OPPI

HEALTHCARE IN INDIA

New Milestones... New Frontiers

Contents

Foreword

Dr. Shailesh Ayyangar
President, OPPI

Over the last 50 years, India has seen rising income levels and increased life expectancies. This period has also witnessed a complete transformation in the Indian pharmaceutical industry. Until the early 1970s, the industry was heavily dependent on imports from multinational companies. Today, it stands at the forefront of the Make in India initiative and is acknowledged to be the "pharmacy" of the developing world. Global multinationals and local generic powerhouses have combined to create a vibrant, knowledge-driven industry that has contributed to the achievement of various public health milestones.

The Organisation of Pharmaceutical Producers of India (OPPI) has played an integral role in aiding this transformation. OPPI was founded in 1965 with the aim of supporting the nation's healthcare objectives and collaborating with stakeholders to find sustainable solutions.

As OPPI completes its 50th year, I invite you to celebrate with us. Through this knowledge initiative, we look back at the last 50 years and celebrate the strides our industry has collectively made. We are aware, of course, that much remains to be done. Our country has made huge economic progress, but healthcare outcomes lag expectations. Through this report we also examine the internal and external challenges that represent a call to action for all stakeholders. Finally, we lay out a few ideas and choices that could shape the next 50 years.

On the occasion of our Golden Jubilee celebration, we renew our commitment to making a difference and striving for a better tomorrow - of ushering in a "Healthy India and an Innovative India". We are grateful to McKinsey & Company, our Knowledge Partner in this initiative, for their continued support and insights, as we pursue our vision of providing India with greater access to quality healthcare solutions.

Executive summary

There are two sides to every story. The story of Indian healthcare is no different.

The "glass half full" version highlights the improvements in life expectancy and infant and maternal mortality over the last 50 years. It rejoices in the eradication of polio and smallpox, commends the medical and surgical innovations that have transformed patient lives, and lauds the creation of a vibrant domestic industry in India that today is the Pharmacy for the World. The "glass half empty" version looks at the harsh reality of healthcare outcomes that still lag peer countries. It talks of an overburdened out-of-pocket market that could benefit from a substantial increase in the government outlay on health. It lays out glaring gaps and inequity in awareness, availability, affordability and quality.

Inevitably, the reality lies somewhere in between. There is much to celebrate about Indian healthcare. But we cannot overlook the current inadequacies, nor the need for a systemic transformation if India is to achieve the vision of "health for all".

For this report, we leveraged McKinsey's global perspectives on disruptive trends in healthcare, and their implications for India. We also listened to the voices of participants across the healthcare ecosystem in this country. We talked to patients and patient groups; surveyed and interviewed over 400 doctors – ranging from young practitioners to opinion leaders in the industry; spoke with providers, regulators and pharmaceutical companies – both Indian and multinational. Each individual had a story to tell and ideas on what India could do to shape the next 50 years of healthcare.

What struck us the most in all these stories are the common threads that bind them. Stakeholders in the Indian healthcare ecosystem are largely pursuing individual agendas. Yet, a few cross-cutting themes emerge that have the power to mobilize the ecosystem and transform outcomes. This report lays out five patient-centric themes that multiple stakeholders could consider to deliver impact:

- Using digital, data and analytics to power access and insights
- Leveraging multi-stakeholder partnerships to deliver targeted outcomes
- Raising the bar on the quality of care
- Upgrading capabilities across the value chain
- Solving for funding efficiency and adequacy

"Health for all" is a dream with the power to bring together diverse stakeholders across the country. No one stakeholder can make a difference alone; the transformation lies in collective action. Without collaboration, this dream will never become a reality. We believe the time is right for the industry to unite for a common vision. This report is just the first step in that journey.

Acknowledgements

OPPI Steering Committee

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It is health that is real wealth and not pieces of gold and silver.

- Mahatma Gandhi

HEALTHCARE IN INDIA
Where we stand today

~20%
of world disease burden[1]

1 in 5 patients worldwide
(with infectious diseases and NCDs) is Indian

4.4%
of GDP spent on healthcare[2]

Per capita spend of USD 75

62%
of expenses are out-of-pocket[3]

1 in 5 Indians is covered by health insurance[4]

90%
branded generics[5]

but growing share of patented drugs
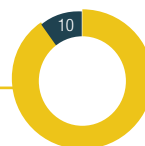
3rd
largest pharma market by volume[6]

13th by value[5]

Growing in double digits[8]

across all major therapeutic areas

19% Anti-diabetic	19% Derma	14% Vitamins/ minerals/ nutrients	13% Gastro intestinal	13% Neuro/CNS	13% Cardiac	12% Respiratory
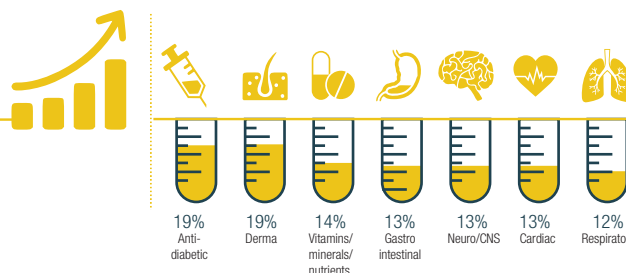
Poised to be the 3rd largest contributor to incremental global pharma growth[9]

2014–2020

Affordable medicine 50 to 90%

cheaper than global prices[10]

Pharmacy to the world

1 in 4 of US FDA approved facilities worldwide are in India[11]

No. of US FDA approved facilities in India[12]

60   119   523

2004   2009   2016
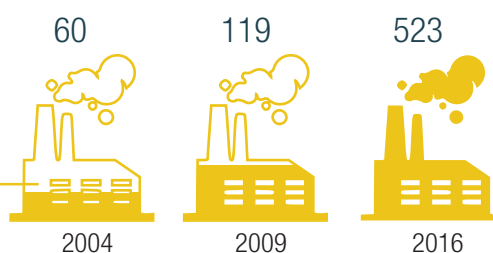
HEALTHCARE IN INDIA
Reasons to celebrate

Indians today live longer than ever before. In 1951, the average Indian lived for 37 years[13]. By 2015, they lived for 68 years[14]—a dramatic increase in longevity. Better immunization, nutrition, and the prevention and treatment of infectious diseases have enabled this outcome. The eradication of polio and smallpox is also a phenomenal achievement. In 2014, India made history by marking 3 years of zero cases of wild polio[15]—a quantum leap over the pre-2009 scenario where India accounted for over half the global polio burden[16].

