



The Future of Health



The Global Challenge

The healthcare and wellness industry is going to drive the world economy of the 21st century. Globally healthcare is already well over a \$6 trillion industry. But, despite its size, it only addresses about 30 per cent of the world population; nearly 70 per cent is nowhere near receiving decent healthcare services. We need a revolution in order to service the entire market.

The major issue is primarily revolving healthcare. The world's first heart surgery was done in Oslo in 1895 – well over a century ago. A hundred and twenty years later only 10% of the world's population can afford it. We can and must do better. The future cannot be just an extension of the past. It must embrace new technology, implement innovative approaches and aim higher than people previously thought possible.

The 21st century will see a rapidly growing demand for healthcare, but this demand looks unlikely to be met in the way the past century was. For one thing, to treat the 21st century's problems with a 20th century approach to healthcare would require an impossible number of doctors. For another, caring for the chronic diseases that are growing in prevalence are not what doctors are best at.

Before we explore the future challenges and options, we should however recognize that over recent years we have already achieved

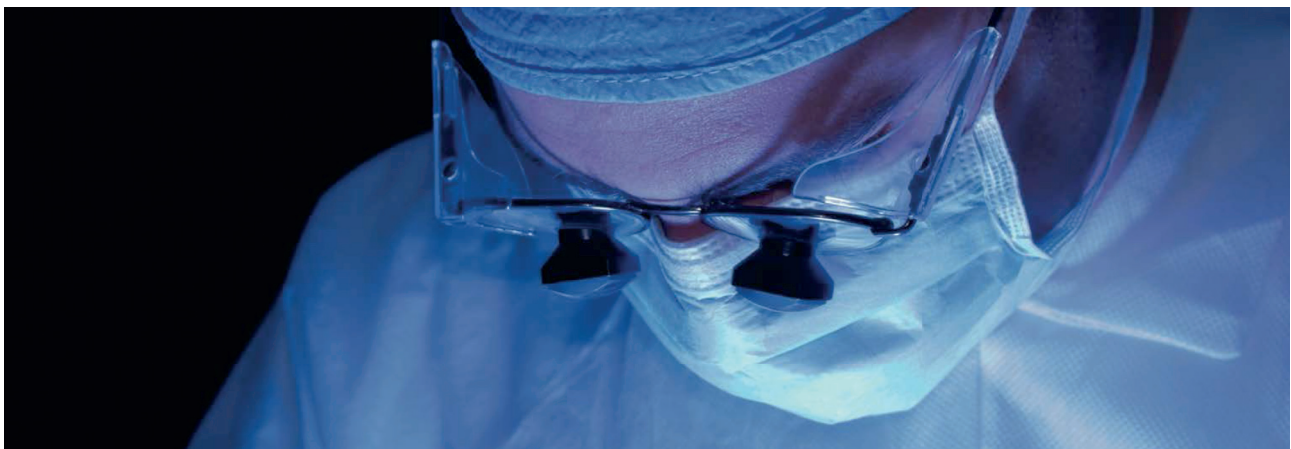
a good deal. Globally, on average, we have never been so healthy, wealthy and educated. Although there have been long-term improvements in health delivery and care, it is over the past few decades that progress has really started to build momentum. This has happened partly because advances in technology, public health and governance have all aligned, and partly because there has been shared understanding of what the big issues are and how to address them. As the IMF has highlighted, child death rates have fallen by more than 30%, with about three million children's lives saved each year compared to 2000. Deaths from malaria have fallen by one quarter in the same period.

But, as the WHO points out, we still have major challenges to address:

- The average annual rate of decline of women dying due to complications during pregnancy and childbirth is far below target to reach the Millennium Development Goal
- While HIV infections have declined by 33% globally, sub-Saharan Africa still accounts for 70% of all new infections
- Although the global tuberculosis mortality rate has fallen by 45% since 1990, multi-drug resistance TB continues to pose problems with an estimated 450,000 per year developing it.

Healthcare for All

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Barriers to Access

Increasing access to affordable essential medicines is vitally important but several factors undermine availability in many countries. These include poor medicine supply and distribution, insufficient health facilities and staff, low investment in health and the high cost of many medicines.

- In 2012 almost half the world's population were still estimated to be at risk of malaria with Africa bearing 80% of new cases and 90% of associated deaths
- Moreover, as the current e-bola pandemic in West Africa highlights, our ability to prevent such disease epidemics is limited, primarily due to low levels of public health in many key centres of major population.

