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cutting through complexity

Necessity: the mother of innovation

Low-cost, high-quality healthcare

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Foreword

As countries grow wealthier, models of healthcare provision and financing need to adapt to increasing expectations and new demands for healthcare. In many countries, there is growing interest in developing affordable universal health coverage. While this will bring important benefits it also creates challenges.

This publication is the culmination of a year's worth of effort in studying, learning and understanding how our clients and other organizations are experimenting with innovation. In our travels across the world, it was clear that many organizations were experimenting with low-cost alternatives. Often these experiments focused on one part of the value chain, low-cost estates or a well-developed care pathway. However, expensive medical technology or inappropriate skill mix held them back from completing the puzzle. This publication aims to assemble the right pieces in the correct order.

At our client conference held in Johannesburg, we learned that giving pockets of excellence scale can be challenging too. Indeed, the patient value of low-cost and high-quality care can only be realized when these pursuits achieve a meaningful scale. Many of the initiatives in our publication are about realizing "the three S's" – economies of Scope, Skill and Scale. The combination of these three components with high-quality leadership and a clear vision are key to enabling scale with pace.

While the focus of this work is emerging economies, many of the lessons can be adapted to higher income countries that are increasingly struggling with healthcare costs.

We would like to thank our member firm clients for their time during our study and for attending our client conference. Partners and practitioners from across the network have contributed their time and shared their learning very generously. Finally, our thanks to you, engaged industry leaders who are experimenting within your own environment and organizations for taking a leadership role in delivering low-cost, high-quality care.

We hope you find this publication stimulating and look forward to continuing this global debate. Do join us. To contribute to the discussion, join our LinkedIn group by searching KPMG Healthcare or visit kpmg.com/healthcare for more information.

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Introduction

> Over a billion people worldwide – with a combined wealth of US$33 trillion – now occupy a new, influential, fast-growing middle class.

The last decade has seen a massive explosion in the number of people achieving middle class financial status.

Over a billion people worldwide – with a combined wealth of US$33 trillion – now occupy this new, influential, fast-growing population group.

Such a powerful demographic shift is transforming the way countries with developing and maturing health systems think about the financing and provision of care.

This report, based on the combined expertise of over 75 KPMG member firms' clients and health leaders, explores some of the issues governments, payers and providers are confronting as they seek to find high-quality, cost-effective solutions to meet the rising expectations of this new aspirant middle class without creating the unsustainable high-cost models found in the west.

The low-cost challenge

> Successful low-cost systems require coordinated action across a wide range of areas.

The individual building blocks of creating low-cost, high-quality health systems are well understood.

Assembling them is difficult in environments that are shaped by immature insurance systems, unregistered private providers and widely held assumptions that high-tech and high prices automatically equal good quality.

Successful low-cost systems require coordinated action across a wide range of areas.

They also need markets that function effectively, with appropriate incentives for payers, providers and patients. Facilities need to be flexible, clinical quality must be routinely regulated and processes such as procurement should be standardized where possible.

Above all, the focus on provision has to move beyond simply looking at 'low-cost per transaction' towards a system that seeks to create value along the whole care pathway and beyond this to managing population health.

The low-cost landscape

Low-cost providers come in many shapes and sizes. The models they use to generate the required economies of scale are dictated by the size and nature of the markets they serve.

Whatever model is chosen, however, the evidence points to six key factors to ensure that low-cost doesn't mean low-quality: Pathways, People, Procurement, Environments, Technology and Management.

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Pathways

Standardization is key. Streamlining patient pathways by reducing variation and creating flow reduces staff, equipment and estate costs. Proven techniques include the separation of complex and routine work, a move away from batching treatments and the introduction of lean methodologies.

People

Labor is the biggest cost in any health system, so getting the most out of people and skills is the number one consideration for low-cost providers. Often this involves redesigning roles and processes to ensure that staff are operating at the full extent of their license and training. Creating the right training environment, removing unnecessary tasks and developing effective performance frameworks have been shown to be fundamental to successful low-cost HR strategies. Low-cost workers and skimping on training look like a route to low-cost healthcare – the real answer is much more sophisticated.

Procurement

In order to control supply costs and keep overhead down, the best low-cost providers demonstrate strong discipline in their pharmaceutical and equipment purchasing functions, together with a willingness to look at innovative outsourcing approaches. Paradoxically, organizations with the most standardized systems tend to be the ones most willing to experiment and pilot new ideas. Removing unnecessary variation only serves to make testing new concepts easier.

> The deployment of technology is a double-edged sword. The leading low-cost operators ensure that technology is not an end in itself, but rather a mechanism to help staff manage workflow more effectively.

Environments

Focusing on energy-efficient, flexible, future-proof buildings has been a successful strategy for a number of low-cost providers. Design approaches are emerging which move towards more 'layered' hospital environments. Innovations, such as dedicated clinical 'hot-floors', modular construction and asset-light agreements, offer significant opportunities to reduce costs.

Technology

The deployment of technology is a double-edged sword. The leading low-cost operators ensure that technology is not an end in itself, but rather a mechanism to help staff manage workflow more effectively. The rise of the smartphone, point-care testing and portable diagnostics are all proving crucial to delivering services more cost-effectively, while at the same time improving convenience and quality.

Management

Excellent management is consistently seen as the key to successfully achieving low-cost delivery. Empowering frontline clinicians and creating the right conditions for experimentation and continuous improvement are the hallmarks of the highest performing organizations. Poor governance and oversight are features of many struggling low-cost systems.

Shared characteristics

The following are the four key areas where providers need to focus to succeed:

1. Be clear about the patients to be served and the business model

2. Have highly efficient processes based on standardization and flow

3. Develop models for workforce, technology, buildings and logistics that drive quality and low-cost

4. Create systems to manage this and drive continuous improvement.

We found that the organizations engaged in this share a number of characteristics:

- Skilful execution and in some cases a first-mover advantage, particularly where this has enabled them to create large-scale operations

- A willingness to experiment and an environment to take risks in

- An ability to redesign the care process, workforce and systems for delivery

- In many cases, a strong mission based on creating value and expanding access

- They invest in staff and their training

- They ensure very high quality and efficient support services.

The architecture of a low-cost system

Providers cannot create a successful low-cost system on their own – payers and policy-makers have a crucial part to play.

Increasingly, insurers and governments are becoming more 'activist' in their payment behavior, either by altering the level of coverage they are willing to pay for, or imposing outcome-based conditions on healthcare funding.

Shaping patient behavior

Payers have a number of opportunities to influence both system and patient behavior.

They can control overall system costs by determining the level of coverage and the types of treatment they make available. Governments, for example, can legislate to increase the size of an insurance pool. Insurers, for their part, can reflect local or national health priorities in the formation of their coverage packages.

Payers can provide direct incentives to patients by rewarding behavior, such as adopting healthier lifestyles. They can also empower communities to take responsibility for themselves through schemes such as mutual insurance.

In some emerging health systems, providers are even venturing into traditional payer territory by experimenting with their own bespoke insurance-based top-up systems.

Shaping provider behavior

The new breed of activist payer is prepared to take action to shape the system to ensure they drive the best value.

Research has found that they are using a number of different techniques to do this including:

- Setting strict treatment guidelines and agreed pre-treatment authorizations for providers

- Developing new outcome measures to facilitate payment by performance

- Focusing on overall population health rather than patient outcomes

- Reshaping provider systems by centralizing care and driving economies of scale

- Financially incentivizing providers to create integrated systems that push more patients upstream towards community and primary care services.

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Introduction

As countries grow wealthier, models of healthcare provision and financing need to adapt to increasing expectations and new demands for healthcare. In many countries, there is growing interest in developing affordable universal health coverage. While this will bring important benefits it also creates challenges.

How can countries with less well-developed healthcare systems meet growing demand for high-quality healthcare without replicating the high-cost models of western economies?

Over the past decade, there has been unprecedented growth globally in the number of people rising out of poverty to achieve middle-class status. This population, often referred to as the middle-of-the-wealth pyramid (MOP), has significant disposable income, meaning an increasing demand for healthcare. There are over one billion people in the world in the MOP, with an average total wealth per person of between US$10,000 and US$100,000, and a combined wealth of US$33 trillion, one-sixth of all global wealth.
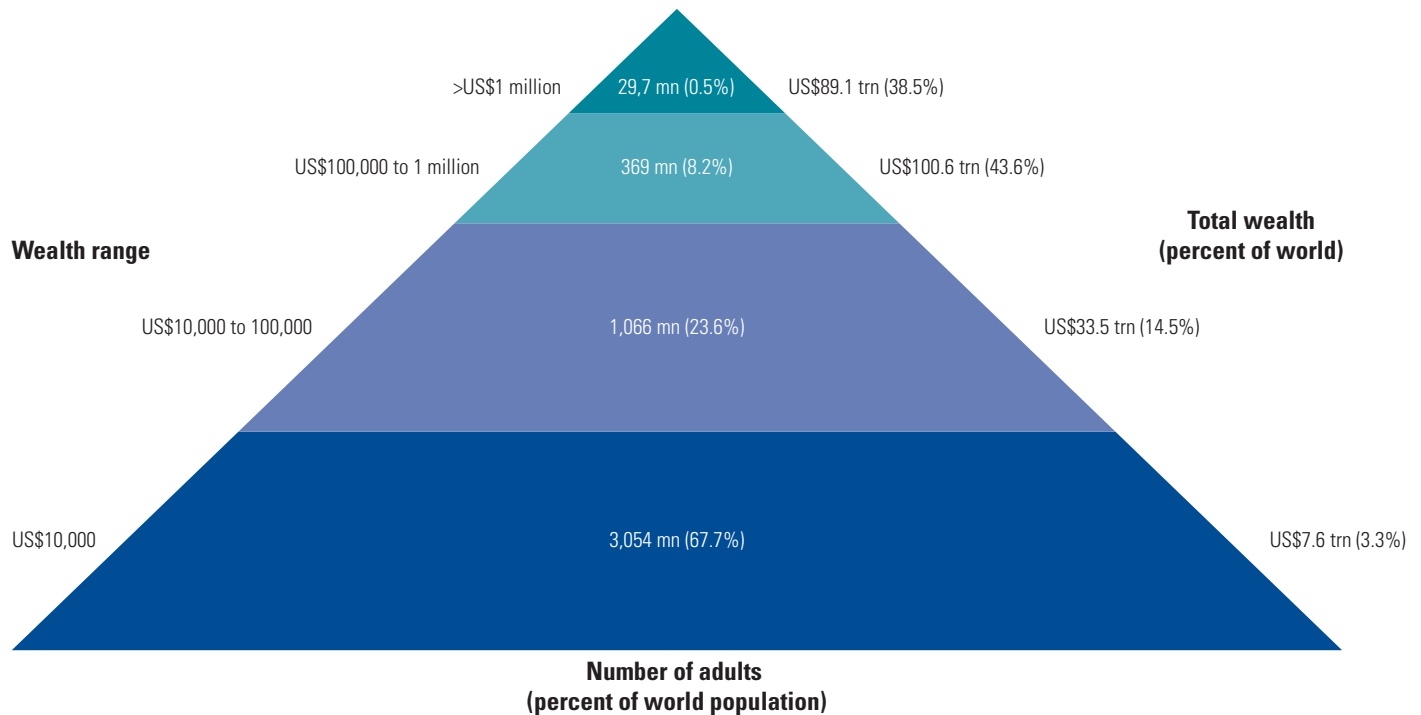
The MOP population often relies on private providers and has limited financial protection in terms of pooled insurance mechanisms to protect against catastrophic illness. In India, more than 70 percent of all healthcare to the MOP population is provided by private providers (NRHM, 2005–12) and in China nearly 50 percent of all expenditure is from out-of-pocket payments (MOH of China 2008).[1,2]

In India, at least 50 percent of this care is provided by unregistered informal providers that do not adhere to standards of medical practice. For many countries, the growth in this segment of the population has not translated into a significant increase in the market for health insurance, or pre-paid medical care to allow MOP families to shift from out-of-pocket payments to a pre-paid option. In many countries,

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[1]   National Rural Health Mission (2005 – 2012)
[2]   Ministry of Health, China, 2008

Figure 1: The global wealth pyramid

Wealth range		Total wealth (percent of world)
>US$1 million	29,7 mn (0.5%)	US$89.1 trn (38.5%)
US$100,000 to 1 million	369 mn (8.2%)	US$100.6 trn (43.6%)
US$10,000 to 100,000	1,066 mn (23.6%)	US$33.5 trn (14.5%)
US$10,000	3,054 mn (67.7%)	US$7.6 trn (3.3%)

Number of adults (percent of world population)

Source: Credit Suisse Research Institute 2010.

a significant proportion of the MOP population are independent traders for whom employment-based models of collection are not possible, meaning alternative models will be required.