Indians live
30 years longer than before

1951
37

2015
68

| 1 | 2 | 5 | 10 | 30 | 50 | 70 | Years |
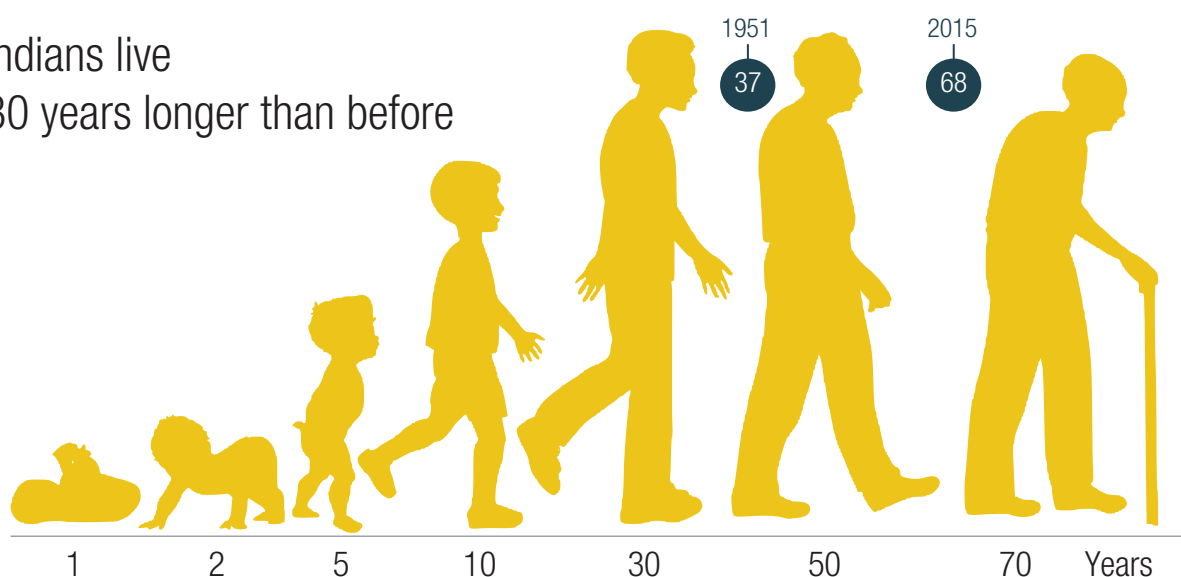
Polio, smallpox wiped out
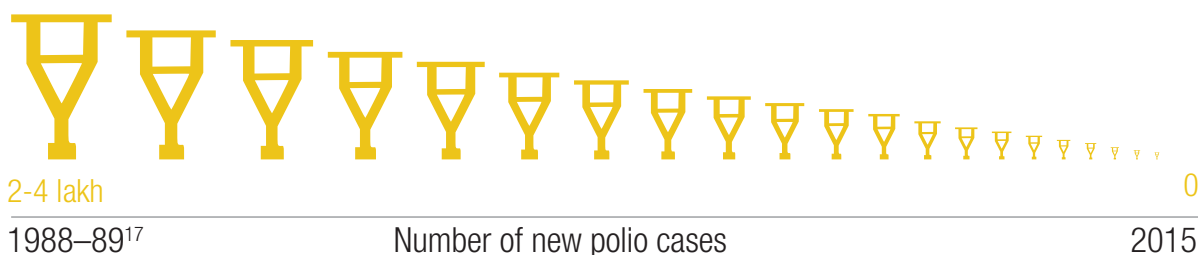
2-4 lakh   0
1988–89[17]   Number of new polio cases   2015

In one of India's biggest health victories, mother and infant survival rates have improved. India saved over 1.6 million infants between 1990 and 2015. Mortality rates for infants and children under 5 have dropped, and immunization coverage rates have grown.

The maternal mortality rate fell by one-fourth in the last 25 years—over 85,000 mothers survived a childbirth that would have otherwise claimed their life.

Outcomes to celebrate

Pulse Polio Program (1995)[18]

National focus has driven success. National programmes have vastly improved detection and cure rates for tuberculosis and leprosy. The eradication of polio resulted from a concerted effort towards awareness, availability, monitoring and community engagement. The Government of India launched the National Pulse Polio Programme in 1995 and set up the National Polio Surveillance Project with the WHO. Pharma companies came together to develop affordable, high-quality vaccines. NGOs, celebrities and government institutions drove awareness and administration.

Maternal Mortality Ratio[19]
(per 1,000 live births)

1990	556
2015	174

Infant Mortality Ratio[20]
(per 1,000 live births)

1990	165
2015	38
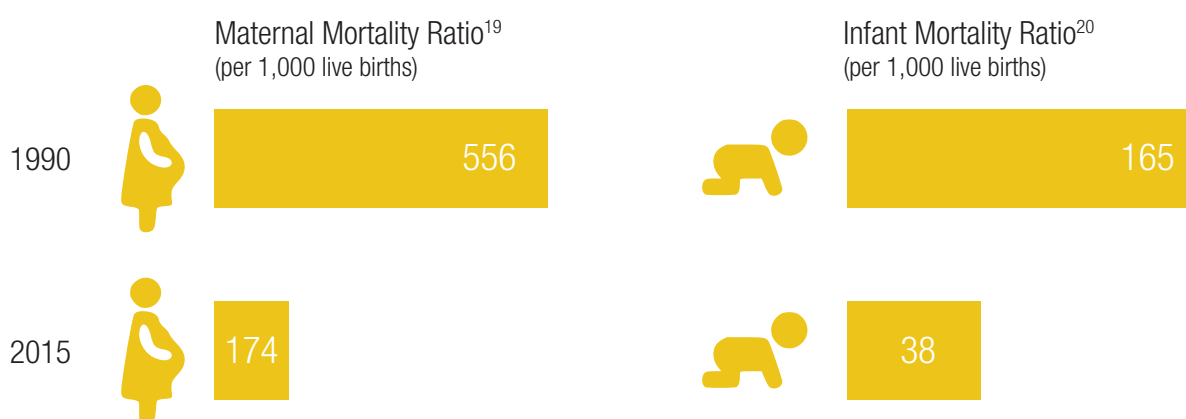
12 mothers, 160+ infants saved each day

In one of India's biggest health victories, mother and infant survival rates have improved. India saved over 1.6 million infants between 1990 and 2015[20]. Mortality rates for infants and children under 5 have dropped[21], and immunization coverage rates have grown.

The maternal mortality rate fell by more than one-third in the last 22 years—over 85,000 mothers survived a childbirth that would have otherwise claimed their life[19].

Janani Suraksha Yojana (2005)[22]

Maternal care initiatives included establishing more healthcare delivery centres in rural areas, producing 5 lakh+ trained doctors and 7 lakh+ auxiliary midwives, anganwadi workers, and multi-purpose health workers. The Janani Suraksha Yojana, launched in 2005, incentivized pregnant women to give birth at delivery centres, which too were scaled up simultaneously.

HEALTHCARE IN INDIA
Milestones along the way

LIFE EXPECTANCY 68 YEARS

2016
FDI up to 74% allowed under automatic route for brownfield pharma[23]

2001
The number of production units in the Indian pharmaceutical sector increases from 1,752 in 1952- 1953 to 20,053 in the year 2000-2001[14]

2001
Cipla makes anti-retroviral drugs available at less than USD 1 per day[15]

2005
National Rural Health Mission launched to provide quality, affordable and equitable healthcare to rural population[16]

2000
Number of rural healthcare delivery centres increases from 725 in 1950 to 163,000 in 2000[13]

1999
National AIDS Control Programme launched[12]

1995
Pulse Polio Programme launched to eradicate poliomyelitis by vaccinating all children under the age of 5[11]

1961
Indian Drug Manufacturers Association formed[3]

1965
Organisation of Pharmaceutical Producers of India formed[4]

1970
Indigenous Oral Polio Vaccine Trivalent developed and produced[5]

1956
First AIIMS hospital set up[2]

1953
Kasturba Medical College, independent India's first private medical college set up[1]

2014

Mission Indradhanush launched to cover all children who are partially or not at all vaccinated[22]

2014

Swachh Bharat Abhiyan launched to drive cleanliness, basic hygiene and sanitation to improve public health[21]

2010

Number of beds is 15,55,000, double the 2002 number; private sector providers created 70% of new beds during this period[20]

2005

Patents Act introduces product patents in compliance with TRIPS requirements[17]

2007

Rashtriya Swasthya Bima Yojana launched to increase insurance coverage[18]

2008

National Programme for Prevention and Control of Diabetes, CVDs and Stroke launched[19]

1990

New drug witness 3x growth (45 iapprovals n 1980s to 156 in 1990s)[10]

1983

Apollo Hospitals becomes India's first corporate hospital; also the first hospital chain to be publicly listed[9]

1979

Biocon becomes the first Indian company to manufacture and export enzymes to USA and Europe[8]

1970

Patent Act enacted to exclude drugs from the product claims category, and retain only process patents[6]

1971

First successful renal transplant operation performed in India[7]

LIFE EXPECTANCY 37 YEARS

DRUG ADVANCEMENTS

Penfills, cartridges launched to self-administer insulin

Percutaneous Coronary Intervention (PCI), introduction of stents in 1990s, drug-eluting stents in 2000s and absorbable stent in 2013

Sofosbuvir launched as a safer treatment for hepatitis C in India, 2015

HEALTHCARE IN INDIA
Voices

Dr. Ratna Devi
CEO, DakshamA Health
Board Chair, Indian Alliance
of Patient Groups

Dr. Suresh Advani
Oncologist

Dr. Farokh Udwadia
Emeritus Professor and
Consultant Physician

Dr. Devi P Shetty
Founder and Chairman, Narayana Health

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Dr. Ratna Devi

CEO, DakshamA Health
Board Chair, Indian Alliance
of Patient Groups

> " Pharma companies have created medicines for many earlier incurable diseases to improve patient lives.
>
> Patients have become more aware of disease symptoms and treatment options; they have intelligent conversations with doctors. "

How has India's healthcare landscape evolved?

