



## Bricks or Clicks?

# Infrastructure considerations for global healthcare systems

### What's at stake?

**The global healthcare environment and considerations for future generations are dependent upon the decisions we make on investments in infrastructure today.**

**Investments in health care infrastructure have led to excess capacity amongst high-income countries; developing economies have tough decisions to make with the little funding that exists. Will technology provide the answer?**

The 20th century was marked by dramatic advances in science and technology supporting a robust health care industry in the developing world. As a result, high-income countries invested heavily in brick and mortar infrastructure for physicians to practice cutting edge medicine.

Hospitals and other treatment facilities now constitute the largest portion of health care expenditures in the US.

**The US and many other high-income countries in the 21st century are contemplating: What level of investment in what type of health care infrastructure really provides "value" from a health outcomes perspective?**

Indeed, there is evidence that more is not better, and certainly more of the wrong kind of investment, is wasteful.

- In 2012, high-income countries spent over twice as much as lower-income countries (12.2% vs. 5.3% of GDP)
- The US currently spends the most on health care of any country in the world, but it has a lower life expectancy than many Organization and Economic Co-operation and Development (OECD) countries

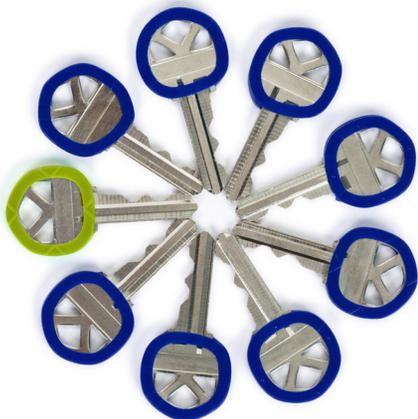
**In contrast, most lower-income and a portion of middle-income countries do not spend a sufficient amount on health care to meet the demand for services.**

As these countries work to improve their health care systems, lessons can be learned from the current inefficiencies in the developed world so that additional investment in resources and infrastructure provides the higher returns.

Countries to the left of the health expenditure/life expectancy correlation curve have an opportunity to "leapfrog" to an emerging model of health infrastructure that leverages new models of care and information technologies.

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High-income countries find themselves at a point where they have excess capacity. Which investments are beneficial? Is spending more on health care the answer to better outcomes?



## Instant Insights

Solving your most pressing business challenges starts with knowing the landscape. Instant Insights offers you a digest of vital knowledge and practical steps you can consider now.

# Our perspective

Investments in brick and mortar infrastructure were helpful at one point in high-income economies; the marketplace today is dependent upon efficiency and outcomes; healthcare follows similar criteria for success.

Developing economies have an opportunity to invest in infrastructure by leveraging new models of care and technology solutions.

Demand for health care infrastructure is growing rapidly in low and middle-income countries. In general, this upward trend is driven by an aging population, the rise of chronic disease rates, the burgeoning middle class, access to technology, and increases in government spending and private sector investments.

In most cases, developing countries seek to emulate North American or European models for health care service delivery. This approach however, is mired with challenges as we see developed countries struggle with prior investments in infrastructure that do not deliver value.

Identifying the inflection point after which additional investment does not generate the same return will be critical to developing economies do not follow the same trajectory as they grow and develop their health care systems.

The game has changed; strategic investment in efficient and quality outcomes is critical, of which technology and emerging new models of care are key components.

What are the key success factors for global health care systems?

### Get the strategy right.

Begin with a market needs analysis and feasibility study to understand what infrastructure you need and if the financials, appropriate set of patient services and volumes demonstrate a positive return on investment.

### Design with the future in mind.

Developing economies should plan and develop facilities in a way that looks to the future of these countries. For example, space should be flexible, include efficient technologies, and health care delivery should be focused on outcomes and models of care delivery.

### Invest in technologies that create efficiencies and improve outcomes.

Rapid growth of innovative mobile web technology, widespread global use of mobile phones, consumer demand for new mobile products and data services underpin the shift to a mobile-enabled era in health care. When used effectively, new health technologies can reduce inefficiency and improve health care outcomes.