The question of how to meet the increasing demands and expectations of a growing MOP population is a huge challenge for both the financing and provision side of healthcare. Particularly because increasing levels of technology, irrationally high pharmaceutical use and unnecessary, expensive procedures are interpreted by consumers to mean higher quality.

This report explores a number of questions. How can countries with less well-developed healthcare systems meet the growing demand for high-quality healthcare without replicating the high-cost models that are now causing such problems in many western economies? How can adverse impacts on services for the poorer segments of society be avoided? Do any of the models emerging in the countries facing these challenges offer learning for more established health systems?

Ensuring that individual providers are low-cost is only the first step. Payers and policy makers need to ensure patients are treated at the most cost-effective level of care. Defining appropriate coverage packages, and working with patients to encourage cost-conscious behavior and supporting them in looking after their own health are also important. Beyond this, regulation and public information is needed to ensure consumers are not induced to use services that do not offer value-for-money, or worse, expose them to unnecessary risks.

This report looks at these components, how they can come together into a complete, affordable health system and identifies actions to meet the aspirations of more affluent populations without weakening the wider health system and adversely affecting the poor.

Step 1: Low-cost providers

There is more to low-cost provision than merely keeping input costs as low as possible. It is much more about how resources are used.

There is more to low-cost provision than merely keeping input costs as low as possible. It is much more about how resources are used. We looked at the strategy in a number of providers and found the following common features:

- A willingness to challenge accepted approaches

- High-quality leaders with a strong vision

- The development and rigorous application of a methodology by skilled professional management

- Detailed attention to input costs – workforce, supplies, buildings and technology

- Systematization, simplification and standardization of many aspects of services, processes and ways of working – including some limits to clinical autonomy

Figure 2: Strategies for low-cost systems

Source: KPMG International, 2013.

- Making bold and imaginative use of technology

- Learning, experimentation, continuous improvement and using feedback and information to support this

- Providers who have chosen to focus on a narrow range of services or population.

In a number of cases there is a mix of provision for the poor and the better off. This allows high volumes that create efficiency. The case of Narayana Heart Hospital clearly stands out in this regard, where heart surgeries are offered to the population below the poverty line at a price that is subsidized by medical tourists and the better off, who pay above cost. There is often deliberate cross-subsidization, careful targeting of the market and a focus on underserved populations. These strategies are very similar to those described by Clayton Christensen in other industries that have found their business models challenged and disrupted.

There are four key areas where providers need to focus to succeed:

1. Be clear about the patients to be served and the business model

2. Have highly efficient processes based on standardization and flow

3. Develop models for workforce, technology, buildings and logistics that drive quality and lower costs

4. Create systems to manage this and drive continuous improvement

We now look at each of these areas.

> " Providers in India must now become more consumer-focused, more commercial and better able to develop models that respond to different levels of willingness to pay among the populations they serve."
>
> **Amit Mookim**
> Partner,
> KPMG in India

Clearly defined markets and models

Many of the examples we identified have been very clear about the range of services they offer or the population they serve. A narrow focus on a range of higher volume activities allows for economies of scale that are difficult to achieve in hospitals with a large number of different specialties.

A broader approach is illustrated in the case study on Glocal (see page 34), which has chosen to deal with only the most common conditions in the population, allowing significant economies while avoiding the costs of being prepared to deal with rare conditions.

One way of extending the size of the market and meeting social objectives is deliberate cross-subsidization of prices.

Narayana, LifeSpring, Aravind Eye Centre, CARE and a number of other low-cost providers (see Case Studies page 31) offer reduced price care to the poor. Combining delivery with micro insurance products also supports this and can attract additional government support in some countries.

It is not clear how far focused models can be applied in activities where there are fewer opportunities for standardization and higher volume. It may also be that costs in these areas, which are traditionally subsidized by high-volume activity, might rise as a result of a loss of economies of scope and scale.

An alternative approach is to offer a wider range of services achieving

low-costs through the development of a well-defined management system, allowing organizations to operate hospitals in chains. This often involves the following:

- Centralization of back office functions, including purchasing, finance, and human resource management. Operating at scale in these areas may also allow for outsourcing

- The pooling of expensive clinical support, including imaging, image reading and laboratories

- The development of functions, including training and development.

While many models are looking for lower costs per transaction, future strategies will be focused on improving value along the continuum of care. This means the quality and total cost of care for the whole patient journey and for the population or a family are much more important than just looking for the lowest price for each component. Models including Kaiser Permanente, the Ribera Salud models in Valencia and other capitated approaches help create higher value care through integration that aims to ensure care is proactive, provided in the most cost-effective setting and that unnecessary transaction costs are removed.

> "
> In the future, winning business models would need to have a strong virtual platform, be able to offer end-to-end solutions and be scalable globally or across large geographies."
>
> **Dr Ali Parsa**
> Director,
> Babylon Partners

Process design

Whichever approach or model is chosen, very efficient systems and processes are required to produce lower costs and higher quality.

Standardization and care pathways

Standardization and the rigorous use of care pathways are critical methods for controlling the utilization of high-cost tests and drugs and reducing unnecessary variation. Indian providers have found that keeping costs lower through standardization allows them to rapidly expand access and generate adequate profit. Standardization facilitates a smooth flow of patients, reducing costs from errors, staff down time, delays for patients and the amount of inventory that needs to be carried. This is easier where there is a focus on a narrow range of patient types, activities, procedures or diagnostic groups.

Managing complexity

While economies of scale are difficult to find in healthcare, there do seem to be very significant diseconomies of complexity. Where many different processes are combined within the same system, they interfere with each other, creating bottlenecks and multiplying the costs of coordination. This is one reason why focus is a helpful strategy. Where this is not possible, it is a good idea to protect programmable activities like elective surgery by separating them from more complex areas of work, such as emergency or specialist care.

Pathways and care planning

Care pathways are an effective tool to ensure care is delivered in the right place, at the right time and to the right standard. The appropriate use of advanced directives and plans for the end of life (to avoid futile treatment), and the use of predictive models to trigger anticipatory care (for example to identify patients at risk of readmission), can contribute to containing the cost per person in any health system. A key use here is to establish a set of expected actions for each day of inpatient stay to be actively managed with escalation plans if things go wrong. Plans and pathways are also useful in patient education, peer support and the role of support workers – all important aspects of low-cost systems.

Our case studies from India place a great deal of emphasis on standardization of building design, room layouts, treatment pathways, equipment, prescribing and a number of areas where physicians have usually expected much more autonomy. LifeSpring hospitals in India (see page 36) maintain standardized management protocol for more than 90 procedures to maintain consistency in treatment quality. There are scheduled training sessions focusing on customer relationships and care for all employees. Protocol adherence is measured across hospitals to monitor compliance with over 100 processes. This indicator has shown a steady increase indicating consistency in compliance and adherence to quality.

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Care pathways establish a set of expected actions for each day of inpatient stay to be actively managed with escalation plans if things go wrong. They are also useful in patient education, peer support and the role of support workers — all key aspects of low-cost systems.

The Coxa Hospital for Joint Replacement in Finland delivers all joint replacement surgery for a hospital district of 500,000 residents and revision operations for the entire nation. Coxa has a medical contingent of 11 fully qualified orthopedic specialists, 5 anesthetists and 50 nursing staff, with surgeons spending two-thirds of the week in the operating theater. Specialization, repetition and teamwork have improved productivity and surgeons perform between 200 and 250 joint operations each year, above the minimum number seen as the standard for an entire hospital. Specialization has also enabled the University Hospital to provide intensive orthopedic training for its residents.

The hospital has developed an integrated patient pathway in partnership with primary care physicians, from referral, through initial visit, to pre-op, to operation, rehabilitation and follow-up consultations. This has allowed 90 percent of patients to receive rehabilitative care in the primary care sector closer to home, and has allowed the hospital to focus on perfecting the operation. The provision of a hotel allows patients and relatives to come from long distances without having to use expensive hospital accommodation. This has also improved patient flow and allowed for more efficient discharge of patients from hospital and rehabilitation.

Creating flow

Many systems have sought economies of scale which have often proved elusive. Our research suggests it may be more profitable to pursue 'economies of flow' – moving away from batching and queuing to a focus on removing blockages and constraints. This can reduce waste, the need to deal with defective processes and remove non-value adding steps. There are some design principles to help here:

- Put a senior decision-maker in the care process as early as possible
- Measure demand and match capacity and inventory to meet it
- Do today's work today
- Avoid batching of work
- Have a plan for each patient and ensure continuous progression
- Smooth work across the week
- Train staff in problem solving and improvement
- Create measurement systems that provide immediate feedback to staff.

Having a methodology matters

The literature and our case studies all conclude that a focus on improvement underpinned by a methodology, including lean, is essential and important to ensure this is understood and used by frontline staff.

Workforce

Labor is the largest cost in any provider or health system and essential in creating a low-cost system. There are several important components that need to be in place.
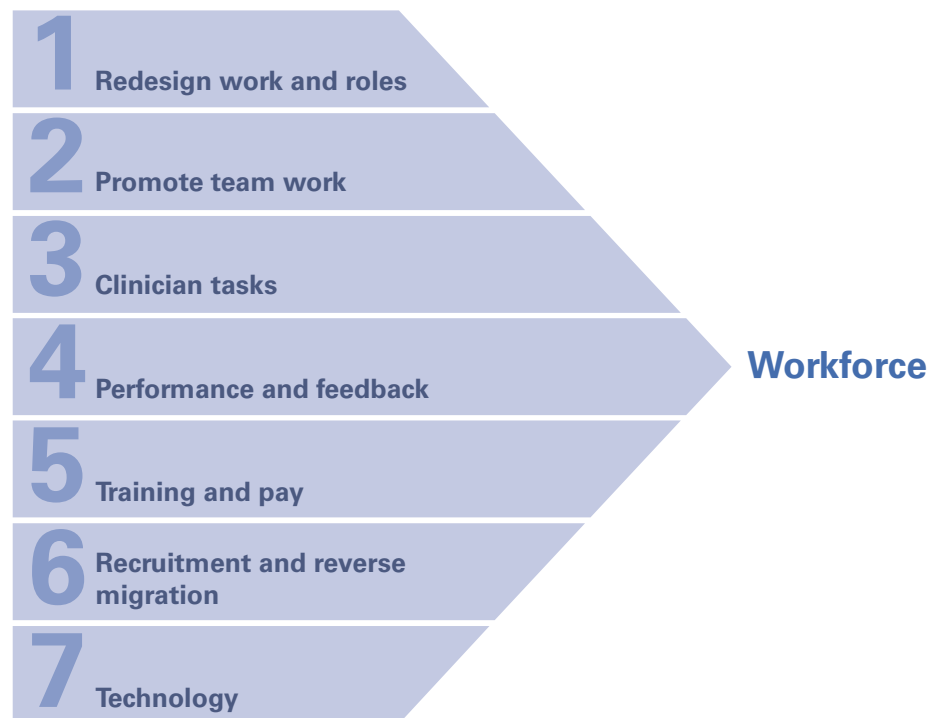
Redesign work and develop new roles

One of the main ideas is ensuring staff work to the full extent of their licensing and training. A common approach is to break down tasks so those that require lower levels of skills or training can be devolved. Extending the scope of staff can enable lower grade members to do more work, leaving higher paid staff free to focus on their area of expertise. This approach works particularly well where it is possible to have a high degree of standardization and there is little variation in patients' conditions, for example, where complex cases are dealt with in a central facility. This needs to be done carefully as in some types of care fragmenting roles and using less qualified staff can increase hand-offs, errors and costs and may reduce quality. Sometimes it may be more cost-effective to allow a member of staff to work at a lower level if this reduces handovers and wasteful travel.