Healthcare in India has progressed immensely over the last few decades. Pharma companies have created medicines for earlier incurable diseases such as typhoid, polio and malaria. Medicines are helping to plan or even avoid bypass surgeries; pre-calibrated insulin is safer and easier to administer; oral antibiotics have simplified adherence; medical devices and prosthetics have changed patient lives; and home diagnostic devices have helped reduce the need to travel to labs. Diagnosis has also become sharper and faster.

What changes do you see in healthcare access?

India has gone through waves of health infrastructure growth. In the 1990s, the government invested heavily in building public health infrastructure and in the 21st century private hospitals have taken the lead in building capacity as well as capability for high-quality healthcare delivery. Many of India's progressive states have led from the front to provide quality public hospitals and build medical colleges. States also took lead in building very inclusive public insurance schemes to improve access.

How have different stakeholders contributed to this scenario?

State governments have led by example. Doctors have become more open to knowledge-sharing and second opinions from peers. Pharma companies have demonstrated great sensitivity towards patients by engaging them more thoughtfully before clinical trials. And MNCs have effectively tackled quality and supply chain issues to ensure high-quality medicine for patients.

How has patient behavior changed?

Patients are far more aware of disease symptoms and treatment options. They are having intelligent conversations with doctors. But health seeking behavior for preventive healthcare is still poor (Private schools are trying to incorporate awareness about communicable diseases through the school system). Patient groups and Patient organizations are leading the way in increasing awareness, disseminating information and creating a bridge between the various service providers and stakeholders.

How can we improve access to healthcare?

We need to work together to continue to bring a basic healthcare package to the masses with quality assurance. The government, along with other stakeholders, must focus on healthcare financing to reduce out of pocket expenses, increasing diagnosis, providing information and ensuring transparency in the system a true driver of access and not pricing control for a certain set of medicines.

What future role do you envision for the various stakeholders in the healthcare system?

Pharma companies could balance innovation and sharing information, knowledge and best practices in a synergized manner. The government could invest in creating accountability mechanisms at different levels for the state healthcare structure. Patient voices can drive the cause for impact by playing multiple roles with various stakeholders.

A new lease of life

66 Timely diagnosis saved my life 99
-Cancer survivor

My name is Ramachandra Deo. I am 78 years old and I am a cancer survivor.

I grew up in the small coastal village of Ichchapuram in Andhra Pradesh. At 19, I left home in search of a job, and found work at a steel plant in Rourkela. Away from home for the first time, I picked up two terrible habits – smoking and eating paan(a form of chewing tobacco). Over time, I developed severe stomach problems and suffered for years. Doctors often advised me against smoking and eating paan but I was addicted and failed to break the habit.

In 1998, mouth ulcers left me unable to even eat. Doctors examined me and said tobacco had affected my mouth muscles, and prevented my mouth from opening fully. It took me five years, but I finally gave up chewing paan. But then things got worse in 2007 – I was diagnosed with diabetes and told to give up smoking immediately. I just could not give up this habit. Eventually, in 2010, I developed very painful white patches in the mucous membrane of my cheeks. A biopsy confirmed Stage II Cancer.

I was devastated. Two of my brothers-in-laws had suffered from mouth cancer in the 1990s – one died, and the other was left permanently disfigured from the surgery and traumatized by the painful chemo-therapy. I could not imagine what my future held.

Fortunately for me, my diagnosis happened at a time when medical advances enabled precise diagnosis and better treatment. I underwent a PET and other specialized tests. The surgery took nine long hours. The right side of my face lost all sensation. I could taste nothing on the right side of my tongue. I could barely chew. Completely shaken, I finally did what I should have done long back – I stopped smoking. I under-went chemotherapy and lost a lot of weight.

Although doctors warned me of a possible resurgence, I am deeply grateful to modern medicines that have kept the cancer at bay. I have been totally symptom-free for the last six years. And reconstructive surgery has helped me to live a near-normal life. I am indebted to the doctors who operated on me. A timely diagnosis saved my life. I urge all those who smoke or chew tobacco to get a checkup immediately and also give up these life-threatening habits.

Dr. Suresh Advani
Oncologist

66

We have experienced a dramatic shift in the landscape of disease in the past 10 years.

Identifying the exact gene mutation that causes chronic myelogenous leukaemia has helped us to develop therapies to attack that particular site, and produce one tablet with limited side-effects.
With access to affordable treatment, patients may now live up to 20 years after diagnosis, compared to the earlier life expectancy of 3 years.

99

How has cancer changed from a treatment perspecive?

The landscape of many chronic conditions has altered in the last decade, changing the perception of the disease. We now know much more about many diseases—right from understanding the way they biologically alter the body to how that alteration can be repaired. Drugs can be developed to target the affected site, with limited side-effects, and these are launched after organized clinical trials.

Do patients have access to affordable medicines?

We now have high-quality medicines, many at affordable prices. For example, the monthly cost of Gleevec, used to treat chronic myelogenous leukaemia, has dropped to INR 750 from INR 1.2 lakh when it was first introduced. Global pharmaceutical companies have realized the potential of a market as huge as India. In addition, local manufacturers have made advances to introduce cheaper variants of the drugs, making them more affordable for the masses. The gap between the introduction of a drug in the global market and in India has narrowed considerably.

Do you see meaningful knowledge-sharing on the disease?

Yes, a successful knowledge exchange is happening in India and abroad. The medical college infrastructure has significantly improved. Universities are sharing an incredible amount of knowledge, supported by highly enthusiastic individuals. Our greatest advantage is that doctors and the wider medical community work hard to keep up with the latest global developments in oncology—exploring these through meetings, conferences, travel abroad, inviting foreign speakers to India, and by using the Internet.

What more do we need to do?

While the bigger cities have seen rapid advancements in the war on cancer, the peripheries remain relatively dark. We need to improve the basic availability of drugs and the infrastructure of tertiary care in small cities and villages. Establishing a proper incentive structure for better doctors at the periphery could help. Drugs need to be uniformly priced and available. Doctors and medical staff in these areas need to remain updated on new ideas and developments.

How can the government help?

The government could play a more active role in partnering with international organizations to procure medicines at a concession. It could negotiate on the terms of tax waivers to make drug prices consistent with income levels in India. Better IP protection could encourage private investments. The government could also encourage the generics industry. Medical practitioners need to be pushed towards continuous education (such as CMEs or genuine certifications).

Are we close to beating cancer?

It is a long war. The disease runs wide and deep, with no one cure for all kinds of cancer. There are thousands of diseases, each with their own pathogens and treatments. But we can sharpen our focus on the preventable diseases. Pushing to reduce tobacco consumption and cut pollution levels, promoting healthier lifestyles and diets, eradicating diseases like Hepatitis B and C could all help to prevent the onslaught of cancer of the lung, breast or liver.

