efficiently; and transitioning patients back to their home smoothly and effectively. The six chosen models were:

1. Nurses Improving Care for HealthSystem Elders (NICHE – www.nicheprogram.org): training hospital nurses to improve the quality of care delivered to older adults

2. Care transitions: providing assessment, self-management skills and hospital discharge planning to minimise readmissions

3. The Hospital Elder Life Program (HELP – www.hospitalelderlifeprogram.org): using volunteers to help prevent delirium among older patients

4. Hospital-based palliative care consultation: to make the hospital environment kinder and gentler and reduce admission to nursing homes (www.capc.org)

5. Acute Care for Elder (ACE) Unit: a hospital unit dedicated to providing interdisciplinary team-based care for older adults at risk of hospital complications

6. Hospital at Home®: offering acute hospital-level care in a patient's home to avoid admissions (www.hospitalathome.org)

The participating sites – which did not receive any direct financial funding – included not-for-profit networks, managed care, university-based and independent institutions. They had the option to choose any or all of the available models and were provided with strong technical support via meetings, calls and training sessions, technical assistance such as business planning, and access to the experts who developed these models for additional consultation.

Encouragingly, all the participants adopted and implemented at least one new model within six to eight months, with some choosing multiple programmes. NICHE was selected (or expanded, where already in use) in all cases, being seen as a foundation from which other programmes could be built. Given the growing incentive to prevent readmissions, it was no real surprise that care transitions was also chosen by the majority of participants. However, 'Hospital-at-Home' was not taken up at all, which reflects the current reimbursement system that incentivises the use of hospitals over community care.

In most cases the models were adapted to suit the particular needs of the different health system, but, importantly, there was a trend towards integration of multiple approaches, which suggest that a 'portfolio' of complementary models can bring real benefits. The technical assistance was highly valued and seen as a critical element in speeding up implementation.

Results exceeded expectations, bringing a number of visible benefits such as a breakdown of barriers between care and provider types, improved care cultures and reduced costs. Although at an early stage, the MedIC trial shows the potential for integrating various elements of the care community to make more efficient use of hospitals. However, the 'fee-for-service' culture remains a formidable barrier from moving to more community-based care.

Analysis: how to implement this model on a wider basis

Expanding the definition of 'carers'

The sheer volume of geriatric patients makes it logistically impossible for physicians to see everyone, something compounded by the lack of trainee doctors choosing to become geriatricians. Responsibility for care should therefore be extended to nurses and even non-professionals. One of the trial participants – Carolina Health Systems – has managed to roll out models without the support of a single geriatrician, using nurses and other support staff. And resources are not being used efficiently, as one participant stated: "We're using very expensive nursing services to do basic things like put a pill in someone's mouth or an eye drop in their eye." In response, another attendee recognised the need for a new breed of geriatric carer who would be "a cross between a mother and a nurse." Nursing associations are known to be very protective of their exclusive rights to treat patients, so there must be a willingness of healthcare professionals in general to relax the restrictions on who can carry out basic activities.

Keeping patients out of hospital

Hospital admissions for chronic conditions are extremely costly and often lead to further infections, so the emphasis should shift to home-based care, involving house calls. 'Hospital-at-Home' takes this concept a step further to enable oxygen, intravenous medicines, blood tests, X-rays and ultrasounds to be administered in the patient's home. Getting physicians to attend homes is problematic, so telemedicine could be applied in many cases. There is also a growing body of evidence supporting home-based rehabilitation for hip fractures, knee replacements or strokes.

Aligning incentives with outcomes

By creating teams with responsibility for total care of the elderly, and incentivising these teams appropriately, it's possible to achieve a greater level of care in the community and reduce the use of specialist physicians. This requires a radical integration of the various parts of the care network and an overhaul of the reimbursement system. A participant noted a successful regional example from the US at Presbyterian Health Systems in Albuquerque, New Mexico: "They own a health plan and hospitals and have adopted a 'Hospital-at-Home' approach, which, because they are an integrated system, they can link to their palliative care programme and heart failure clinics…so it is all wonderfully integrated." Such models need to be developed on a broader scale, with another participant referring to changes to the universal medical insurance tariffs in Japan: "Doctors and nurses making home visits are both paid through national insurance, which is helping to reduce hospital stays."