Matching staff to the right level often involves significant job redesign. This may be difficult for some professions, for example, where regulations mean some tasks that could be done by other suitably trained professionals are reserved for doctors.

In some cases, new roles may be required to fill gaps or to replace scarce or expensive staff, for example, the Aravind Eye Centers train lay workers to undertake preoperative assessment and Narayana Health have developed a range of assistant roles to support nursing and theater staff. In summary, these programs are often aimed at people without higher levels of

Figure 3: Building the best workforce for low-cost systems

1 Redesign work and roles
2 Promote team work
3 Clinician tasks
4 Performance and feedback
5 Training and pay
6 Recruitment and reverse migration
7 Technology

Workforce

education who would not normally be considered for work of this kind but with proper training and clear guidelines can effectively carry out a large share of the work.

Promote team work

There are opportunities to deliver lower healthcare costs through development of teams with high levels of autonomy and appropriate supervision – particularly multi-disciplinary teams, and where teams enable staff to develop new roles stretching their capabilities (APPG 2012).[3] The evidence points to the importance in many low-cost settings of keeping physicians as well-paid, salaried staff rather than fee-for-service arrangements and the development of team-based incentives linked to performance objectives of quality, satisfaction and efficiency rather than just revenue.

Remove administrative tasks from clinicians

It is important to minimize the time professionals spend on administrative tasks by streamlining processes and providing administrative support. For example, LifeSpring Maternity Hospital doctors deliver almost three times as many babies as those in private clinics and an important enabler to this is ensuring they do not have to spend time on administration. Care must be taken to ensure that introducing information systems does not increase the burden.

Clear performance standards and feedback

Performance standards and feedback create a workforce culture focused on productivity and continuous improvement. Cardiac surgeons at Narayana Cardiac Hospitals in India

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[3] See first item in bibliography, page 30

receive feedback on their performance and financial results via their cellphones each day. Similarly, doctors working for Ribera Salud in Valencia get rapid feedback on patient satisfaction and real time information about waiting times. For emergency room doctors these are linked to incentives to ensure patients are less likely to incur costs by going to other providers for their care.

Training, development and pay

A number of case studies identified in this paper put an emphasis on human resource strategies and, in particular, training and development. While training is costly, the investment is seen as paying back. A well-trained and flexible workforce is likely to make fewer errors and to have the skills to deal with patients and events that are out of the ordinary. The use of techniques, including lean are a key part of developing a low-cost health system, requiring a workforce with the capability to learn and deploy these methods.

Another interesting feature of some of these low-cost models is that staff is paid at least the average rate of other providers if not more. Fewer, more qualified staff seems to be a good strategy for some services in low-cost systems. The money saved by paying lower wages may be wiped out by the need for more, less efficient staff, increased leakage (theft) and a higher propensity to look for alternative revenue such as soliciting bribes, including unnecessary referrals, prescribing more expensive branded pharmaceuticals and unnecessary interventions.

Recruitment and reverse migration

Recruiting high quality staff can be a challenge for lower income countries and particularly for rural and remote areas. The active recruitment of people from the local community (including incentivizing people who have left a community to return), is

a key part of the strategies of a number of low-cost providers (see Vaatsalya case study page 40). A number of healthcare systems in Eastern Europe have introduced salary incentives for physicians to work in rural areas and provide housing for GPs opting to work in rural settings. Thailand and Costa Rica have been successful in recruiting and training community health workers from within the very communities they will serve.

Narayana Health – make a major investment in training programs. This leading cardiac centre is addressing shortfalls in specialized staff in India by developing in-house training programs. To date, they have achieved impressive results in both the volume and diversity of their training programs:

- 19 postgraduate programs for doctors
- 252 medical students at any given time
- 32 medical programs for medical and paramedical professionals
- 79 training programs, including developing new roles and nurse leadership programs to identify and train promising nurses for leadership roles in administration.

Using technology to power the workforce

Many low-cost providers have been early adapters of electronic health records (EHRs) to support staff and enhance efficiency by allowing faster, more accurate sharing of information. Sharing EHRs between the hospital, outpatient settings and other providers can ease transitions into and out of hospital, and reduce duplication of tests and procedures. Evidence-based clinical guidelines can also be programmed into EHRs, giving instructions and reminders to nurses and physicians at the bedside. Done badly, these can make extra work, for example, by requiring multiple log-ins/log-outs, shortage of access

to devices and software that fails to reflect workflow.

Low-cost providers are also extensive users of telemedicine to enable specialists to provide advice, opinions and support to less specialized staff, allowing their expertise to be spread across a wider network. Phillips eICU, for example, offers remote support to critical care units in community hospitals in the US, while GE and Fortis are developing a similar model in India.

Technologies can allow staff to take on more advanced roles, reducing costs and overcoming role shortages in key staff. This includes, for example, decision support systems, automated equipment, and imaging equipment that can be used by non-specialist staff. Low-cost miniaturized equipment may also allow point of care testing and extension of care into more remote or sparsely populated areas.

GE and Medtronic, for example, are designing low-cost lines of key products, including ultrasounds and glucometers costing around 20 percent of the higher cost products but retaining all core functionalities. There are an increasing number of approaches allowing staff workflow to be managed more effectively, including systems for collecting patient observations wirelessly, e-rostering, scheduling and itinerary planning for community staff.

Glocal in India has adopted a standardized Medical Diagnosis & Management System that is connected to the Hospital Management Information System. This is an artificial intelligence system that helps in diagnosis, in choosing medication and in preventing drug interaction, contra-indication and adverse drug reactions. While doctors can exercise their judgment, this makes the entire process of diagnosis and management fully transparent and documented.

Examples of innovative workforce design[4,5]

- In Sweden's Ryhov County Hospital in Jönköping, the clinical team has introduced a system that enables patients to administer their own hemodialysis, making the procedure more flexible for patients and freeing up nurses to work as patient educators.

- In Kenya and Rwanda, CFW Clinics runs small medication distribution center franchises, concentrating on highest-value-add medications for a short list of critical illnesses afflicting children.

- In China, Microsoft sponsored the development of an open-source smartphone app that enables diabetes patients to manage their conditions more effectively.

- Vaatsalya Healthcare in India has chosen to focus on extending the role of health workers – particularly in those areas where there are shortages of doctors.

- LifeSpring Maternity Hospital in India hires auxiliary nurse midwives in addition to general nurse midwives, and has developed a strict standard of clinical protocols to enable clarity of tasks ensuring efficient use of staff and resources with complex deliveries being sent to specialist centers.

- CFW Clinics in Rwanda deploys nurses who run each facility with a basic mobile phone. Although the hardware is very cheap, it runs sophisticated software with multiple functions. First, it runs clinical-algorithm software to support nurses in diagnosis and treatment. This significantly reduces the likelihood of error and variability of care, and enhances the nurse's diagnostic and prescribing capabilities. Second, it is the conduit to the patient's electronic medical record, facilitating referrals and updating the national public insurance scheme database. Finally, the phone is used to manage prescribing: it links into CFW's stock-management system, ensuring nurses do not spend their time counting and ordering stock and clinics never run out of medications.

- InstyMeds in the US has adapted the idea of a cash-dispensing machine for pharmacies. The machines have a dual purpose: they can enable patients to consult with a pharmacist via video-conference, and they can actually dispense medications. Thus technology enhances the reach and impact of the pharmacist, vastly improving cost-effectiveness given the virtual route can serve a far greater population than the traditional model ever can.

- In the UK, prescribing by nurses in primary care is associated with higher patient satisfaction with similar health outcomes and number of prescriptions issued compared to general practitioners.

- In the US, extended scope physiotherapists assess patients in the emergency department alongside doctors, administering treatments, prescribing drugs and referring to specialists as necessary. Evidence suggests these physiotherapists have similar levels of diagnostic accuracy and patient satisfaction when compared with doctors.

Our conference participants endorsed these ideas and identified a number of priorities.

- There is a need to change regulations to allow more mobility of staff between countries in Africa.

- Improving the training and education of nurses and healthcare managers is a priority. This includes learning new models of care, team work, ways of working and more patient-centered approaches.

- There is a danger of over-professionalization. Pharmacists, paramedics, technicians and middle grade staff can do much more, particularly when supported by technology. New types of workers are also needed. Regulatory and educational changes are needed in many countries to allow changes in staff roles allowing task shifting.

- There are questions about whether training of physicians and other staff could be shortened.

- Further development is needed in performance management systems for staff required to support high-quality, low-cost care.

- Team-based working is the future – this needs to include social work and people with coordination skills.

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[4] (Dzau, et al., 2012)
[5] (McKinsey& Company, 2010)

Supplies, logistics and services

Standardization

Keeping the costs of supplies under control is important in delivering low-cost care. For disposables, implants and other equipment, standardization reduces inventory and enables more effective negotiation on price. Controlling access to and ordering of high-cost items is also important. More controversial is the approach to single-use items, with some low-cost systems reusing certain types of single-use equipment. Some large hospital groups that focus on a specific set of procedures have designed and manufactured their own equipment. For example, CARE (see page 32) in India has a manufacturing subsidiary making cardiac catheters and stents. Aravind Eye Centers, also in India, has developed its own lens for cataract surgery priced comparatively lower than commercial alternatives.

Purchasing and logistics

Centralized or group purchasing, when done well and associated with standardization and rationalization of the number of items in the catalogue, can reduce costs by double digit percentages. Lean redesign of logistics and the supply chain is also important. Some hospitals in the US and Europe have been experimenting with systems that supply theater and ward equipment and disposables on a just-in-time basis using bar codes, Radio Frequency Identification (RFID) and other systems. There are lessons to be adapted from the grocery sector which segments their supply chains based on common logistical factors including frozen items, produce, dry goods, and seasonal items instead of suppliers, programs or stores. Stocking and replenishment procedures may be different for these segments, but resources are shared where possible.

Pharmaceuticals

After workforce, the largest cost item in many systems is pharmaceuticals. Enforcing the use of generics and strictly controlled formularies are well-known techniques found in many low-cost systems. Offering patients the opportunity to pay extra for branded medicines above and beyond generic drugs reduces system costs and neutralizes potentially unpopular aspects of this policy. Centralized dispensing can also reduce costs and errors.