HEALTHCARE IN INDIA
Voices

Dr. Farokh Udwadia
Consultant Physician
Author of Man and Medicine

> New drugs and surgical advancements can save lives. Technology has changed how we work. But clinical medicine remains a doctor–patient relationship. The eyes, ears and hands detect what technology cannot.

How has Indian healthcare evolved?

Actually, the journey of Indian healthcare is closely linked to our social, economic and political context. Until the 17th century, the Ayurvedic pharmacopoeia was far superior to Western medicine. Historically, medicine has always flourished when the political and social environment is conducive to a spirit of scientific enquiry. Several milestones stand out in the last few decades—all linked to scientific advancements. First, the eradication of polio and smallpox and other vaccine-preventable diseases. Second, the role of antibiotics in fighting infectious diseases. Third, surgical advancements, particularly non-invasive surgery that reduces risks and recovery times. And finally, advancements in critical care, which allow us to save lives, even though sometimes we merely prolong the act of dying.

Is universal access within our reach?

These advances inspire hope, but we are still miles away from "access to all". While we have the necessary drugs, the question is quality, availability and awareness. Despite high-quality medicines being available, companies that supply medicines of unacceptable quality are mushrooming, especially for common medicines like anti-TB drugs. Availability and affordability are big concerns for the ordinary Indian. Finally, people need to understand that drugs must be taken as prescribed, and for the right length of time. India's TB challenge is indicative of the situation. How do you keep poor patients on treatment for six to nine months? How do you ensure compliance despite serious side effects? How do you educate physicians on MDR TB treatment? And most importantly, how do you prevent TB? In developed countries, improvements in nutrition, hygiene, shelter and sanitation helped to eliminate TB well before the drugs arrived to combat it. We need to provide that sort of holistic care to Indian citizens.

Where does the heart of the transformation lie?

It lies in the PHCs, district hospitals and teaching hospitals. We have to transform primary care – PHCs must be accessible, well-manned and well-run. Developed countries like the US make teaching hospitals the centre of learning and healthcare innovation. This was true even in India a few decades ago, and we need to bring teaching hospitals back to the apex, encouraging the best talent to practice there and creating a conducive environment for research. And finally, health insurance should be the right of every single patient in this country.

And the key to public health…?

Keep focusing on the basics—solve the problem of clean drinking water and sanitation. The human body has an amazing capacity to cure itself of many ailments if it gets the right level of nutrition, food, shelter and sanitation.

What role does technology play in the healthcare scenario?

It is very important, of course. But the doctor–patient relationship remains the heart and soul of clinical medicine—the faith of the patient in their healer. We minister to a patient, not to his organs. Today we ask for more tests than needed because we don't want to be questioned later. But the diagnosis begins from the moment the patient enters the room- there are many things that the eye, ear and hands detect that machines cannot. Forgetting about the human aspect of healing would be a grave mistake.

Dr. Devi P. Shetty
Founder and Chairman,
Narayana Health

"

Heart surgery used to cost one and a half lakhs 26 years ago and now costs less than Rs 95k.

In Karnataka, even if I want to operate on a patient for free, there is no one; all of them are covered by public health schemes.

In 10 years, India will prove to the world that a nation's wealth has nothing to do with the quality of healthcare it enjoys.

"

What is one big success that comes to mind when you look back at your career?

Heart surgeries today cost two-thirds of what they did three decades back; the real drivers being the free market and the entrepreneurial spirit of the players invested in healthcare.

Could this success be attributed to different stakeholders?

Absolutely. Private players have invested in operational efficiencies to reduce cost; the government has helped provide insurance cover (in Karnataka, every patient is covered by at least one government scheme such as Yeshasvini, Arogyasri, ESI CGS). States like Tamil Nadu and Maharashtra are trying to replicate this success story.

What is the future of healthcare and how is it relevant to India's growth?

By 2018, healthcare could become the largest sector by value. I want to highlight that this growth could be supported by the creation of a huge number of jobs. IT generates 5 to 7 skilled jobs for every Rs 1 cr of turnover, but healthcare generates ~250 jobs, split across skilled, semi-skilled and unskilled.

Do you see any major disruptions in the future?

Technology will disrupt the way a doctor sees their patient; If Indian doctors resist telemedicine etc., the day is not far when patients may turn to cross-border consultations.

What role can the government play in shaping the future of healthcare in India?

As I've always pointed out, only increasing budgetary allocations as a percentage of GDP is not the answer. Even doubling the current allocation will not suffice to build enough provisions for healthcare. The government could invest in 4 areas: First facilitate a free market and over-invest in the quality of healthcare provided. Second, revisit the health education policy to generate more specialists. Third, play an active payor role by scaling up some of the existing schemes. And finally, invest in partnerships to build primary healthcare infrastructure.

The US has around 19,000 undergraduate and around 40,000 post-graduate seats; India on the contrary has ~56,000 UG seats and 14,500[1] PG seats (we are not even replacing the specialists who are retiring)

Narayana Health has set up a 300-bedded model super speciality hospital in Mysore at the cost of Rs 40 cr (a 300-bed extension for a hospital in India's metros costs over Rs 1,000 cr[2]). The Government could invest in building such primary care infrastructure and partner with private players to run operations to ensure quality.

Prof. K. Srinath Reddy
President,
Public Health Foundation of India

> The private sector has played a significant role in the growth of the healthcare sector. People in the private sector are eager to contribute even more; the government could invest in the modalities for a constructive partnership.
>
> The next few years can determine the future of the healthcare sector. Thoughtful and well-defined policies could transform the way healthcare works in India.

What has been India's biggest success in healthcare?

I am immensely proud that with the dawn of Indian players, India has in the last five decades enabled access to a wide variety of drugs— both innovator medicines and affordable generic drugs. The private sector has supported the cause by investing in capacity building and developing the right infrastructure in secondary and tertiary care. The government, too, has begun to make the right provisions to meet its healthcare goals.

How do we sustain this momentum?

India has signed up to ensure sustainable developmental growth, committing to "achieving universal healthcare coverage for all, including financial protection and access to essential drugs and vaccines by 2030". This cannot be the end of the road — it will be crucial to define the right level of indicators for success. Still, this is a good aspiration to have.

What gives you confidence that we can achieve our goals?

I am heartened by the government's multiple initiatives. It has started investing in the pool procurement of services from the private sector. It has also increased the coverage of universal health packages, that is the degree of public financing and availability of drugs. It is also focusing more than before on NCDs, which are a growing health burden in India.

How can the government help accelerate the process in the years to come?

The government has a dual responsibility — it could continue to build infrastructure in primary healthcare and also move towards a payor role for secondary/tertiary healthcare. In primary care, the key will be a strong referral and linkage to the secondary network. And from a patient-funnel viewpoint, the government could keep investing in creating awareness and building capacity to improve doctor education.

What are some areas we must resolve for a better future?

One, while most efforts are focused towards providing care, we need to stay invested in the quality of care. In my opinion, that has four components — perceived effectiveness, safety, cost and user satisfaction. The government is planning to set up a national body to accredit the quality of health. Two, the government could build an ecosystem where everyone is aligned to a common goal, e.g., integration across levels of care, involving the private sector, and policy-shaping at the state level. Effectively structuring such an ecosystem will be critical to the success of any healthcare initiative.

If you had to pick three big areas to focus on, what would they be?

First, with the increasing role of states across all levels of care, designing healthcare policies and integrating them across primary, secondary and tertiary care could be vital. Second, investing in public health financing through insurance coverage and pool procurement. Third, constructively involving the private sector in this journey to maximize its contribution.

Sandeep Sahney
Head of Emerging Markets,
Sanofi Genzyme

❝

Emphasizing the value of transforming ONE life and getting different stakeholders to start acknowledging the same has been the most cherished part of this journey.