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Contrasting the world's most developed healthcare market with that in India we can see many significant issues. US healthcare spend is spiraling upwards above 18% of GDP

while in India, for example, the figure is just over 4% against a global average of 10%. Worldwide health spending is expected to increase by 5% next year. In India, where the government has now promised to introduce universal health insurance, spending is expected to rise by 18%.

While US life expectancy at birth is now around 80, in India we have just reached 67. Over the past thirty years, our infant mortality rates have dropped from 118 to 42 per 100,000 births compared to less than 5 in the US. In the US the prevailing market means that a healthy person can expect to spend \$142,000 on out-of-pocket health expenses in the 20 years after turning 65. If they have a chronic disease this figure doubles and if they live until 90, they will need an extra \$75,000. In the US there are 2.5 physicians per 10,000 population: in India we have 0.7.

Options and Possibilities

Personalised Medicine

With most current medicines only working for 1 in 10 patients and many \$1bn blockbuster cancer drugs effective with 25% of patients, the potential for bespoke treatments is significant. However, some see that, in the short term, these innovations will be primarily focused on the developed world's more established healthcare markets and will take time to have global impact.

Many in the 'developed' world are focused on the benefits of technology improving the effectiveness and the efficiency of healthcare. With many countries expecting to be spending up to a fifth of GDP on healthcare by 2050, the need for more effective use of resources is clear.

Certainly the potential to use information to drive for more personalised care may well open up access and raise quality while controlling costs. Especially in the pharmaceutical arena, personalized medicine and the prospect of customized therapies based on more sophisticated diagnostics is a major focus for many researchers and the opportunities for genetically orientated pharmacogenetics are substantial. With most current medicines only working for 1 in 10 patients and many \$1bn blockbuster cancer drugs effective with 25% of patients, the potential for bespoke treatments is significant. However, some see that, in the short term, these innovations will be primarily focused on the developed world's more established healthcare markets and will

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Tele-health, and especially 'm-health' has already shown great promise globally. Especially in sub-Saharan Africa and India but also elsewhere in Asia, the opportunity to use mobile as a platform for both curative and preventative healthcare has been attracting much attention from governments, entrepreneurs and the mobile networks alike. With real-time monitoring an increasing norm and the entrance of major global technology companies such as Apple and Google into the area of personal and remote monitoring, the potential is indeed significant. While the business model for preventative healthcare is yet to be fully defined, those such as McKinsey and the GSMA see this as a means of saving of \$200bn a year just in treating chronic diseases across the OECD and BRIC countries.

Alongside these significant new platforms shifts there is also the need to improve access to effective treatment of fast rising chronic diseases. According to WHO figures,

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by 2020 major chronic diseases are expected to contribute to 73% of all deaths and 60% of the global disease burden. Moreover, 79% of the deaths attributed to these diseases will continue to occur in the developing countries. Addressing this requires both behavioural changes across many areas of society around consumption and exercise as well as structural change in the way healthcare

and sick-care is provided. If we are going to stem the rising tide of chronic disease and deal with its consequences we need a far more integrated approach to wellness and healthcare that works across all societies and not just a select few. We need to integrate primary, secondary and tertiary prevention and health promotion across sectors and different disciplines.

Impact of mHealth

Especially in sub-Saharan Africa and India but also elsewhere in Asia, the opportunity to use mobile as a platform for both curative and preventative healthcare has been attracting much attention from governments, entrepreneurs and the mobile networks alike. With real-time monitoring an increasing norm and the entrance of major global technology companies such as Apple and Google into the area of personal and remote monitoring, the potential is indeed significant.

Chronic Diseases

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Need for Process Innovation

Today, most healthcare interventions are not accessible to nearly 90% of the world's population. The way forward is not a new medicine or a new scanner or a new operation - it is a process innovation to bring healthcare to everyone.

Proposed Way Forward

I want to enable every man, woman and child to have access to high-tech healthcare within the next 15 to 20 years, including in the poorest regions of the world. Today, most healthcare interventions are not accessible to nearly 90% of the world's population. The way forward is not a new medicine or a new scanner or a new operation - it is a process innovation to bring healthcare to everyone.