Outsourcing

Outsourcing has become more popular, beginning with non-clinical services, hotel services, a variety of back office functions, IT, supply chain, maintenance and transport. Care must be taken to ensure resource changes do not disrupt the flow of work though the organization. A number of western European countries have extended outsourcing to some clinical services including imaging, laboratories, home chemotherapy, dialysis and specialist mental health. When managed well, outsourcing can offer the advantage of introducing providers with specialist knowledge and improved models of delivery.

Infrastructure

Build the right type of building

Many buildings in healthcare systems are over-specified, expensive to operate and are not fit for purpose. Designs must recognize the need to frequently change and adapt buildings, and that different functions require very different types of space.

One low-cost approach is the provision of a base building that comprises principal circulation paths, a fixed main structure and primary mechanical, electrical and engineering services which can accommodate a variety of functions. Additional buildings can then be attached and constructed in phases at a cost appropriate to their function. The Netherlands Board for Health Care Institutions proposes a 'layered hospital'. They suggest a smaller proportion of a hospital needs to be clinically specialized than generally thought and hospital infrastructure should be designed according to its function. The main segments of the layered hospital include:

1. A "hot floor" with all the capital intensive functions unique to the hospital, including operating rooms, diagnostic imaging and intensive care facilities

2. Low care nursing departments where, in addition to care, the residential function plays a primary role – similar to a hotel

3. All office facilities, administration, staff departments and outpatient units

4. Factory facilities – supporting production line functions such as laboratories and kitchens. These are particularly suitable for outsourcing.

On average, the cost of a square meter of the hot floor is twice as high as the cost of office facilities and has a much shorter life-cycle. The initial investment costs of layered hospitals could be as much as 10–15 percent lower and offer greater flexibility. For example, more flexible capital stock located near the edge of the hospital site could be subdivided and sold off for non-health uses if demand falls. More radical still are systems for modular construction which use standardized units, fewer bespoke rooms and highly flexible designs to allow their use to be changed. (See box on page 18.)

Use design approaches to reduce costs

In all cases there are a number of design approaches that can be used to reduce the costs of operation including:

- using off-the-shelf designs

- creating docking stations for high-cost mobile equipment

- minimizing waiting and circulation space

- limiting the number of different room types in favor of adaptable rooms to reduce patient transfers (which increase delays and costs)

- decentralized ward designs to reduce staff walking times

- reducing the use of water and energy and using sustainable sources of energy.

While some of these approaches may reduce the costs of design and construction, others may increase costs which can be offset later by savings in the lifecycle costs of hospital operations. Some low-cost providers in India have minimized bed spaces

The initial investment costs of 'layered hospitals' could be as much as 10–15 percent lower. Furthermore, the model has more flexibility in terms of future use, which increases the residual value.

to save construction costs. Other providers have eliminated kitchens, staff dining rooms and other ancillary spaces. However, some approaches may be unhelpful in the longer term if the target market expect and will pay for privacy. There are also issues with infection prevention and control that need to be considered, particularly given the growth of antimicrobial resistance. There is also some evidence that the quality of patient environments has an impact on recovery and staff morale.

Land costs can be reduced by not offering car parking and eliminating landscaping. Some of the Indian providers in our case studies have also selected lower cost locations. However, these strategies may also be counterproductive in terms of competitive positioning. In addition, cheaper land may be located in less

accessible areas where parking will be required.

Overall, the costs of operation and adaptation, and the value a building adds over its life, dwarf the initial cost. Too much focus on cost minimization can lead to decisions that reduce the quality of the patient experience, increase the costs of day-to-day operations or the ability to change the building's use.

Asset light models

One radical solution is the asset-light model – the separation of ownership of a healthcare facility's physical bricks and mortar from its actual healthcare operations business. Hospitals in India and Asia have been pursuing this strategy. In Singapore, Parkway Hospital's Chief Executive Officer recently pointed to this as a major strategic decision by the hospital chain. The hospitals enter into a plain 'operations and management' contract to operate a facility, which is owned by a separate company focused on real estate. All capital investment plus profits or losses are borne by the original owner of the property, while the hospital chain receives a management fee.

Alternatively, the chain identifies the property, refurbishes it and then manages it as a hospital. In this case, profits or losses flow to the chain, while the property owner gets a fixed

Keith Smith from Advanced African Solutions says: "There is a definite trend towards offering more flexibility in design and life function of facilities. This is not so easily achieved through traditional construction methods that require expensive and time-consuming practices to expedite even the smallest of functionality changes. What is needed are construction methods that offer increased flexibility of use while still maintaining the principles of cost certainty, program certainty and quality certainty."

A hybrid of traditional, modular manufactured facilities and mobile healthcare facilities can deliver this. Hybrid construction occurs when a building is built partly using traditional methods and partly using three-dimensional sections (or modules) which are built and fitted out completely off-site under factory production line conditions.

Modular construction uses pre-engineered units installed on-site as fitted-out and serviced 'building blocks'. Light steel framing is an integral part of modular construction as it is strong, light weight, durable, accurate, free from long term movement, and is well proven in a wide range of applications. Advantages of modular construction include:

- Shorter build times: Typically 50–60 percent less than traditional construction, leading to an earlier return on investment and a considerable saving on preliminaries
- Speed of design and construction
- Adaptability and flexibility: Change of internal space use over the building's lifetime is a key occupier requirement which off-site techniques easily provide
- Concurrent production while enabling works already under way
- Minimized site disruption due to far less time on-site compared to traditional construction methods
- Improved quality: Factory-based controlled conditions not weather dependent
- Flexibility through future expansion and relocation – modules can be picked up and relocated
- Light weight: Compared with traditional construction, modular construction weighs about 20–30 percent of conventional masonry construction
- Environmentally efficient: Efficient factory production reduces site waste by up to 70 percent

lease. In both cases, the chain gets a foothold in a new location. Finally, there is the potential for the use of real estate investment trusts (REITs), where a corporation or trust is developed using the pooled capital of many investors to purchase and manage income property.

Technology

The deployment of technology is a double-edged sword. The leading low-cost operators ensure that technology is not an end in itself but part of the business process, enabling staff to manage workflow more effectively, supporting standardization and allowing new ways of providing care. Strategies for effective use of technology identified in our research involve:

- Changing the interaction with the patient. The phone is vitally important as many interactions as possible should start with a call

- Use technology to help patients manage their own care and interact with the system – creating a virtual platform to do this will be a critical component of future models

- Careful choice – avoiding over specification, paying for features that are not needed

- Clever financing – buy-back schemes, leasing and other financing methods can be effective in controlling costs

- Improving workflow – automating routine processes, including capture of data used to improve workflows, gives rapid diagnoses and supports continuous improvement

- Miniaturization and portability – reducing the need to replicate equipment in different locations.

Beyond the capital cost of equipment, including imaging and laboratories – maintenance, consumables and energy use contribute to high costs and limiting their supply is important. Strategies to ensure the most efficient use of equipment include:

- Strict criteria for ordering tests and investigations, backed up by data systems monitoring any decisions that vary from the guideline to allow improvement and performance monitoring

- Using high-cost scanners continuously by programming inpatient investigations for evenings

and nights and operating seven days a week or even 24 hours a day for routine work. If staff are available, patients can be offered a co-pay option or price reduction for accepting appointment times late at night

- The use of point of care testing or hot laboratories supported by central reference laboratories. There is much more to do in labs, physiological measurement and imaging to bring low-cost, high-quality diagnostic technology to emerging markets.

> " The growth of mobile technology, data and analytics will drive changes in business models and enable providers to offer population healthcare in new and much more effective ways where they can take some insurance risk to doing this."
>
> **Ashraf Shehata,**
> Partner,
> KPMG in the US

Low-cost markets require medical technology with fewer features at much lower costs.

An important source of advantage in low-cost systems is the way they deploy information. As noted in many of our case study examples, several low-cost providers have moved remarkably quickly and cheaply to introduce electronic health records, paperless systems, decision support, inventory management and other IT elements to support business processes. Using technology to support education and staff development is another important application.

We expect low-cost systems will continue to innovate to stay ahead and the next generation of innovators will use mobile devices, automated data collection, collaboration tools and systems to enhance engagement with patients and professionals. The growth of smartphones and other mobile devices over the next ten years will be exponential, with costs falling enough to put them in common use almost everywhere. This offers new ways to engage with patients and new cost saving opportunities for data capture and recording, for example by removing the need for devices to be manufactured with screens and printers.

Conference participants saw a number of opportunities for technology and identified areas where action is required:

- Low-cost markets require medical technology with fewer features at much lower costs; current suppliers to high-cost markets will need to adapt quickly to respond to these emerging needs
- More must be done to ensure that technology is appropriate to its environment and that it can be serviced locally
- Telemedicine connects remote communities, reduces the need for travel and creates new ways of providing low-cost care. Using software on smartphones rather than special equipment has great potential
- Low-cost mobile clinics or using facilities on a time share basis offer opportunities to greatly reduce fixed costs
- Centralize scarce resources and use transport or telemedicine solutions rather than following Western approaches to highly distributed specialist care
- Collaboration between systems on standardization and shared purchasing is important, although flexible local procurement is also needed
- More can be done to support local production
- As with workforce, regulations and regulators can be a barrier to progress

Management

Management is an investment not a cost

In many systems management is regarded as a cost to be avoided. This seems to be a mistake. The key to successfully achieving low-cost delivery is excellent management. Devolved management with flat structures, the involvement of physicians and the deployment of lean techniques to eliminate waste and maximize quality makes a difference. Strong centralized management is important in areas such as procurement and information systems, while front-line managers need autonomy to make decisions supporting value for money.

Research from the London School of Economics shows that improved management practices in hospitals are associated with significantly lower mortality rates and better financial performance. The research also found a strong relationship between a number of other factors and effective management practices, in particular:

- Competition helps to improve managerial standards

- Having senior, clinically qualified managers improves results

- Higher-scoring hospitals give managers higher levels of autonomy

- When it comes to ownership, private hospitals (including not-for-profits) achieve higher management scores than public hospitals across all countries

- Larger hospitals invest more in management and appear to be better

managed – there do however, seem to be some diseconomies where hospitals are very large and complex.

Another study (Mannion et al 2006) compared a series of management characteristics across six hospitals. In the high-performing hospitals, the management orientation was corporate; middle management was strong and empowered; accountability was clear; rewards were performance-related; information systems were highly developed; and the taboo was not hitting targets. By contrast, in the poorly performing hospitals, management orientation was pro-professional; middle management was underdeveloped and disempowered; accountability was opaque; rewards were patronage-related; information systems were underdeveloped; and there was a taboo that discouraged challenging senior management.

This all means that management development is very important and not just for the top leaders – middle managers and frontline supervisors are also vital. Providing mentoring and support for people to learn on the job is essential, as well as training in team management and improvement methods.

Governance

Poor governance and oversight is a feature of many systems struggling with creating low-cost models of delivery. Investment in strong governance processes and independent, knowledgeable oversight by a properly qualified board is essential. Fraud and corruption are major obstacles to

creating efficient, high-value healthcare and require careful monitoring.

Effective governance needs support through measurement systems, and the ability to compare performance against others so learning can be adopted from elsewhere. Accreditation is useful, but it is unhelpful to apply standards that have been developed in other systems without adaptation.