Patients with rare diseases are a cause worth fighting for because they are mostly ignored and overlooked. To make a difference all you need is an ecosystem of people with their hearts in the right place.

❞

How is healthcare different today from what it used to be?

Let's talk about the first patient who was treated by Genzyme in 1999—a 7 year-old suffering from Gaucher disease. The well-educated family (the father was a scientist) lived in Mumbai and had access to the city's top hospitals. Even so, it took five years before they got an accurate diagnosis after visiting multiple centres and specialists. Their woes did not end there – they discovered that the only company manufacturing medication for this rare disease did not have operations in India. The determined parents managed to contact our Boston HQ and after going through the test results and medical reports, Genzyme shipped the first medication under our charitable access program. The fact that today we have a pool of several hundreds of doctors and multiple laboratories that can test for these diseases means that patients do not have to struggle for five years for a diagnosis – that is truly a change.

Given the small scale, what made this possible?

The people. Our big win has been getting together a whole bunch of people who believed in the cause – they came from everywhere, the medical community, patient groups, media, research bodies, friends and families besides of course our passionate employees. It takes time – there was this doctor who was very intrigued when I first spoke to him about rare diseases. He had 15 years of experience and he said such patients simply did not exist. Within a year of that meeting he called me to say that he had diagnosed his first "rare disease patient"!

What have been some of the areas which enabled you to do this?

We were faced with a task that necessitated working across the entire spectrum – due to extremely low knowledge levels in the country, from awareness and diagnosis to treatment.

Awareness: We have worked to build awareness across the medical community with advisory boards, bringing together not necessarily the industry-defined KOLs but the ones genuinely interested in learning and treating rare genetic disorders.

Diagnosis: We evolved from providing logistics support to carry samples for testing in Taiwan/US, to building capacity and capabilities in India.

Treatment: Besides enrolments in our charitable access program, we have been working with governments as well as private and public institutions to develop innovative partnering models to bring hope to these patients.

What are the two biggest shifts necessary for the future of healthcare?

The government could take a more active responsibility for healthcare delivery to all its citizens in a comprehensive manner. And second, the industry could partner more effectively to shape the market and create better patient outcomes. That offers a real opportunity in a country as vast as ours.

Did you know that the first Rare Disease Day was observed on 29 February 2008? The date was chosen because it is itself a rare day.

HEALTHCARE IN INDIA
Voices

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Affordable medicine is the biggest contribution of the Indian pharma industry… But "Medicines for all" should be our vision.

There is a trust deficit that must be bridged. We need to create the ecosystem and speak in a common voice with the patient at the center."

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How has the pharma industry shaped India's healthcare scenario?

India has a lot to celebrate. Life expectancy has increased by over 30 years. Diseases like polio and kala-azar have been eradicated. While other factors are also responsible, the pharma industry has played a big role in these successes. India is an out-of-pocket healthcare market, with low per capita income. Yet a large part of our population can still access medicines because they are affordable – Indian and MNC pharma companies have delivered high-quality medicines to Indians at some of the lowest prices in the world. The industry has also helped to build patient awareness. Lupin for instance has been a leader in driving the early detection of TB through a range of programs and partnerships.

And how has this led to India's growth?

India is today the largest supplier of cost-effective generic medicines to the developed world, with well over USD 15 bn of export earnings. The pharma industry is the foundation for this status. We have created jobs. And over the years we have built distinctive manufacturing, product development and process innovation capabilities, all of which make our country proud on the global stage.

What are the major concerns for the domestic pharma market?

Over the years, the affordability of medicines has improved, but access to healthcare has not. With less than 1 hospital bed per 1,000 people in India, the problem remains last-mile reach, particularly for the rural population. The government must spend more on healthcare – at 1 percent of GDP we are far behind developed and developing nations. The private sector can also help here. Novartis has moved beyond CSR to develop a commercially viable yet socially responsible approach to reaching rural India. The initiative is called "Arogya Parivar" and has now been extended to markets like Kenya, Indonesia and Vietnam on the back of its success in India. Lupin is deeply engaged in their community outreach program called "LIMIT" which conducts house-to-house campaign to improve case detection in urban Mumbai with high density of TB population.

What suggestions do you have for regulatory authorities?

I feel that the policy environment today is over-focused on price controls in pharma. India needs a more balanced approach, one that takes into account the end-to-end cost of care, such as pricing in private hospitals. Regulators must also actively encourage innovation – a more modern and a globally aligned policy on clinical trials will stimulate innovation in India.

What can change the future of healthcare in India?

Technology and innovation. India is resource limited but not idea limited. Continuing innovations in R&D will help to push costs down. Technology will facilitate access and engagement. Today we see an increased momentum in use of telemedicine, e-tailing, digital education of doctors and digital tools to improve patient compliance.

## Do MNCs and Indian pharma companies need to see each other as rivals?

On one hand there is fierce competition between MNCs and Indian companies. We even have three different representative industry bodies. But today, we have learnt to collaborate even as we compete. For instance, Lupin and Novartis have co-marketing tie-ups in India. Partnerships like this ensure that new drugs are launched widely in India. Collaboration will enable technology sharing and innovative business models – a win-win for the patient and the pharma company.

What would you say should be the big priority for healthcare in India?

The Indian healthcare ecosystem includes pharma companies, doctors, regulators, medical schools, insurance companies, and the patient at the center. Yet, there is no single body that unites the ecosystem. We need to convene this ecosystem to create a common agenda and a unifying vision. A common voice could also play a big role in addressing the trust deficit that remains a concern in this industry.