Rethinking end-of-life care

One attendee cited the work of an Australian body called 'Respecting Patients' Choices,' which aims to help people die with greater dignity at home. She commented: "Currently around three-quarters spend their last days and hours in hospital, which uses up vast intensive care and other resources and doesn't reflect the desire of the vast majority who would rather be in their own homes." Advance care planning could help such a shift.

Bringing together health and social care

As one participant commented: "The rate of hospitalisation for elderly people is closely linked to the quality of social care." Increasing the level of care in the community is not just about transferring medical services to the home setting, and many governments and health systems are seeking greater integration of medical and social care providers.

Precision medicine

Moving towards precision medicine

Case study

Medco's Smart Medicine Approach

Presented in June 2011 by

Mr. Brian Griffin, then Chief Executive Officer, Medco Celesio B.V.

Background

Science and technology – genomics in particular – are providing the tools for healthcare to become much more precise, individualised, and personalised. The result is a reduction of variation, and by definition improvement in quality. Cost reduction nearly always follows suit (Figure 6). For example, in the US, nearly one third of patients don't fill their prescriptions (wasted outcome), one quarter don't take the recommended dose (suboptimal outcome), and three in 10 stop taking their medication within the first year (abandoned outcome). All of this adds up to unnecessary and costly healthcare burdens to patients and payers in both public and private sectors.

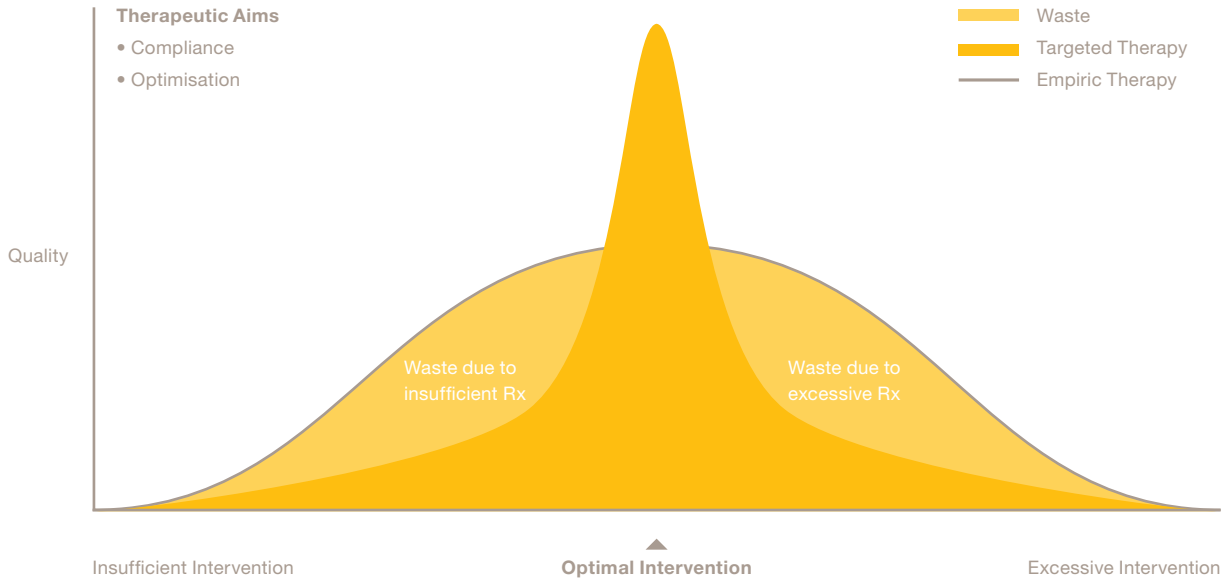
Moving towards a precision and specificity based healthcare paradigm holds the promise of profound change in the prevention, diagnosis, and treatment of illness. From service to research, personalised medicine could be a disruptive force in bending the cost curve worldwide.

Case study

Medco (which was purchased by Express Scripts Inc. in 2012) is one of the largest pharmacy benefit management company in the US, managing prescription drugs for 65 million Americans. There, Medco negotiates drug prices on behalf of its clients, a role typically played, with some exception, by single-payer governments in Europe. Medco is not merely a price negotiator. Using its rich patient pharmacy data, it systematically seeks to close gaps in care from evidence based protocols. The result is better compliance and outcome for patients, and lower costs for employers and other payers. Further, due to the size of its database, and Medco's commitment to quality improvement, new clinical algorithms of optimal care have been deployed.