### Repurpose existing infrastructure.

In developed countries which are too heavily invested in the 20th century model of brick and mortar infrastructure, workshops to develop solutions for repurposing infrastructure, or a plan to execute decommissioning will need to be executed to deliver a return on existing assets.

Figure 1 Health care Investment Value Curve

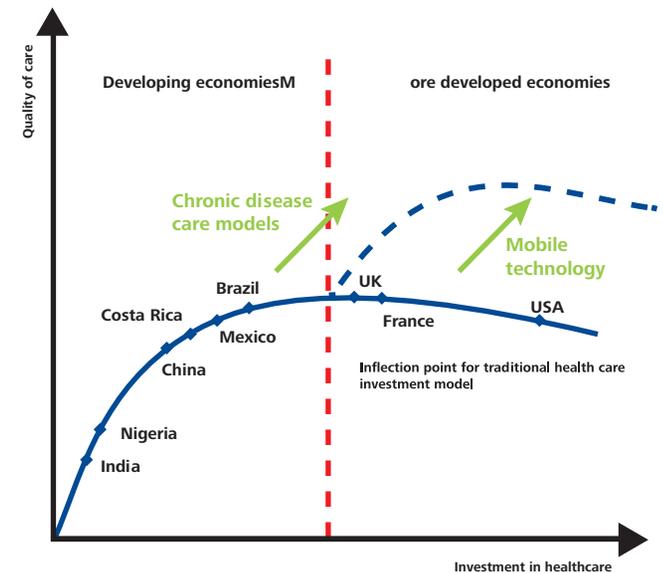


Figure 2 Considerations for infrastructure planning



# The way forward

**In order to locate this “sweet spot” of health system infrastructure investment, developing countries should focus on careful design and activation of health care systems and hospitals that leverage novel health information and mobile technologies.**

**Designing and activating a health care system is a complex operation that requires careful planning and cooperation of many different players.**

Activation Services is defined as assessing and mobilizing a new health care system’s infrastructure and its clinical services to assess if system is ready to provide care when it opens. A series of processes conducted over multiple years execute logistical and operational requirements to bring equipment, technology, facilities and clinical services to full operation and readiness for a health facility.

A successful activation begins with a market needs analysis and feasibility study to confirm services, size of facility and financial evaluation of return on investment. Further, the best outcomes occur when there is a Project Management office to assist functional areas to work together efficiently and effectively to complete each phase of planning and implementation leading up to day one.

By carefully managing planned hospital activation that incorporates emerging technologies, mobile health, and new models of chronic disease care, developing countries can assess if they are cultivating an appropriately lean level of health infrastructure investment.

## South Africa case study:

### *Focus on Universal Healthcare*

South Africa has a quadruple burden of disease (communicable, non-communicable, perinatal and maternal, and injury-related disorders); and whilst its healthcare spend is one of the highest in the world (8.5% of GDP), the impact of this spend is not being realized in its health outcomes.

Life expectancy in South Africa has not improved since 1980. The number of hospitals have been declining steadily since 2002, with the overall provision of hospital beds failing to keep pace with population growth having fallen to an estimated 2.2 beds per thousand population in 2013.

South Africa has started the journey to universal healthcare. 11 National Health Insurance (NHI) pilot sites were announced in March 2012, and the focus for the first five years of the 14 year NHI roll out plan is to strengthen the health system and to improve the service delivery platform. The government has since announced plans to build at least 43 hospitals and 213 clinics in the next five years. One of the first steps in this journey has been to determine the financial feasibility of such an endeavor. This initial study includes the option of a public private partnership (PPP), which will provide the best technical and clinical, financial and legal solution in delivering the two projects, namely, King Edward Hospital VIII and Nelson Mandela Academic Hospitals in Durban and Mthatha respectively. The program is in its infancy, but has taken the steps to address the service mix and meet its populations’ needs.