HEALTHCARE IN INDIA
Challenges

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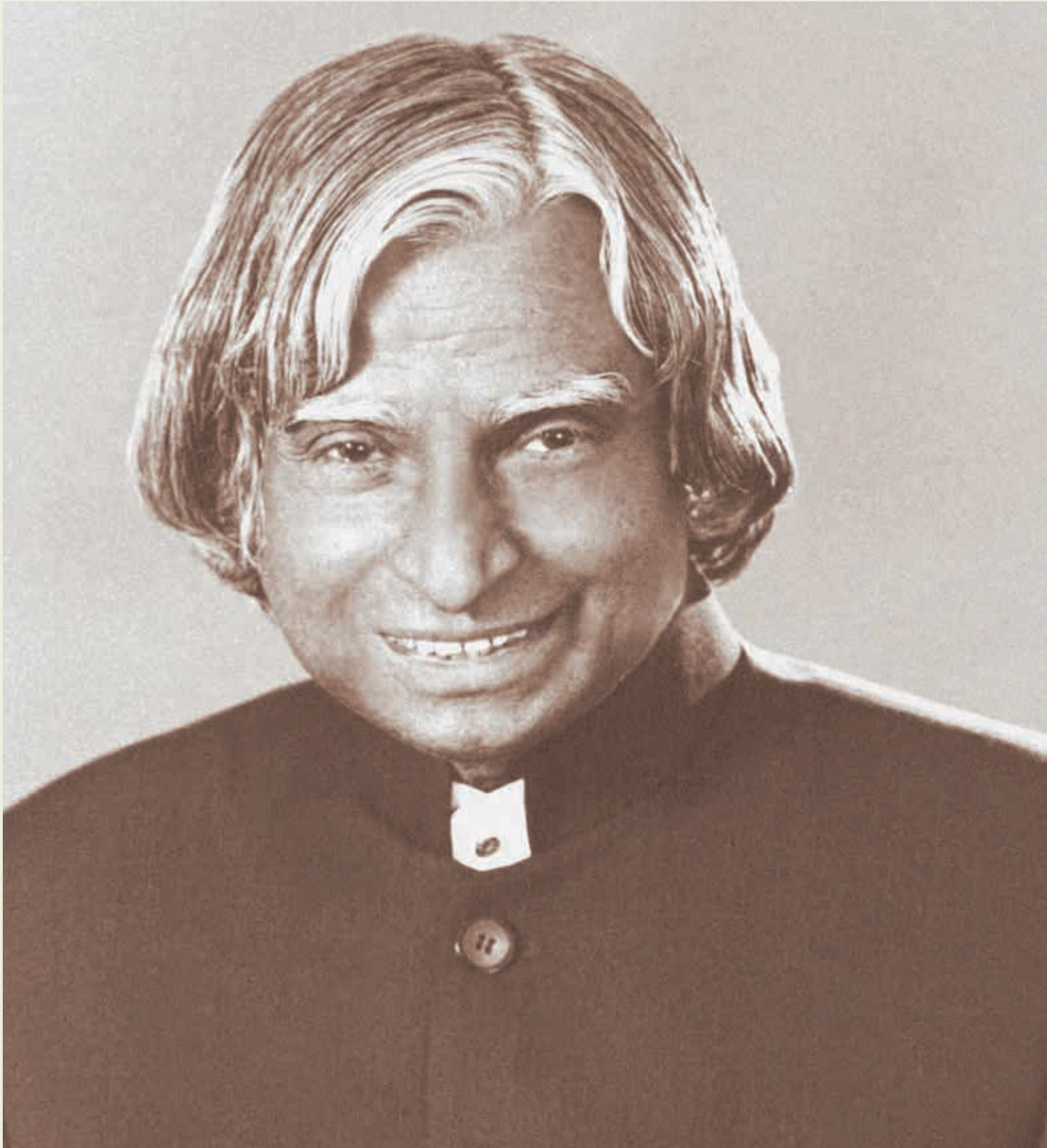
We should not give up and we should not allow the problem to defeat us.
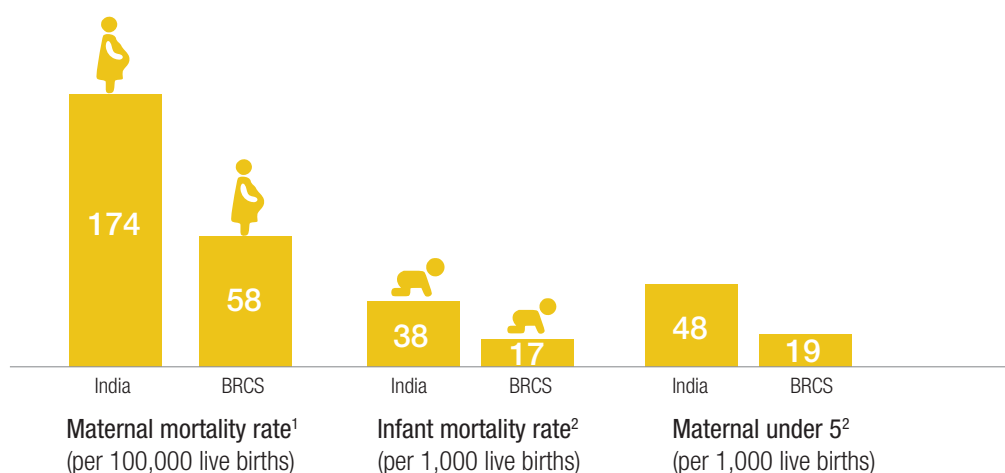
— Dr. A.P.J. Abdul Kalam

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HEALTHCARE IN INDIA
Lagging health outcomes

While India has come a long way in achieving key milestones in providing healthcare to the masses, much remains to be done to pull up healthcare systems to global standards.

Health outcomes are still poor

Mortality rates higher than peer nations

| | 174 | 58 | | 38 | 17 | | 48 | 19 |
| India | | BRCS | India | | BRCS | India | | BRCS |

Maternal mortality rate[1]
(per 100,000 live births)

Infant mortality rate[2]
(per 1,000 live births)

Maternal under 5[2]
(per 1,000 live births)

Infectious diseases still widespread in India

TB[3]

2.2 mn cases
Highest incidence
in world

HIV/AIDS[4]

2.1 mn cases
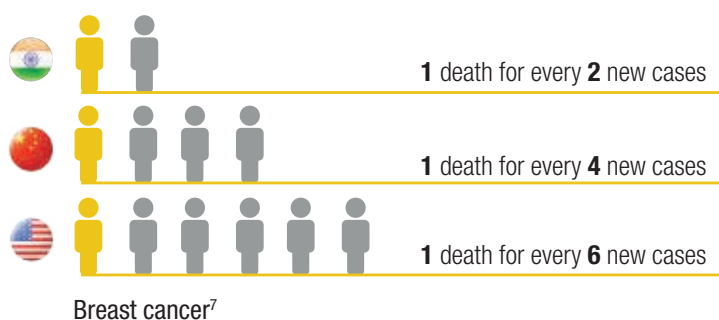Highest number of cases outside Africa

Malaria

1.1 mn cases[5]
76% of burden of Southeast Asia[6]

India-a major contributor to NCD burden

1 death for every **2** new cases

1 death for every **4** new cases

1 death for every **6** new cases

Breast cancer[7]

Indians hit 10 years earlier
by acute myocardial infarction
than people of Western Europe,
China and Hong Kong[8]

Shifting disease patterns

Non-communicable diseases (NCDs) are surpassing traditional threats such as infectious diseases and malnutrition as the leading cause of disability and premature death in India.

The growing burden of non-communicable diseases

Rapid globalization and urbanization have increased the burden of NCDs like heart disease, diabetes, cancer, mental illness and respiratory diseases. This threatens economic growth and the quality of life across the world. In India in particular, changing demographics and lifestyle modifications may have contributed to the NCD challenge.

60% of all deaths in India are caused by the four leading NCDs- cardiovascular diseases, cancer, chronic respiratory diseases and diabetes[9].

WHO identifies three primary triggers of NCDs[10]:

Unhealthy diet   Physical inactivity   Tobacco and alcohol abuse

These risk factors are high in India[11]

80-85% of population consumes commercially processed foods

12% males   **15%** females   are obese

57% males   **11%** females   use tobacco

NCD-related deaths are increasing at an accelerating rate worldwide[12]
deaths/year, mn

52 — 2030
38 — 2012
31 — 2000
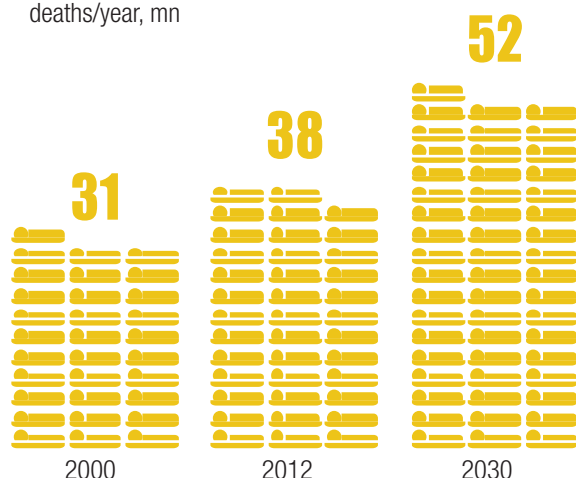
The India story

NCDs have emerged as the leading cause of death in India

1 in 4 risk dying from NCDs before age 70[13]

USD 4.5 trillion estimated loss due to NCDs between 2010 and 2030[14]

India has a **15.4%** share in global NCD burden[15]

India called the diabetes capital of the world

65 mn diabetes patients = population of France[16]

123% increase in rate of diabetes vs 45% increase in global rate[17]

50% increase in deaths due to diabetes over the last decade[18]

Increasing drug resistance

The emergence of drug-resistant strains of diseases is threatening the ability to treat patients, leading to more illness, disability and deaths. Antimicrobial resistance (AMR) occurs naturally over time through genetic changes. It could further accelerate through the inappropriate use of drugs-wrong prescription of dosage or duration by doctors, inaccurate self-medication, non-compliance by patients, and use as growth-promoters in food-producing animals.