Figure 6

Quality Improvement Model



Source *Dr. Andrew von Eschenbach, Former US Commissioner of Food and Drugs; President, Samaritan Health Initiatives*

To support this changing paradigm of pharmacy services, Medco has reorganised itself into disease-specific areas, training its 2,000 pharmacists to interact directly with patients in one of a number of disease categories in highly specific therapeutic resource centres. This transformation of pharmacists as generalist to specialist over the last four years is exemplified by the company's new centre in Fairfield, Ohio, where Medco currently helps to manage 9 million diabetic patients. By using claims data to identify patients with chronic disease and linking patients to pharmacists with expertise in disease, Medco demonstrates fewer gaps in care and lower costs. A similar programme is used in Germany, but due to different privacy requirements in the European Union, the programme is on an 'opt in' basis only.

With its large and rich patient database, Medco has pioneered the logical next-step of mass customisation of therapeutics with the implementation of sophisticated genomics based diagnostic programmes. Together with a corporate acquisition strategy in the genomic diagnostics space, Medco is leading the way to deliver precision-based therapy to patients (the 'end users') and their large employers (the 'customers'). Medco predicts that this focus on personalised medicine will render a competitive edge by significantly transforming the healthcare value chain.

Analysis: how to implement this model on a wider basis

What is the "break-even" point for diagnostic testing?

Genetic testing is expensive, although the cost has come down significantly from about US$5,000 two years ago to about US$500 now. The prediction is that the cost will continue to fall. A significant portion of the drug spend over the next 10 years will be in oncology, and many of these therapies will require a precision-based model focused on specific, discrete patient populations.

Tempering expectations around genomic testing

One participant gave this example: "If you take some of our chronically ill patients, and they're on six medications, you could probably know what those six medications would do to each other if you just put them in a test tube. But if you put them in a patient with 90% cardiac function, and one with 60% cardiac function and 35% renal function, you know, 100% hepatic function, we don't have any sophistication around the interactions inside the body on all those various parameters, and I think there's so much unknown. So, I think it's fledgling. I think the science is getting much better, I think genomics is helpful, but it's that second layer, which is all the interactions inside the body, for which I don't think anybody's got a programme we can put that into, and create the right solution."

The ethics dilemma of withholding treatment

If a genetic test determines who gets a certain drug, then some patients won't get treated. The test creates two different classes of patients. One participant said, "What was formerly the same disease is now two different diseases, and how can society deal with that kind of transitional problem, from the regulatory point of view, if you go from population-based to a more precision-based medicine?" Asked another: "Is it fair that some will get treatment because of the genetic lottery in some sense?" Some participants said yes, it is fair because it's avoiding cost, and perhaps an alternative therapy can be developed for those other patients.

Training physicians

Genetic counselling is not a part of the traditional medical school training, nor is it readily available beyond medical school. One participant added: "It's certainly not a part of the current continuing education programmes, in connection with the medical schools, so I think that there's a lot that has to be done there for this to really pick up."

Creating sustainable health economies through bioclusters

Building a new healthcare economy

Case study

University of Pittsburgh Medical Center (UPMC), US

Presented in November 2011 by

Dr. Steven D. Shapiro, Senior Vice President and Chief Medical and Scientific Officer, UPMC

Background

By thinking beyond traditional concepts of healthcare, it's possible to create an entire economy based around clinical service delivery, teaching and research.

A famous Harvard Business School professor once said it's almost impossible to redirect an established country or region to embrace a disruptive technology. However, the remarkable success of a biocluster in the city of Pittsburgh has proved otherwise, thanks to the foresight and hard work of a couple of brilliant, ambitious, business-oriented leaders.

A biocluster is a group of academic medical centres, hospitals, research facilities and supporting structures concentrated in a single location, which share local resources and focus on training, applied and clinical research connected to the bio industry sector. Through building relationships and partnerships, and cooperating in complementary projects, the cluster can make a vital contribution to the new biology of the twenty first century, with government playing an important role by helping fund research.

Although they are largely not-for-profit entities, successful bioclusters embody leading-edge private sector management principles, commercialising knowledge and creating new jobs that ultimately benefit – and in the case of Pittsburgh regenerate – the whole local economy.

Case study

Thanks to the meteoric rise of UPMC, Pittsburgh has been transformed into a new centre of the bio technology industry, creating thousands of new jobs.

As the foremost producer in the world's largest steel-producing nation, Pittsburgh was the engine behind the incredible growth of the US in the first half of the twentieth century. Yet by the 1970s the steel industry had collapsed, leaving a devastated and depressed city, with sky-high unemployment and a mass migration of inhabitants.