Using information

As with all the other building blocks of successful low-cost systems, using information to understand the business, manage performance, ensure quality and hold staff to account is vital. Developing the right set of metrics and reporting standards simple enough to be effective, ensuring these are available in almost real time and having the competences to interpret and act on this information is important. The hands-on nature of management in many low-cost systems and their focus on the future also seem to mark them out as using information differently from the competition.

Experimentation and learning

Low-cost, high-quality systems often emphasize continuous improvement and are willing to prototype and pilot new ideas. One of the advantages of standardization is, paradoxically, that it makes experimentation easier as it controls some of the variation which otherwise makes testing concepts quite difficult.

Scope, skill, scale: Guide

Sweden

p15 Ryhov County Hospital – Introduced a system that enables patients to administer their own hemodialysis, making the procedure more flexible for patients and freeing up nurses to work as patient educators.

US

InstyMeds – Makes and distributes automated dispensers of prescription medications – enabling more flexible access for patients.

p15

The Netherlands

Board for Health Care Institutions – Suggests a smaller proportion of a hospital needs to be clinically specialized and hospital infrastructure should be designed according to its function.

p17

South Africa

Intercare – provides an example of how providers with innovative models can help to create important elements of a low cost system.

p27

Discovery Health South Africa – Provide disease specific programs that can be prescribed by clinicians. Patients get a personal plan, case management support; drug adherence is promoted through cell phones and wellness activities are set out for them.

p25

to case studies

Finland

p12 Coxa Hospital for Join Replacement – Specialization, repetition and teamwork have improved productivity.

Africa

p18 Advanced African Solutions – Building more flexible healthcare facilities through modular construction techniques.

China

p15 Microsoft – Sponsored the development of an open-source smartphone app for diabetes patients.

India

p32 CARE Hospitals – Focuses on middle income patients while employing a pricing structure to also accommodate lower income customers.

p36 LifeSpring Hospitals – Developed a strict standard of clinical protocols to enable clarity of tasks ensuring efficient use of staff and resources.

p38 Rashtriya Swasthya Bima Yojana – A social health insurance program aimed at providing health insurance coverage to families below the poverty line.

p40 Vaatsalya Healthcare – Focuses on extending the role of health workers.

p14 Narayana Health – Addressing shortfalls in specialized staff.

p34 Glocal – Adopted standardized diagnosis and management protocols for 42 diseases affecting 95 percent of the population.

Kenya and Rwanda

p15 CFW Clinics – Concentrates on highest-value-add medications for a short list of critical illnesses afflicting children

Step 2: Creating a low-cost system

Payers and policy makers also have an important role in the creation of low-cost systems. Limiting prices and controlling costs by imposing high deductibles and co-pays can have some effect but to develop a successful low-cost system, some different strategies are needed.

We see opportunities in four main areas:

- Coverage decisions

- Measures that address how patients use the system

- Approaches to paying providers

- Shaping the provider system

This assumes the basics of good governance are in place and there are reasonably well developed systems for regulation of professionals and organizations, provider payment and identifying and dealing with fraud.

Coverage

Insurers and governments can influence the cost of a system through the level of coverage they make available. A key tenet of the US healthcare reforms, for example, is to expand the size of the insurance pool, particularly for younger, professional individuals currently uncovered, through an insurance mandate for all citizens. One commonly discussed approach is to define a package of health services that will reflect the priorities identified. Another

might be to simply finance or provide services identified as priorities, including those included on a list. The figure below outlines some key options, or configurations, that may be considered in developing a basic package. Clearly, how a system selects the level of coverage will have important implications in the overall costs borne by the system.

Designing a package of services offers other advantages. By pooling a number of interventions, inputs can be shared,

savings can be made and demand managed by improving the coordination of resources and creating incentives for prevention. It may also be effective to restrict the elements covered to reduce the use of high-cost and low-value treatments or to provide partial coverage only. This approach allows providers to focus and reduce the variability in their workload and also encourage patients to change their behaviors to choose more cost effectively.

Figure 4: Defining the basic package of services: Options along the continuum

Essential care	Primary care	Inpatient only	Catastrophic only	Comprehensive
• Package is limited to only most essential interventions to avoid death and disease, for example, vaccines.	• Services limited to those that can be provided by a GP in outpatient setting. • Drugs may or my not be included for PHC managed conditions.	• Coverage includes only care that is provided in hospitals. • Inpatient drugs linked to a specific intervention typically included. • Drugs required after hospital not included. • Potential bundling with pre-and post hospitalization follow-up visits.	• Typically includes only the highest cost, non-elective procedures that could lead to financial ruin. • Examples would include cancer treatment or dialysis. • Potentially defined by all care in excess of a certain expenditure.	• Usually covers all non-experimental care available to patients. • In many cases, the lack of specifically defined package determines the comprehensiveness of the package by availability of domestic supply.

Source: KPMG International, 2013.

Payer approaches to patients/subscribers

Payers have a number of opportunities to influence the behavior of patients or even their subscribers before they become patients. Governments have another set of levers for influencing the way the health system is used. Some of the approaches we see in low-cost systems include:

- Providing incentives to patients to be price sensitive in the choice of providers or to encourage them to use primary care rather than seek specialist opinions. This can be done through structuring co-payments or providing tools to allow price comparisons

- Offering a narrow network of approved high-quality, low-cost providers, and providing price incentives for subscribers to select them

- Payers can provide coverage including preventative care

- Payers can also provide incentives for subscribers to adopt healthier lifestyles and take responsibility for self-care, particularly with chronic diseases

- Some payers place limitations on coverage for certain procedures or offer policies that allow top ups – for example, for single rooms or extra amenities

- Payers can also enable communities to develop methods of collective action, for example on insurance premium collection and mutual support

- One interesting approach we observed occurs where providers themselves offer insurance, sometimes with limited coverage and weekly payments – cutting traditional insurers out of the value chain

Dr. Broomberg of Discovery Health South Africa described their mix of approaches:
- Disease specific programs that can be prescribed by clinicians. Patients receive a personal plan and case management support; drug adherence is promoted through cell phones and wellness activities are set out for them
- Medical savings accounts, co-pays for non-formulary drugs and other methods are used to influence behavior
- Selective contracting and narrow networks incentivized by premium discounts
- Working with the pharmaceutical industry to reduce drug costs and with physicians and hospitals to improve quality
- Using data to make provider quality transparent
- Pay for performance incentives to improve quality and compliance with best practice

In addition, Discovery Health's *Vitality* program incentivizes members to be more committed to wellness by earning points by exercising, eating healthy foods and hitting physiological targets. This is done through a unique system based on the science of behavioral economics wherein members are provided with a range of immediate incentives similar to a consumer loyalty program.

The more points earned, the steeper the discounts in accessing the rewards, with the top points range often being free. These are typically lifestyle promotions such as deals on flights, hotels, car hire as well as discounts in many stores. Wellness promoting behavior is also made easy because the size of the member base allows *Vitality* to negotiate discounted access to gyms and retail food outlets as well as a wide range of health promoting partners. The program goes much further than similar schemes in richer countries.

Members are given an estimation of the gap between their chronological age and their 'health status' age and are given support and advice to close this. *Vitality* is able to show significant health gain and cost reduction through this program.

- Medical savings accounts in which patients can accrue savings in their use of healthcare to reduce premiums are used in Singapore and the US. There is some debate about how far these really change behaviors and they are unlikely to be transferrable to some markets

- Governments have a range of additional options to support and help change public behavior which are outside the scope of this paper.

One interesting approach we observed occurs where providers themselves offer insurance, sometimes with limited coverage and weekly payments – cutting traditional insurers out of the value chain.

Payer approaches to providers

Traditionally many payers have simply paid the bills sent by providers. Across the world, we are now seeing the emergence of activist payers who demand better value and are prepared to take action and reshape the system to ensure they achieve this. There are a number of approaches in use:

- Some payers have chosen to ensure providers adhere very closely to treatment guidelines and insist on pre-treatment authorization. This is not an ideal solution as it has high transaction costs and means that payers are managing most of the risk associated with volume

- 'Pay for performance' approaches have become popular and can have a significant impact on compliance with processes. However, there is little evidence this produces the type of systemic improvement required and the costs of operation are significant

- A more sustainable approach is a focus on outcomes and population health in which there is more risk sharing with integrated providers able to offer longitudinal care to defined populations

- Payers can also create incentives for providers to create more integrated systems and use bundled payments and information technology to reduce the transaction costs for providers and patients

- Some large payers, particularly those with a geographical focus, have the ability to reshape the provider system by centralizing specialist care, removing duplication and negotiating lower prices

> Payers can also create incentives for providers to create more integrated systems and use bundled payments and information technology to reduce the transaction costs for providers and patients.

Building a low-cost system

As Lord Nigel Crisp points out, there has often been a regrettable tendency among emerging health economies to copy some of the least effective elements of high-cost Western healthcare. Hospital dominated systems with sophisticated technology can seem attractive but tend to lead to very high costs without gains in outcomes and quality. Trying to make the hospital low-cost will only get us so far. The best results are likely to come from thinking in terms of a low-cost system of care. Payers and governments can work with providers to assemble the components of this. In addition to all the components we have discussed low-cost systems will also need some or all of the following:

A primary care system with a registered population: While there will be demand in many populations for direct access to specialists for some conditions, the evidence is very clear: primary care is still the most cost effective model and gatekeeping, where culturally acceptable, is vital to keep costs under control. Family doctors or other primary care providers need to be able to offer a wide range of health and wellbeing services, diagnostics, and preventative care. Moreover, grouping GPs into larger group practices has important benefits in terms of cost-sharing, knowledge sharing and improvements in clinical outcomes. A patient register needs to be used to identify high-risk patients and ensure they have care plans that anticipate, rather than merely respond to the need for care. Where family doctors are in short supply, it is possible to consider dividing some of their tasks between different providers but the key is to ensure there is someone with responsibility for patients over time able to coordinate different services and deliver anticipatory care.

Ambulatory and homecare services: Homecare may have similar direct costs to hospital care unless some of the burden of caring is transferred to family and other carers. However it has much lower overheads, so expanding capacity by increasing these services rather than adding additional buildings can help to contain costs. These approaches allow improved management of chronic disease, end of life care, and post hospital care which can help to increase hospital productivity.

Systems to ensure care is coordinated: Healthcare systems produce huge amounts of waste as a result of duplication of effort, failure to apply best practices or follow-up with patients. The use of patient pathways that include the patient's journey through the system and ensure coordination improves outcomes and reduces waste.

An integrated information technology platform: Coordinated care requires information to be shared between providers and used in predictive models to identify patients at risk.

Chains or networks of providers:
A promising approach is the vertical or virtual integration of providers through improved coordination, standard operating procedures and strategic business planning contributing to significantly better outcomes and lower costs.

Involving the community: The examples of low-cost systems, from the development of health insurance schemes in India to the identification of high performing hospital networks, have leveraged the involvement of community to ensure the products delivered and level of service are appropriate for the specific target market and to provide ways of communicating with and being accountable to their communities. Combining these with low-cost insurance products and microfinance as a method for involving the community are promising approaches.

Engaging the patient: Another area where there is more to do is to better engage patients in the system. For providers and payers it will be very important to ensure patients can care for themselves effectively, that they are actively engaged in their treatments and have access to advice and information to make informed and price sensitive decisions.