70%

of hospital infections in US resistant to at least one antibiotic[19]

>2 mn

people in US infected with AMR bacteria and 23,000 deaths every year[20]

~USD 21 to 34 bn

yearly cost of AMR diseases to US healthcare systems;
8 mn additional days in hospital[21]

The most prevalent cases are in bacterial infections, TB, malaria, HIV and influenza.

Drug resistance in TB

TB is one of the top 10 killers worldwide, causing 1.8 mn deaths in 2015[22]. To make matters worse, mistreatment, misuse of anti-TB drugs, poor quality of medicine and non-compliance have pushed up instances of drug-resistant TB across the world. The cost per patient treated for multi drug–resistant (MDR) TB is ~25x the cost for drug-susceptible TB[23]

As per WHO, in 2015[24]:

580,000 new cases of MDR-TB/ RR-TB

250,000 deaths due to MDR-TB/RR-TB

125,000 patients enrolled in MDR-TB treatment

The India story
Self-medication and non-compliance are big problems

50% patients try self-treatment before coming for a diagnosis, say 1 in 3 doctors*

<50% patients complete their treatment, say 1 in 2 doctors*

India, China and Russia account for over 50% of multi drug–resistant TB cases worldwide[25].

New diseases emerging

Forty new diseases have been discovered since the 1970s[26]. Mutations of old diseases, and entirely new diseases, are proliferating across geographies. New viruses are harder to treat because people do not know enough about them.

The primary causes of these new diseases and mutations are ecological upheaval, climate change and urbanization. These result in the introduction of new pathogens, most of which stem from zoonotic transmission. Diseases could also emerge naturally as pathogens evolve over time.

Greater mobility and travel, densely populated areas and increased contact between people imply that these diseases could rapidly escalate into global epidemics.

It is estimated that the ongoing global ecological change will produce up to three infectious diseases per year[27].

SARS[28]	EBOLA[29]	Zika[30]	Swine flu (H1N1)[31]
Where: China, 2002	**Where**: Africa, 1976; re-emerged in 2014	**Where**: Brazil, 2015	**Where**: China, 2009
Cause: Infected civets	**Cause**: Ebola virus	**Cause**: Aedes mosquito	**Cause**: Infected pigs
Effect: Respiratory disease	**Effect**: Viral fever	**Effect**: Microcephaly, Guillain-Barré syndrome	**Effect**: High fever, muscle pain
Cure: No	**Cure**: No	**Cure**: No	**Cure**: Yes
8,000 people affected, 10% fatality rate. Spread to 20+ countries in North and South America, Europe and Asia	28,616 cases reported in 2014, 50% average fatality rate	67 countries have reported incidents of Zika virus since 2015	Considered fastest spreading virus. Led to 284,000 deaths globally, 51% of which were in Africa and Southeast Asia

The India story

India is following global trends of globalization and climate change. The country saw 50% faster urbanization in 2001–11 compared to 1991–200132.

The high density of livestock population, human-animal interaction and low hygiene levels could increase India's risk of zoonotic diseases. India has also seen many cases of swine flu & avian flu[33].

HEALTHCARE IN INDIA
Gaps in access

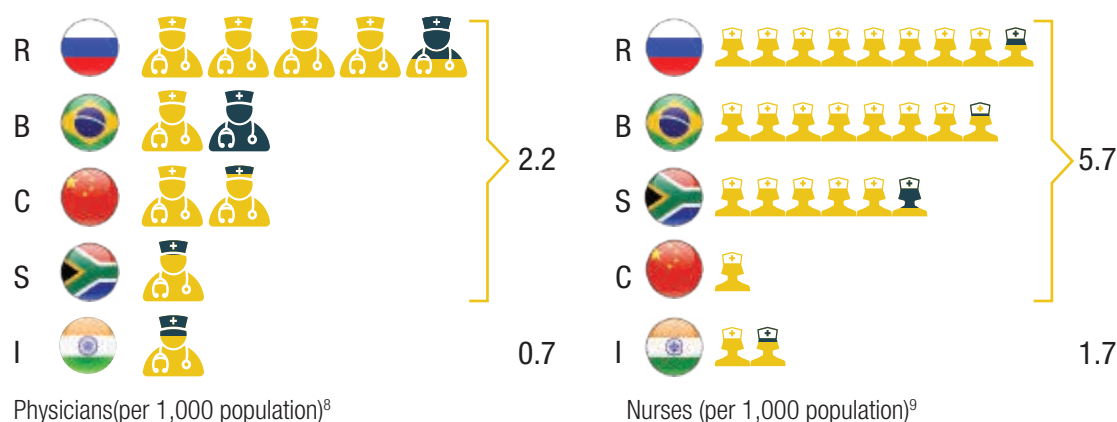## Healthcare **availability** remains below peer benchmarks.

Big gaps in healthcare infrastructure, particularly in rural areas

- Only 0.9 hospital beds per 1,000 people[1]—the lowest amongst BRIC countries. India has 18% of the world's population but just 6% of the global number of hospital beds[2]
- Access to healthcare is further limited in rural areas—**3 out of 5 hospitals, 3 out of 4 dispensaries are in urban areas**[3]
- **Over 60% of patients in rural India** have to **travel over 5 km** to reach a healthcare centre for inpatient care[4]

Rural area   5 KM   Healthcare centre
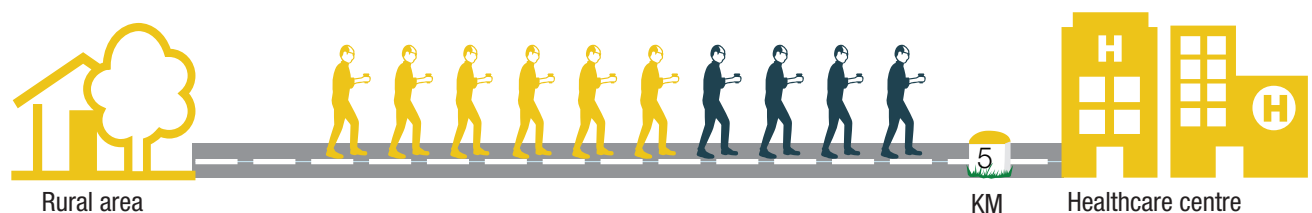
Not enough doctors and nurses

- India short of 9 mn doctors[5]
- Ratio of doctors to population is half that of China and one-third that of the US[6]
- 55% of all doctors in India do not have medical qualifications[7]

R B C S I   2.2   0.7

Physicians(per 1,000 population)[8]

R B S C I   5.7   1.7

Nurses (per 1,000 population)[9]

2.92
WHO

1/3

0.9
India

Hospital beds (per 1000 people)[10]
in India compared to WHO standard

Quality and other concerns drive preference for private care, which in turn drives up cost of treatment.

Both rural and urban patients have a clear and growing preference for private care…

In 2012, six of 10 rural patients and seven of 10 urban patients preferred a private inpatient provider over a public provider compared with four of 10 such patients in 1986[11]

Private

Popularity of private channels pushes up treatment costs

Public
OPD[12]   Private
2–3x cost

Public
IPD[13]   Private
4–8x cost

…driven by challenges in the availability of beds and doctors and quality of facilities at government hospital

Key reasons for choosing private facilities in IPD

52%
"No diagnostic facilities in government hospitals"[14]

32%
"Non-availability of beds in government hospitals"[15]

Key reasons for choosing private facilities in OPD

61%
"Doctor availability in private hospitals"[16]

56%
"To be quickly attended to"[17]

But overall utilization remains low

IPD utilization in India is **45%**[18]. OPD usage is even lower, at 20%. Primary healthcare centres are performing fewer than 10 deliveries per month.
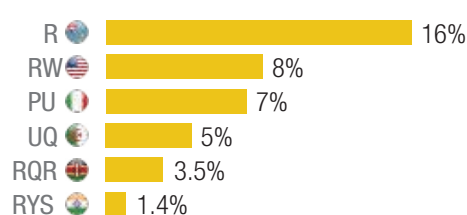
Affordability is a big concern given the high out-of-pocket spend.