Most countries suffer from a simple mismatch: the demand for health care is rising faster than the supply of doctors. One approach to making doctors more effective is to focus what they do. This is something that we in India have been dedicated to.

At Narayana Health our focus has been on offering as many operations as possible using the core resource without compromising on quality. Surgeons do the most complex procedures and other medical staff do everything else. In addition, by using the latest technologies such as tablets in the ICU instead of patient charts, simulations to train critical care nurses and telemedicine to access those patients in remote parts of the country, a far higher quality of healthcare is delivered than the global norm.

Alongside our process innovation priority, this means that surgeries in the organisation's 18 hospitals across 14 Indian cities typically cost between \$1600 and \$2000 each – less than half that of other Indian hospitals and about one-fiftieth as much as a similar procedure in the US: Two per cent of the cost with outcomes that rival the best in the US.

Equally in other areas of Indian healthcare, similar efficiencies are also being achieved. LifeSpring hospitals have reduced the price of childbirth by augmenting doctors with less expensive midwives: Their costs are about 20% of those in a private clinic. In addition, Aravind Eyecare provides cataract surgery to about 350,000 patients each year for around \$50 each: Operating rooms have at least two beds so that surgeons can quickly move from one patient to the next and, for every surgeon, there are six 'eye-care technicians' specifically trained by Aravind to perform many of the other tasks in the operating theatre that, in other countries, require a surgeon's training.

Japanese companies reinvented the process of making cars. That's what we are doing in healthcare: What healthcare needs is process innovation, not product innovation. It's all about numbers. Because we do a large number of operations, our overheads are distributed over a larger number of patients. Equally, because we implant the largest number of heart valves in the world we get heart valves at a lesser price.

Looking ahead, I see that the efficiencies we have achieved through the approaches that we have taken in India can be applied globally. With an aging society and escalating costs, the 20th century model of healthcare still practiced in many countries today is unsustainable and we need to shift the model forward.

In addition, I also see a need to change the world of health insurance. There has to be an alternative way of funding healthcare.

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Micro-health Insurance - The Best Model for Society

In India we have 850 mobile phone subscribers who are spending 150 rupees per month just to speak on the phone. So if we can collect 20 rupees from each mobile phone subscriber, we can cover the healthcare of another 850 million people.

10 years ago we convinced our local government to launch a health insurance programme and convinced 1.7m farmers to contribute 5 INR (8c) per month and the government became the reinsurer. Today the premium has risen to 18 INR (US\$0.27) per month. In 10 years, 450,000 farmers have had treatment and 60,000 of them have had a heart operation all because of the power of 5 rupees per month. Today we are covering high technology healthcare for nearly 3 million farmers.

Now we are trying to convince policy makers that micro-health insurance is the best model for the whole of society. In India we have 850 mobile phone subscribers who are spending 150 rupees per month just to speak on the phone. So if we can collect 20 rupees from each mobile phone subscriber, we can cover the healthcare of another 850 million people. The Indian government will soon become a health insurance provider. Not only a healthcare provider.

Impact and Implications

High Quality Support

Surgeons are like technicians - the more surgeries they perform, the better they get at it. But behind every skilled doctor you need to have at least two highly skilled nurses, at least four or five technicians, and good administrators.

Wider Impact of Frugal Innovation

The principles that we have developed and refined in India can certainly be applied elsewhere. We have developed what some see as a 'frugal' innovation approach to several healthcare challenges and hence have proven design solutions for low-income populations. These solutions can also be applied to higher income economies with even greater efficiency benefits.

Sources of Global Solutions

Global healthcare affordability will not come from the United States or any of the current world leaders, but rather from those nations of the world that have little today and have no choice but to perform at the highest levels possible in the future.

Healthcare is a unique industry that creates millions of jobs for millions of households, both skilled and unskilled. Unlike manufacturing, healthcare is not dependent on any finite components. It is dependent mostly on human skill. And human skill is replenishable. We can technically reduce the price of any service to any level we want: Surgeons are like technicians - the more surgeries they perform, the better they get at it. But behind every skilled doctor you need to have at least two highly skilled nurses, at least four or five technicians, and good administrators.

By 2022 India needs to have 200,000 specialists, 450,000 doctors and over 1.2m nurses. If every country has an adequate number of surgeons, radiologists, anesthetists and cardiac surgeons, believe me, costs will come down by more than 50%. It is a question of demand and supply.