## Mexico case study:

### *Opportunity to adopt a new model of infrastructure investment*

Experiencing a sizable shift in the health care landscape, Mexico’s population is aging, chronic disease is rising and a strengthening economy is seeing an active middle class who are demanding access to better health care services. Mexico has a decentralized model, such that each public institution decides on the appropriate investment infrastructure; either through expanding medical facilities or creating new ones.

- Significant investments have been made in facility upgrades, new infrastructure, medical education, health care coverage and public health initiatives
- Mexico is projected to spend \$101B on health care by the end of 2014 total spending accounts for 6.2% of GDP(compared to OECD average of 9.3%, 2014); 50% from public spending and 50% from out of pocket expenditure. The public sector component has experienced rapid growth

### **While Mexico has made great strides in health care improvement and investments, it is still challenged with issues.**

- The government policy for increasing access is the program “Seguro Popular”; the issue is that it offers a limited range of services compared to other public institutions such as IMSS and ISSSTE
- Mexico does not have the capacity to meet current health care demand; it currently has 1.7 beds per 1,000 people compared to the OECD average of 4.9 (2011). It was only in the last decade that universal health care was adopted, resulting in a 600% increase in spending and utilization, which has outpaced its current infrastructure

To tackle the issues being faced by Mexico and by developing countries more broadly, a new model of investment in health care infrastructure could be adopted so that demand is being met in the interim and that future investments are done strategically.

# Technology spotlight

**For countries investing heavily in new health care infrastructure, an important component is leveraging health information technology and mobile technology to enable high quality and efficient care provision.**

Technology has been a transformative tool in healthcare and the clinical delivery model. Due to increases in tele-health, eVisits and a myriad of other technological advances, adjustments to space use and requirements have been needed. Building new infrastructure will need to follow suit. A transformative example is dispersion of mobile devices. After a slow start, the capabilities offered by mobile technologies are fast becoming adopted by industry stakeholders, with a raft of devices, sensors, apps, and other programs being developed that target chronic conditions, telemedicine and remote monitoring, patient data capture, electronic records, e-prescribing, and the parallel industries of fitness and wellness. Health insurance companies are promoting the use of mobile technologies in sharing information about hospitals and physician performance, and encouraging use in self-monitoring and care for chronic conditions. Pharmacists and retail health merchants are also leveraging mHealth solutions to bring information to consumers and offer therapeutic solutions that complement traditional treatments, often saving consumers time and money.

Rapid growth of innovative mobile web technology, the widespread global use of mobile phones, and consumer demand for new mobile products and data services underpin the shift to a mobile-enabled era in health care. The migration from in-person visits and monitoring to eVisits and tele-monitoring are examples that emphasize the need to develop physical space that has the flexibility and technology to support and evolve with a new care delivery model.

Countries, such as Mexico, which are investing more of their GDP in health care infrastructure, can benefit from the history of more developed countries during the 20th century. With clear goals and a well-managed activation plan, the health care promises of 21st century science and technology can be achieved with much less investment through leveraging new models of care and emerging information technologies. Brick and mortar infrastructure investment will still be needed, but the hospital of the future is going to look quite different.

## Changing space needs via technology

Market forces driving healthcare infrastructure requirements are coming quickly.

- Deloitte estimates that there will be 100 million global eVisits in 2014
- Tele-health is expected to be a \$25 billion global market by 2015

Less physical space will be needed to perform care with eVisits and tele-health. Further, the space that is required will be different, requiring more investment in technology including monitoring equipment, microphones, cameras, and other remote monitoring devices.

# Bottom line

As the demand for high quality, accessible care continues to increase in low to middle-income countries; considerations should be made for making 'smarter' investments, especially in the area of health care infrastructure.

Leveraging and developing new models of care, taking advantage of new technologies and moving away from the traditional bricks and mortar approach, can help to mitigate challenges that are now faced by high-income countries. Developing economies are now poised to tackle the issue of rising demand by building for the future.

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