Managing expectations: The belief that more healthcare means better results and the most high-tech intervention is best is a threat to low-cost, high-quality healthcare. A particular issue, especially in upper income countries, and increasingly for middle class patients in some developing countries, is futile intervention at the end of life. In low-income countries, there is often an excessive use of IV infusion where oral medication would be cheaper and safer. These choices are often driven by public expectations as well as payment systems. In competitive systems in which doctors bring patients to hospitals there is also the danger of a medical arms race to provide the best equipment. Policy makers, payers, providers and other influential people in these systems need to ensure there is proper dialogue

> "There has often been a regrettable tendency among emerging health economies to copy some of the least effective elements of high-cost Western healthcare. Hospital dominated systems with sophisticated technology can seem attractive but tend to lead to very high costs without gains in outcomes and quality."

Intercare in South Africa provides an example of how providers with innovative models can help to create important elements of a low-cost system. Their experience also demonstrates that to work effectively, these models need innovative payers prepared to work in partnership. These payers need to be prepared to develop risk-sharing models with providers and take a view based on improving value to patients over the long term rather than minimizing the cost of each component of care in the present.

Intercare offers a model based on the idea of a patient centered medical home supported by specialist disease management services. This model combines the benefits of continuity in primary care, expert opinions from specialists and multidisciplinary care including behavior and patient motivation. Involving the family is also important. A second component of the model is a number of specialist rehabilitation hospitals that allow acute hospitals to reduce lengths of stay while offering patients active rehabilitation to prevent readmission. The cost-per-day is significantly lower even though these patients get more therapeutic input than equivalent patients do in a conventional hospital bed. Adding day case treatment to this mix allows a much lower cost offer to insurers than the traditional fee for service model found in the rest of the system.

with patients, subscribers and the wider public to help them understand that more expensive care is not necessarily better. Payment mechanisms, regulations and standards may also be required to constrain this – for example, this is an approach that has been used to reduce the use of C-sections.

Transparency: In designing, wider system transparency around providers' quality and prices and the coverage and costs associated with insurance is vital. Increasing the availability of information to consumers about prices and providing "Trip Advisor" style patient experience sites will improve accountability and choice in health systems. The availability of smart devices to allow access to these tools is growing exponentially in low-cost markets.

Conference delegates suggested a number of aspects they expect to see more of in a low-cost system:

- Mobile first – phone or web
- Asset light
- Team based working with new roles
- Centralized specialist work
- Networked providers
- Use mobile care and telemedicine
- Patient focused, primary care based
- Coordination between providers
- Hybrid public and private models
- Community involvement in the design of services
- Devolved and high quality management
- Information technology as a backbone of the system
- Encourage transparency
- Tackle corruption.

Some challenges

Creating a low-cost, high-quality healthcare system requires action and high-quality execution across a wide range of areas. This becomes particularly challenging once systems move from a focused approach, for example only offering high-volume surgery, to population health management. In an increasingly global world, payers and providers will come under pressure to ensure patients have access to prestigious facilities and high-cost medical equipment. In many cases this may add more cost than value. How to manage these expectations remains a significant challenge.

This problem may become even more difficult to manage when the low-cost system is operated by an existing provider positioned in a premium part of the market. There is a danger of cannibalizing their own customer base or of the low-cost brand damaging their existing reputation. In non-health industries from airlines to mobile phones, companies have found successful models to manage high and low-cost product lines.

There is a market failure in some growing middle income country private health services, in which most services are paid for out-of-pocket and insurance coverage, if any, is very limited in the range and depth of benefits packages include. Further, when regulation of private provision is ineffective, it results in consumers being on their own in terms of assessing the quality of health services and products on offer, such as medicines, like medicines and perhaps even in determining the credentials of healthcare professionals. In this market, private providers often signal quality by high prices, new overbuilt facilities,

expensive technology, brand name drugs, specialist doctor credentials and academic posts. They also make much of their income from margins on 'buy and bill' sales of drugs and devices or on unnecessary diagnostic testing, particularly if they own these facilities. They profit highly from marketing unnecessary or low value services to low risk clients. In this market, the big question is the feasibility of making an offer of low-cost, high-quality healthcare commercially attractive, what business strategies have succeeded, and what feasible policy/regulatory conditions can help to make this happen in countries that cannot regulate credibly or afford universal coverage with comprehensive benefits packages.

While there is a large emerging MOP population, many countries still have a very large number of extremely poor people with limited access to healthcare. There is already a serious problem of a brain drain from services for the poor to those for the more affluent, an issue that could be at least as big a problem as migration. The providers of these systems need to be aware of the potential damage they could do to the wider healthcare system and the risk of regulatory action as a result. This risk may be reduced where low-cost models also operate programs for the poor and have an explicit social mission.

Finally, in some countries the issue of corruption will have to be dealt with head-on. This includes addressing corruption in procurement, as well as patronage in the recruitment of staff, unofficial payments to doctors and other practices that undermine the reliability and financial probity of the system.

Providers operating in both premium and low-cost markets must successfully manage their reputation, product lines and brands to avoid cannibalizing their own customer base.

Conclusions

In isolation, the individual building blocks for creating a low-cost, high-quality healthcare system are already fairly well understood. One issue, however, is that some aspects seem counterintuitive and contradict firmly held beliefs about how to run a hospital or a health system. There are a number of things that seem to separate the successful operators of these low-cost systems from the rest:

- Skilful execution and in some cases a first-mover advantage, particularly where this has enabled organizations to create large-scale operations

- A willingness to experiment and an environment to take risks

- An ability to redesign the care process, workforce and systems for delivery

- In many cases, a strong mission based on creating value and expanding access

- Investing in staff and their training

- Ensuring very high-quality and efficient support services

- A payment system that creates space for innovation and that measures and pays for value.

As with many elements of health system design, it is crucial to consider the local context, regulatory environment and other characteristics of the local market and it may therefore be difficult to replicate successful models without significant experimentation and adaptation.

Looking forward, we expect to see more innovation and challenges to accepted ways of running a health system and in what patients expect from it. The big risk to traditional providers is that expectations will rise faster than they can keep up – this is when revolutions happen. Those that cannot adapt could be swept away. The potential for bad decisions and in particular for copying existing, unaffordable models from the West is very great, but so is the opportunity to create services and business models that change the face of healthcare.

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Case Studies

Care Hospitals

CARE Hospitals was founded in 1997 by a group of physicians and chaired by Dr. Soma Raju, who worked at Nizam's Institute of Medical Sciences (NIMS), a public medical school in Hyderabad (India).

Starting from a 100-bed single specialty heart institute facility focusing on cardiac care in Nampally (Hyderabad), CARE has now become a multi-specialty hospital chain comprising 1,600 beds across 12 hospitals, providing other specialty services, including neurology, neurosurgery, urology, orthopedics, plastic surgery, vascular surgery, medical and surgical gastroenterology.

> CARE focuses mostly on middle income patients while employing a pricing structure which suits lower income customers as well. Low, middle and upper income groups comprise 25, 50 and 25 percent of the total patients, respectively.

The primary objective of CARE hospitals has been to maximize accessibility and provide high-quality care while ensuring affordability. CARE focuses mostly on middle income patients while employing a pricing structure which suits lower income customers as well. Low, middle and upper income groups comprise 25, 50 and 25 percent of the total patients, respectively.

To ensure affordability of services, the hospital chain has adopted several practices in management and operations, some of them being:

Strategic Cost Control

The operational model of CARE Hospitals largely revolves around strategic cost control. Through market research, the affordable price point for Coronary Artery Bypass Graft (CABG) and related care has been determined as approximately US$2,000–2,500. All processes of CARE Hospitals have been devised to fall under this range, without compromising on quality by constant redesigning/restructuring of the service delivery model.

Evidence based management system

The hospitals follow an evidence-based medical practice with emphasis on accurate diagnoses to minimize costs. It has developed its clinical processes to mitigate unnecessary expensive invasive procedures. While this is a cost containment measure, it also ensures that patients are not subjected to unnecessary discomfort. This is also evident by the conversion rate of outpatient consults to invasive diagnostic procedures and invasive diagnostic procedures to invasive treatment procedures which remains controlled and monitored.

Cost containment by driving efficiency

CARE Hospitals attempts to reduce the per-unit cost by increasing the efficiency of the overall system. For instance, radiology equipment at CARE Hospitals is used continuously to avoid periods of downtime for capital equipment. For this purpose, the outpatient studies are conducted by appointment during the day and inpatient radiology studies are conducted during the night.

Emphasis on efficiency is also applied to supply chain management. The materials management practices constantly undergo intense scrutiny, with the objective of reducing the costs of supplies without compromising on the quality. For instance, CARE Hospitals actively evaluates non-critical equipment (including monitors) from lower price sources (including China) by carrying out head-to-head, month-long comparisons with more costly global brands; and actively deploys these lower-cost technologies across all its facilities if they meet internal quality standards. Relisys, a part of the CARE Group (which includes CARE Hospitals and CARE Foundation), is focused on the commercialization of indigenous technology and equipment.

It also adopts "rational drug choice" policy to procure low-cost pharmaceutical products and reduce material expenses in order to manage pharmaceutical costs. With internally developed IT systems, it is able to monitor costs almost in real-time and monthly reviews are performed al all facilities.

Staffing

CARE deploys task shifting among its staff. Under a process, which CARE labels as 'de-skilling,' many functions of higher-level personnel are repackaged and assigned to less-trained individuals deemed to be appropriate for the job. With this task shifting, more highly-trained staff is allowed to focus on higher-skill functions, while more routine or less demanding tasks are carried out by individuals with less education or training. For instance, physician assistants substitute the work of residents and nurse physicians substitute the work of residents in CARE Hospitals leading to cost containment and maximum utilization of resources.

Multi-tariff system

CARE deploys a tiered pricing model which serves as one of the cornerstones of their operating model. CARE uses a multi-tariff system for the provision of standard services, charging higher fees for higher-income segments. This allows the organization to provide the services either with minimal margins or below the full cost (but above variable cost) to approximately 75 percent of its patients. There is focus on limiting fixed costs while maintaining quality, so price discrimination occurs primarily on capital costs and secondarily on technology and services. This model is also observed in other hospitals.

Capital efficiency finance model

CARE's capital efficiency model is based on the use of leased space (instead of property acquisition), modular expansion of facilities, and reduction of space allocated per bed under allowable limits. CARE primarily undertakes existing underused facilities (e.g. lease underused existing hotels or hospitals) and makes incremental investments into them.

While most new hospitals in India take three to five years to reach break-even and profitability, CARE Hospitals' capital efficiency model has consistently helped it reach profitable levels within a year.

Evolving business model: Integrated Care delivery

In order to become an integrated healthcare delivery provider, CARE has started primary health centers and urban clinics. The key components of the rural primary care model of CARE include a focus on empowering non-physician providers by training community workers to become Village Health Champions (VHCs), serving as the interface between the villagers and healthcare delivery networks. These VHCs are expected to refer the patient to CARE Arogya Kendra, the first referral point.

Robust technology platforms are used to provide VHCs with access to health information, guidance on medical evaluation by pre-developed algorithms, and direct access to healthcare personnel, to offer further consultative services in real time.

CARE's urban clinics are called "CARE Clinics". Currently there are two CARE clinics operating in Hyderabad. CARE urban clinics are equipped with a wellness centre, diagnostic unit, OPD unit and a pharmacy to provide health-care across the value chain to all customers.

Over the years, CARE Hospitals have developed an entrepreneurial approach to serve India's healthcare needs and plans to expand in the tertiary care area while increasing its geographic presence. The combination of services offered by CARE hospitals, urban clinics, primary health centers and Relisys aim to address the healthcare needs of every strata of society while focusing on quality and affordability. With the correct customized pricing strategy and service mix, CARE has been able to establish a model which is economically viable, yet scalable and manages to cater to the needs of the economically backward.