In global forums everyone talks about reducing the cost of healthcare. But no one knows how much they are spending today. At Narayana Health we have invested in technology. Every day at noon I get an SMS on my cell phone with yesterday's revenue, expenses and EBITDA (earnings before interest, depreciation, taxation and amortization) margin. For us looking at a profit and loss account at the end of the month is like reading a post-mortem report. You cannot do anything about it. Whereas, if you monitor it on a daily basis, it works as a diagnostic tool. You can take remedial measures.

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As an example of how the Indian approach can provide more efficient high quality healthcare, you can look at Health City in the Cayman Islands that we opened in 2014. Health City is not only a lower cost alternative for patients needing heart, cancer and eye surgery in North and South America, it will make clear how over priced and inefficient hospitals in the US really are. Health City in the Cayman Islands will show that lower costs and better outcomes can be done outside India just as well as in Bangalore. In the US it currently costs approximately \$1.25 million per bed to build a hospital. Health City is costing only \$250,000 per bed. Furthermore, in the Cayman facility prices are less than half the average US costs for surgical procedures with quality outcomes matching the very best.

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Lead Expert – Dr. Devi Shetty

Founder of Narayana Hrudayalaya Hospitals and Narayana Health.

Lead expert on the Future of Health.

Dr. Devi Prasad Shetty is a renowned cardiac surgeon and an Indian philanthropist, well known for providing pioneering quality medical care at affordable prices. He was recently recognized by CNN-IBN as the Indian of The Year 2012. Dr. Shetty has performed over 15,000 heart operations and is a proud recipient of the Padma Bhushan for Medicine in 2012. The Wall Street Journal has given him the title The Henry Ford of Heart Surgery. Dr. Shetty and his team pioneered the concept of a 'Health City', a 2000-5000 bed conglomeration of multiple super-specialty hospitals within a single campus. The economies of scale achieved through this health city enable the Group to provide affordable healthcare to thousands. Dr. Shetty was also involved in coining the term 'Micro Health Insurance'. He spearheaded the launch of a health insurance for the farmers of Karnataka in association with the State Government. Dr Shetty is Founder of Narayana Hrudayalaya Hospitals and Narayana Health and serves as its Chairman of the Board.



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About Future Agenda

Context – Why Foresight?

In an increasingly interconnected, complex and uncertain world, many organisations are looking for a better understanding of how the future may unfold. To do this successfully, many companies, institutions and governments are working to improve their use of strategic foresight in order to anticipate emerging issues and prepare for new opportunities.

Experience shows that change often occurs at the intersection of different disciplines, industries or challenges. This means that views of the future that focus on one sector alone have limited relevance in today's world. In order to have real value, foresight needs to bring together multiple informed and

credible views of emerging change to form a coherent picture of the world ahead. The Future Agenda programme aims to do this by providing a global platform for collective thought and innovation discussions.

Get Involved

To discuss the future agenda programme and potential participation please contact:

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Future Agenda 1.0

The Future Agenda is the world's largest open foresight initiative. It was created in 2009 to bring together views on the future from many leading organizations. Building on expert perspectives that addressed everything from the future of health to the future of money, over 1500 organizations debated the big issues and emerging challenges for the next decade. Sponsored globally by Vodafone Group, this groundbreaking programme looked out ten years to the world in 2020 and connected CEOs and mayors with academics and students across 25 countries. Additional online interaction connected over 50,000 people from more than 145 countries who added their views to the mix. All output from these discussions was shared via the futureagenda.org website.

Future Agenda 2.0

The success of the first Future Agenda Programme stimulated several organizations to ask that it should be repeated. Therefore this second programme is running throughout 2015 looking at key changes in the world by 2025. Following a similar approach to the first project, Future Agenda 2.0 builds on the initial success and adds extra features, such as providing more workshops in more countries to gain an even wider input and enable regional differences to be explored. There is also a specific focus on the next generation including collaborating with educational organizations to engage future leaders. There is a more refined use of social networks to share insights and earlier link-ups with global media organizations to ensure wider engagement on the pivotal topics. In addition, rather than having a single global sponsor, this time multiple hosts are owning specific topics either globally or in their regions of interest. Run as a not for profit project, Future Agenda 2.0 is a major collaboration involving many leading, forward-thinking organisations around the world.

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