Beginning with a humble psychiatric hospital in the mid-1970s, UPMC steadily unified local academic hospitals and acquired fragmented community hospitals, to build a critical mass that delivers better healthcare. The group now has over 20 hospitals and employs nearly 3,000 physicians among its 5,000 affiliated doctors. It also has a viable insurance arm with over 1.5 million members. All this has helped the University of Pittsburgh attract half a billion dollars a year in NIH (National Institute for Health) funding for research, putting it among the top half dozen recipients in the whole of the US. While government support is an essential ingredient, such investment in economic regeneration has so far reaped handsome rewards.

This phenomenal achievement has been based on a firm vision, inspirational leadership and a highly business-like approach, with resources continually reinvested in research and a strong focus on commercialising technology. UPMC has numerous partnerships with organisations as diverse as General Electric (GE), Alcatel-Lucent and IBM and has also gone global with hospitals in Ireland and Italy, including an emerging biocluster in Sicily based around research and surgery for liver transplants.

With over five million unique patient records and vast quantities of research data, information is a vital ingredient so UPMC is developing a central data warehouse to unleash the power of analytics.

Having invested over US$1.4 billion in the past five years alone, UPMC was rated by *Information Week* as the fifth most innovative IT company and the first in healthcare in the US. The impact on the city of Pittsburgh has been nothing short of spectacular. UPMC is now the region's largest employer with 54,000 people, and, directly and indirectly, supports one-fifth of the region's jobs. UPMC also supports the local community by investing $100 million to educate city children through college and, as tenants, also feeds into the local economy. UPMC revenue was $9 billion in 2011.

Pittsburgh has a revitalised economy built on education and medicine, attracting large numbers of young, highly educated people to a city voted the most livable in the country.

Analysis: how to implement this model on a wider basis

Accelerating the development of a biocluster

UPMC has taken 35 years to reach its current level of success, whereas the emerging nations in particular are looking to replicate such success within a much shorter timeframe. A participant noted that: "One advantage of the BRICs and other larger countries is the critical mass of large populations and educational facilities, which can feed a substantial talent pool into R&D." If the government can provide appropriate support, then the cluster can partner with private industry to discover and commercialise intellectual property, to jump-start the process.

Maintaining momentum
UPMC rarely reflects upon its achievements and retains a clear focus on continuous improvement through what it calls 'disruptive innovation' – an ethos that permeates the entire organisation. Much of this flows from the leadership, which demonstrates entrepreneurial spirit, clear values and objectives and perseverance. Such a sense of purpose stems in part from a desire to not just make money but also serve the community by improving healthcare, in the process creating a social enterprise model that embodies hard-edged business practices. Leadership can be sustainable by changing behaviour. For example, any patient seeking an appointment with UPMC will be seen within three days, which keeps the operation very customer service-oriented. And as another participant noted: "Bioclusters tend to be self-contained, largely non-profit organisations, with no shareholders, enabling them to make decisions more rapidly to adapt to changing market conditions."

Meeting the funding challenge
The Pittsburgh model is reliant on a steady flow of government grants to the tune of several hundred million dollars per year. Joint-ventures and other commercial initiatives are an alternative source of revenue that can be reinvested into research and development (R&D) and indeed are essential to fund more cutting-edge research, as state support tends to be limited to traditional forms of science. However, these revenue streams are not sufficient to replace grants, so it's important to be part of a vigorous lobbying process to press home the benefits of research.

Investing in education
Several countries in South East Asia and other regions have a severe shortage of doctors, yet private medical education is not always well-coordinated with the needs of hospitals. The UPMC model enables the commercialisation of clinical activities to generate income for the research and teaching in the university.

Harnessing the power of analytics
In developing effective care pathways that reduce variation in care, it's essential to gain sufficient evidence, which requires a robust analytical process. And with the potential decline in 'blockbuster' drugs academics can help the move to more personalised medicine by finding patient phenotypes, and linking them to genotypes to find useful pathways for new drugs. That's why central data warehouses are so important, to assist research, learn about the best models of care and spread best practices.

Spreading disruptive innovation
Bioclusters should not just be focused on the latest technological and clinical breakthroughs; there are many opportunities to innovate in care delivery to bring down costs by integrating services and making better use of IT. This is particularly valuable in economies where healthcare spend is likely to be squeezed.

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