Key facts

Number of hospitals: 1,600 beds across 12 hospitals

Turnover: INR5,000 million (2012)

Staff employed: Full-time professionals (100); nursing staff (1,000); additional support staff (1,850); the number of full-time employees has increased from 200 in the beginning to 2,500 at present

Customer base: Low-end patients (25 percent), middle (50 percent), high end (25 percent)

Key services: Primary and secondary care (expansion plans to include tertiary care)

Glocal Hospitals

Setting up standardized diagnosis and management protocol for the 42 diseases that 95 percent of the population suffered from, helped in streamlining its focus area, adding clarity in requirement analysis and design of hospitals.

Glocal Healthcare was founded in June 2010, with its first hospital in Sonamukhi in the Bankura district of West Bengal. The objective of the organization is to provide high-quality and low-cost healthcare to the needy. The hospital was founded by an IAS officer-turned-entrepreneur, Sabahat S Azim.

It currently runs five hospitals in rural and semi-rural areas in the state of West Bengal. Each hospital covers a population of 0.5 million within a 14-kilometer radius. Glocal addresses the primary and secondary care needs of patients. Each hospital is a focused 75–100-bed facility.

Glocal's basic business operating strategy has been to cut frills and keep costs at a minimum. The objective is to earn 2.5 million Indian rupees (INR) per month. This model has ensured that all five Global hospitals have broken even in five months.

With RSBY support to the population, which gives a family up to INR 30,000 a year for healthcare, Glocal has created a sustainable business model that aims to bridge the large gaps in India's health delivery system.

Under RSBY, 30 million cards have been issued to cover ~150 million people. In Glocal's hospitals, care is being provided at a cost which is 40–50 percent lower than industry standards.

Some of the key business differentiators adopted by Glocal which have made it possible for Glocal to achieve sustainability and profitability are:

Real Estate and Infrastructure: Glocal adopted a 'zero-based framework' – questioning all assumptions and developing its own modular and scalable design at a minimal cost. A set of rules for construction was drafted

so the company could build 28,000 square feet, 100-bed hospitals in six to eight months. Glocal hospitals are based in areas where the cost of land is significantly lower than metros, further aiding cost containment. While a typical 100-bed hospital is about 70,000 square feet, Glocal has been able to restrict it to 30,000 square feet, keeping the cost of construction even lower. At approximately INR50–80 million per 100 beds, a Glocal hospital is built at a significant reduction of the cost of a private secondary hospital.

Medical technology outlay at Glocal is similarly controlled. For example, Glocal hospitals do not have intensive cardiac units, which cost patients an average of INR10,000 per day, but use high dependency units, which have similar medical and clinical services, but cost around INR1,500 a day to the patient.

Service mix: Intensive research before conception revealed that 42 diseases accounted for 95 percent of the disease load in rural areas. About 85 percent of the population suffered from only 17 diseases. Glocal devised its offerings to address this need from the time of conceptualization, thus being able to save on equipment costs, labor costs and also succeeding in meeting the demand of patients. Setting up standardized diagnosis and management protocol for the 42 diseases that 95 percent of the population suffered from, helped in streamlining its focus area, adding clarity in requirement analysis and design of hospitals.

Key service offerings include emergency services, pharmacy, OPD, operating theatres, critical care units, labor suites and extensive neo natal care.

Patient Profile: The Group aims at capturing the population segment unable to afford good quality, affordable healthcare.

Within this target market, Glocal focuses on an estimated 95 percent of medical cases that fall into primary and secondary categories, but require far less investment as compared with the five percent tertiary care demand. Over 25-30 percent of the customers come from very low-income rural families.

Use of technology: To contain diagnosis and disease management costs, Glocal has adopted a standardized Medical Diagnosis & Management System (MDMS) that is connected to the Hospital Management Information System (HMIS). This is an artificial intelligence system that helps in diagnosis, choosing medication and in preventing drug interaction, contra-indication and adverse drug reactions. While doctors can exercise their judgment, this makes the entire process of diagnosis and management fully transparent and documented. It ensures an accurate diagnosis is quickly determined without unnecessary medicines, pathological tests and procedures – further streamlining healthcare delivery.

Other technology offerings include telemedicine and video conferencing facilities, well-equipped lab, radiology centre and imaging system. The fully computerized facility ensures it is 100 percent paperless. There is a focus on telemedicine including teleconsultation, teleradiology, telepathology, telesonology and tele-endoscopy. This also aids intra-location continuity of care, when required.

Medical equipment: Instead of purchasing off the shelf, Glocal has invested in exploiting the supply chain to identify original manufacturers and get equipment assembled at an exponentially lower cost. Glocal has also adopted a number of innovative techniques to cut down equipment costs. For example, it attaches a low-cost Chinese-made camera to an analogue X-ray machine to digitalize the images at a much lower cost than a digital X-ray machine. The radiology is outsourced to a central point at Lucknow where all five hospitals send their radiology requirement and the data is processed on a daily basis.

Staffing Model: Glocal has about six full time super-specialists and 10-12 specialists on an empanelled basis in each hospital. The MDMS system aids in evidence-based treatment and diagnosis and proves an important learning tool for doctors and other staff. The system also helps in the delegation of more work to MBBS doctors under the guidance of specialists.

Glocal has periodically received PE interest owing to the strength of its business model and stellar financial record.

Glocal plans to expand in the coming few years. This includes a project for 50 new units across six states. The new units would be located in West Bengal, Uttar Pradesh, Bihar, Chhattisgarh, Jharkhand and Odisha. The founders plan to invest in Glocal's equity. The equity to be raised from a mix of investors, including the current PE funds Sequoia and Elevar; while there will be attempts to broadbase the investor pool. In September 2013, Glocal raised INR250 million (US$4 million) as investment from SIDBI Venture Capital through its fund Samriddhi.

Glocal has also adopted a number of innovative techniques to cut down equipment costs. For example, it attaches a low-cost Chinese-made camera to an analogue X-ray machine to digitalize the images at a much lower cost than a digital X-ray machine.

LifeSpring Hospitals

LifeSpring's first hospital became operationally profitable in 18 months. Replicating the learning from this proof-of- concept pilot, all LifeSpring hospitals are designed to become operationally profitable in 18 to 24 months.

LifeSpring is a mini Ratna enterprise under India's Ministry of Health and Family Welfare and is a 50–50 equity partnership between HLL Lifecare Ltd. (HLL) and the Acumen Fund, a US-based nonprofit global venture philanthropy fund. It was converted to a private hospital in 2008 with plans to open five new hospitals in that year and four more in 2009.

LifeSpring hospitals aim to address the existing deficit in the accessibility and affordability around maternal and infant care in the country. Key services of the hospital chain include antenatal care, postnatal care, deliveries (normal and caesarean) and family planning services. LifeSpring also provides pediatric care, including immunizations, diagnostic services, a pharmacy and healthcare education to communities in which they are located.

Structure

LifeSpring hospitals are typically 20-25 bed facilities built in low-cost locations primarily targeting low-income groups. They offer quality maternal and child health-care at affordable rates (30–50 percent of market price)

The flagship hospital is located on the outskirts of Hyderabad and has ~52 percent share of all the births in that area. Presently, there are 11 LifeSpring hospitals in Andhra Pradesh, which are built in the proximity of 'urban slums' in Tier-II and Tier-III towns. These locations include Bowenpally, Chilkalaguda, Boduppal, Moula Ali (Hyderabad), Mallapur (Hyderabad), Nellore, Vanasthalipuram, Vijayawada, and Rajahmundry.

Target Population

LifeSpring Hospitals in Hyderabad draw over 70 percent of their customers from low-income communities that earn between INR150–300 a day. As of January 2012, the five-year-old hospital had delivered more than 13,000 babies, and treated over 100,000 outpatient cases. These hospitals primarily cater to the less educated and less privileged strata of society that cannot afford private health-care and yet seek quality and dignified maternal care.

Operating Model

LifeSpring's first hospital became operationally profitable in 18 months. Replicating the learning from this proof-of-concept pilot, all LifeSpring hospitals are designed to become operationally profitable in 18 to 24 months.

LifeSpring Hospitals use smart staffing models – the hospital focuses on maximum utilization of resources enabled via high volumes (measured by the number of deliveries). The hospital reports having facilitated over ~250,000 outpatient visits.

Cost saving: Small hospitals and low-cost of real estate

It has adopted the model of small hospitals (20-25 beds) based out of areas where the cost of land is significantly lower than metros. Moreover, as their target customer base dwells in these proximities, LifeSpring manages to contain the primary issue of accessibility in health-care.

Key Differentiators ///

1) **Strategic Pricing:** LifeSpring's USP revolves around pricing maternal care significantly below market rates to attain financial stability. It utilizes a cross-subsidy model of tiered pricing that enables it to charge low prices for the general ward, which makes up 70 percent of each hospital. The costs of treatment to the patient are almost 60-80 percent lower than other facilities

2) **Focus on Quality:** LifeSpring operates around the principle of compromising on frills but not on quality, thereby making maternal care a dignified experience

3) **SOPs:** LifeSpring maintains standardized management protocol for more than 90 procedures to maintain consistency in quality treatment. There are scheduled training sessions focusing on customer relationships and care for all employees. Protocol adherence is measured across hospitals to monitor compliance with over 100 processes. This indicator has shown a steady increase, indicating consistency in compliance and adherence to quality

Strategic Partnerships

Through LifeSpring's long-standing partnership with the Boston-based Institute for Healthcare Improvement, its clinical quality indicators have shown significant improvement over the years (only 18 complaints of about 6,000 users of inpatient services were received through LifeSpring's complaint registration system from users between 2011 and 2012).

Staffing mix

LifeSpring's hospitals primarily use midwives to provide maternity care, allowing one doctor to oversee more patients by focusing on cases that specifically require a doctor's attention. This further promotes cost containment and aids affordability. The price of a normal delivery is approximately US$40, compared with the market rate of US$200.

Summary

LifeSpring essentially aims to fill the gap caused by the disparity between the excessively high prices charged by private institutions and the compromised quality, transparency, efficiency, and attitude that the public sector carries, albeit providing the services for free. In addition, it also focuses on community outreach programs to educate the surrounding communities around women's health, thus creating a significant social impact.

With strong accreditations and a stringent control of quality, LifeSpring has a robust expansion plan in place – by 2015, an estimated 82,000 women will benefit from LifeSpring's services.

Rashtriya Swasthya Bima Yojana (RSBY)

RSBY, a social health insurance program, was launched by the Ministry of Labor and Employment of the Government of India to provide health insurance coverage for Below Poverty Line (BPL) families. The primary objective of RSBY is to provide security to BPL households from any financial liabilities that may arise out of health situations needing hospitalization. The scheme was rolled out in 2008 and has so far been implemented in 25 states in India. The number of families enrolled for the scheme presently stands at 35.6 million with enrollment complete in 317 (~63 percent) of the selected districts.

Key features of the program

- RSBY beneficiaries have hospitalization coverage of up to INR30,000 for a majority of diseases that require hospitalization (up to five members of the family are entitled to benefit from the coverage, which includes the head of the household, spouse and up to three dependents)

- The RSBY gives the beneficiary the choice of choosing private or public healthcare providers

- The government has streamlined the process by fixing the hospital tariffs for certain routine procedures

- Coverage for pre-existing conditions begins from the first day and there is no limitation on age

- Beneficiaries need to pay INR30 as a registration fee while the central and state governments pay the premium to the insurer selected by the state government on the basis of a competitive bidding.

- The beneficiary is also paid INR100 by the hospitals as transportation expense at the time of the discharge. However, total transportation assistance cannot exceed INR1,000 per year and is a part of the total coverage of INR30,000. No proof is required to be submitted by the beneficiary for transportation assistance.

Scheme Financing

Under the scheme, the majority of the financing, ~75 percent, is provided by the Government of India (GoI), while the remainder is paid by the respective state government. In case of North-eastern states and Jammu and Kashmir, the GoI's contribution is 90 percent and the remainder is paid by the respective state governments.

Benefits of the program for the key stakeholders

Insurance companies, providers and government are the key stakeholders with the following incentives:

Insurance companies: The premium paid for every household is an incentive for the insurer to target as many BPL households as possible

Providers: Hospitals are paid for each beneficiary treated and will therefore aim to treat as many BPL patients covered by the scheme

The insurance companies monitor participating hospitals and help prevent any unnecessary procedure/test. This not only ensures adequate cost containment but also safeguards the patient from unnecessary discomfort and unease

Government: By paying only a maximum sum up to INR750 per family per year, the government enables accessibility of quality health-care to a wide majority of the BPL population

The functioning of RSBY also involves the participation of various intermediaries, including NGOs and MFIs that reach out to BPL households. They help create awareness about the scheme and encourage participation.

Leveraging IT for program success

RSBY is an example of how IT can be leveraged at a large scale, in the social sector, to centralize and track service utilization.

- Every beneficiary family is issued a biometric enabled smart card containing their fingerprints and photographs

- The participating hospitals are IT enabled and connected to the server at the district level. This system also ensures the scheme is safe and free from dubiousness

- The key management system of RSBY ensures the card reaches the correct beneficiary and there remains accountability in terms of issuance of the smart card and its usage. The feature also enables portability – a beneficiary enrolled in a particular district will be able to use his/her smart card in any RSBY empanelled hospital across India

Operational Process

RSBY aids the beneficiary by ensuring a cashless transaction in any of the participating hospitals. The patient only needs to carry his/her smart card to avail the required treatment after the cost has been ascertained by the insurer (in case it is not a part of a predefined package). From a provider's perspective, it is a paperless and simple transaction settled electronically by the insurer.

After rendering the service to the patient, the hospitals are mandated to send an electronic report to the insurer/Third Party Administrator (TPA). The insurer/TPA assess the information and make the payment to the hospital within a specified time period.

Variations in RSBY implementation

The RSBY is a fairly flexible scheme and has encouraged state governments to modify it for their state to make it more beneficial for their BPL population. Himachal Pradesh has extended the coverage to USD3,500 p/a and Kerala has added an additional one million poor families over and above the 1.18 million families classified as BPL by the Planning Commission.

States like Rajasthan, Tamil Nadu and Andhra Pradesh have their own state-run schemes and have showed a mixed response to the RSBY. Andhra Pradesh has not participated in the RSBY program as it has its own health insurance (the Rajiv Aarogyasri Health Insurance Scheme). On the other hand, Karnataka, which has its own scheme (Yeshasvini Cooperative Farmers Health Care scheme), is actively implementing RSBY.

While there is no reported integration between schemes, governments are devising strategies to segregate populations to ensure that low income individuals can avail the benefits of at least one scheme.

New Initiatives – Outpatient coverage

To decrease the out-of-pocket payments and their related impact on the poor, RSBY is testing new mechanisms to provide outpatient healthcare, which complements the existing inpatient modalities.

The first experiment is being conducted with the support of International Labor Organization (ILO) and ICICI Foundation for Inclusive Growth (ICICI Foundation).

How it works

The outpatient coverage program is being implemented via a selected insurance company. The same insurance company which provides RSBY inpatient benefits to the beneficiaries in the experimental districts will also be the insurer for OPD benefits to the same set of beneficiaries. The RSBY central team and the designated State Nodal Agencies (SNAs) will facilitate and monitor the scheme to capture response, success and initial functioning so that the experiment can be a proof-of-concept for further scale-up.

Social Impact and measuring success

Coverage: Presently, 13 insurance companies are implementing the program in partnership with RSBY. A total of 10,862 hospitals have been enrolled under RSBY – 7,576 private facilities and 3,286 that are government-owned. The initiative has covered over 400 districts – recording over six million hospitalizations from BPL families. The success of the program can be gauged by the fact it is operational even in Naxal-prone districts (including Gajapati, Malkangiri, Rayagarh, Sambalpur and Deogarh), which have experienced anti-government violence and kidnappings.

High quality Healthcare services: Apart from the healthcare benefits it extends to the underprivileged, the scheme works in favor by not compromising on quality while ensuring affordability. It is a technologically evolved, fool-proof scheme that aims to harness transparency and efficiency in healthcare delivery.

Incentives for all stakeholders: With its ability to incentivize all the stake holders involved, it proves to be a successful business model. It creates a healthy competition between public and private providers which will consequently improve the functioning of the public healthcare providers.

The OPD aspect of the scheme, which is still in pilot stage, will improve access to healthcare services, ensuring the right treatment at the right time by early detection and treatment of disease. This will aid in the sustainability of RSBY by decreasing burden on high-cost hospitalization procedures.
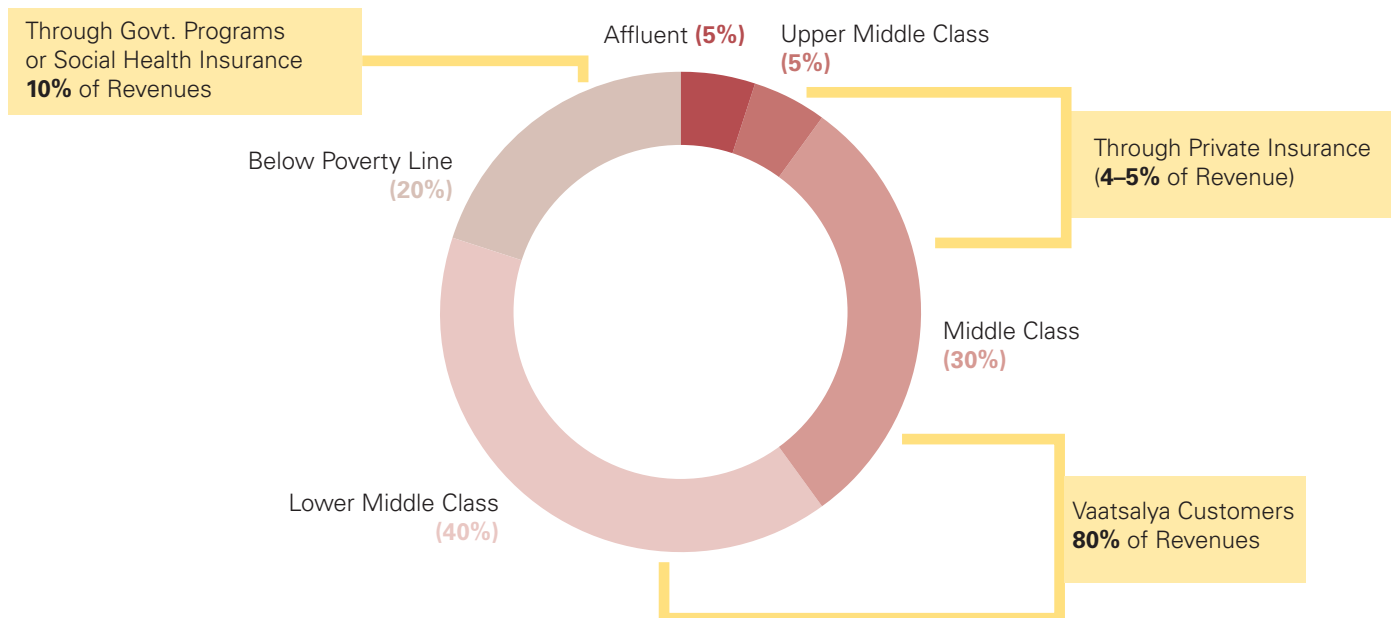
Vaatsalya Healthcare

Vaatsalya is bridging this gap by building and managing hospitals/clinics in semi-urban and rural areas and bringing health-care services where they are needed the most.

The Vaatsalya chain of hospitals was founded in 2005 by Ashwin Naik and Veerendra Hiremath, two doctors who studied together at Karnataka Medical College, Hubli. The hospitals were set up to provide accessible, affordable and efficient care to the rural and semi-urban people of India living in Tier II and Tier III cities.

The founders came from similar towns and understood the realities and challenges of these geographies. Their initial plan was to set up a chain of outpatient and daycare clinics in Tier II and Tier III cities that also offered day surgery. However, the founders soon realized that providing good quality in-patient services in these cities was a huge area of opportunity.

Targeting underserved areas

On their website Vaatsalya state, 'While 70 percent of India is living in semi-urban and rural areas, 80 percent of India's health-care facilities are located in urban/metro areas. Vaatsalya is bridging this gap by building and managing hospitals/clinics in semi-urban and rural areas and bringing health-care services where they are needed the most. Vaatsalya is India's first hospital network focused on Tier II and Tier III towns. The customer base covers a wide part of the local population.

Through Govt. Programs or Social Health Insurance **10%** of Revenues

Affluent **(5%)**

Upper Middle Class **(5%)**

Below Poverty Line **(20%)**

Through Private Insurance (**4–5%** of Revenue)

Middle Class **(30%)**

Lower Middle Class **(40%)**

Vaatsalya Customers **80%** of Revenues

35%: 3 kms radius, 30%: 3-12 kms, 30%: >12 kms

Source: Vaatsalya Healthcare

The organization has a focus on secondary and primary care and each hospital is designed to cater to 70 percent of the local population's health-care needs. The core services include mother and childcare, general surgery and internal medicine including dialysis. There are 50–70 beds per hospital, with each one seeing more than half a million patients per annum.

The service portfolio includes:

- Maternity and children
- Medicine
- Surgery
- Emergency care
- Diagnostics
- Pharmacy
- Outpatients
- Selected hospitals also provide advance services like dialysis, pediatric surgery, diabetology and neurosurgery.

Management's decision to provide advanced services at a hospital are based on three factors – people's needs in the region, gap in health service provision and the availability of doctors, either locally or those who are willing to move to that geography.

This combination of targeting an underserved but large market focusing on common conditions, gives Vaatsalya a clear market niche and sufficient scale and focus to achieve cost savings – most of these are benefits from standardization, flow and specialization rather than economies of scale. They identify their sources of advantage as:

The Vaatsalya Advantage

Better Service	Focused Secondary Care	Reach & Price
• Standardized Systems	• Better reach	• Focus on secondary care
• Trained Staff	• Affordable pricing	• Larger reach
• Transparent pricing	• Expertise in secondary care	• Exclusive tier II and III presence
• Multi doctor practice	• Smaller footprint	• Affordable pricing
• Multilocation advantage		

Some key elements that underpin this are a 'frugal mindset' in which all costs are critically examined:

- Partnership with existing small hospitals
- Investment in appropriate technology – 'Not using the latest and greatest'
- Maximizing utilization
- No major real estate investments
- Use of lower cost locations
- Eliminate frills, including décor, ward kitchens, cafeteria
- Standardization – including design, equipment and procedures
- Centralized purchasing
- Flat management structure

The big advantage for patients is reduction in travel and lost wages as a result. Bringing doctors back to rural areas and reducing the brain drain are also important parts of the model.

> Management's decision to provide advanced services at a hospital are based on three factors – people's needs in the region, gap in health service provision and the availability of doctors, either locally or those who are willing to move to that geography.

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