Government spending on healthcare should be increased from current level, which is only at 1.4% of GDP

Rank by public spending (as %GDP) on health[19]

R	16%
RW	8%
PU	7%
UQ	5%
RQR	3.5%
RYS	1.4%

With public spending on healthcare at **1.4%**, India falls in the last decile amongst 188 countries

Helping to reduce the high out-of-pocket spend…

62% of healthcare expenses are borne out of pocket[20]

$$$$$$ $$$$

…and so should the low level of insurance penetration

1 in 5 covered by health insurance[21]

…which is a leading cause of rural indebtedness

3.2% pushed below poverty line due to out-of-pocket spending[22]

2 in 5 hospitalized patients have had to borrow to pay for healthcare[23]
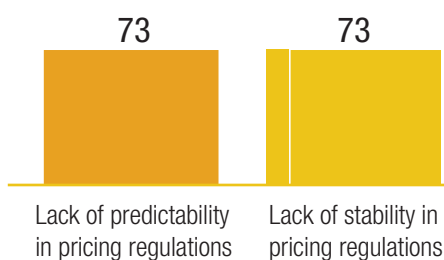
Policy environment dynamics

1

Stakeholders believe pricing policy lacks predictability and stability

### Top regulatory challenges*
% of CEOs who listed below in top 2

73 — Lack of predictability in pricing regulations

73 — Lack of stability in pricing regulations

Lack of stability and predictability in pricing regulations are top concerns of CEOs

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2

IP enforcement is a concern for MNCs

Percent of global new product pipeline in India*
% of CEOs who selected

- 40 ■ Significant majority
- 30 ■ Approximxately half
- 30 ■ Less than half
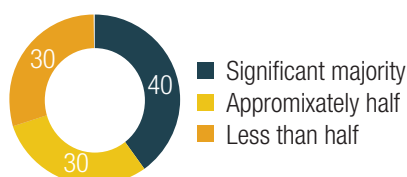
Questions of IP enforcement affect confidence in launching patented drugs

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3

UCPMP implementation timing unclear

UCPMP proposed to curb unethical marketing practices by pharma companies
Effectiveness limited in absence of legislative support

Initiative on Uniform Code of Pharmaceuticals Marketing Practices (UCPMP) appreciated across the industry but timing uncertain

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4

Regulations need to keep up with fast-paced environment

Trend towards online chemists/ e-pharmacies*
% of doctors who selected, N = 361

- 21 ■ Yes, significant
- 37 ■ Some increase
- 42 ■ Not really
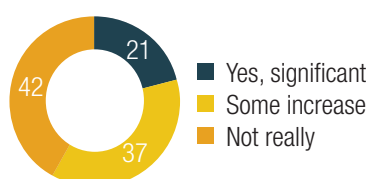
Digital disruptions and new-age startups are booming but a lack of regulatory clarity hampers innovation, e.g., prescription-adherence by online pharmacies

HEALTHCARE IN INDIA
Disruptive forces at play—globally & in India

1. There is a shift from curative to preventive healthcare

The gradual shift from "sick care" to "preventive care" is parallel to a transition in the global disease profile from communicable diseases to NCDs. Preventive care can reduce this burden since most NCDs are lifestyle-related and can be curbed through early detection and management. This may also reduce the cost of hospitalization, which is a huge drain on the healthcare system. Several countries are spending more on preventive healthcare as they realize its merits.

WHO has estimated that eliminating major risk factors for chronic diseases could prevent at least 80% of cases of heart diseases, strokes, Type 2 diabetes, and 40% of cancer cases[1].

2. Patients are becoming more aware and demanding

Patients are becoming more proactive and involved in their healthcare decisions. A glut of online information, high interconnectivity through social networks, and the proliferation of health apps and wellness products are all aiding this shift in the patient's attitude. An estimated 70 percent of internet users globally search online when experiencing a symptom – a trend increasingly evident in India with its over 300 mn mobile internet users[2].

India doctor survey results

90% doctors believe patients are more inquisitive*

- 10
- 29
- 61

- No change
- Moderate increase
- Very high increase
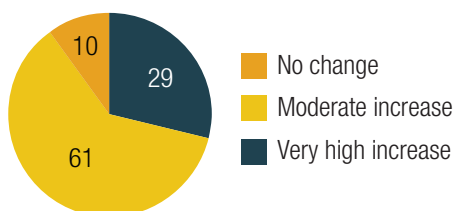
> The patient has become more educated and demanding, courtesy Dr. Google. I would sometimes prescribe the same medicine that the patient was already taking before coming to me!*

Patientslikeme[3]

Online patient network with 4,00,000 people and 2,500+ conditions. Patients connect with others who have the same disease or condition and track and share their own experiences.
The real-world data generated helps researchers, pharmaceutical companies, regulators, providers and nonprofits to develop more effective products, services and care.

Other communities

HealthUnlocked
WhatNext

Disruptive forces at play

3. New healthcare delivery models are enabling innovation in patient care

The increase in non-physician healthcare practitioners, the invention of self-diagnostic tools and the emergence of new healthcare delivery models have reduced the dependence on traditional doctors and pushed up access to healthcare, that too at affordable prices.

MIT developed the world's first ever smartphone diagnostic tool for eye testing, Netra, which consists of a USD 2 clip-on plastic lens attachment and an app[5]:

- Far cheaper than traditional equipment

- Easily used by patient without any training

STARTUP PROFILES   PORTEA[4]

Founded: 2013
Problem solved: Affordable and quality healthcare at home
How? Provides nurses, physiotherapists and doctors for home visits in areas of physiotherapy, lab tests, medical equipment, nursing, doctor consultations, vaccinations, post-natal care and care for the elderly.

60,0000
patient visits per month

24 cities in India,
4 in Malaysia

40 hospital
partnerships

Others
- Apollo Homecare
- SughaVazhvu

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4. Big data and advanced analytics could drive decision making

The availability of real-time data and the development of advanced analytical capabilities have had major implications across the healthcare value chain.

Increasing accuracy and efficiency in diagnosis and treatment

IBM Watson[6] can sift through the equivalent of about 1 mn books or ~200 mn pages of data, analyzing information to provide precise responses in under 3 seconds.
Watson's successful diagnosis rate for lung cancer is 90%, compared to 50% for a human doctor.

Improving patient adherence

Problem: People forget to take their medication 25% of the time. Medication non-compliance results in USD 290 bn of increased medical costs per year[7].

Solution: Proteus Digital Health8 launched an ingestible sensor that captures medication-taking patterns and the body's psychological response and behaviours. It uses this information to generate daily reports, send reminders to take medicine, and even send alerts in case of emergencies.
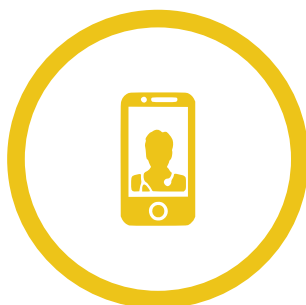
5. Digital technologies are changing commercial models

Digital technologies – ranging from digitally-enabled healthcare delivery to the popularity of digital apps and platforms – are transforming commercial models.

Telemedicine

MedicallHome in Mexico handles 90,000 calls a month and resolves two-thirds of all cases. It offers 24/7 telephone-based healthcare services at affordable prices to people, especially in rural areas, reducing doctor visits[9].

Healthcare apps

My Sugr is a diabetes management app that tracks data and provides personalized advice for its 845,000 registered patients with Type 1 and Type 2 diabetes[10].

Omni-channel communication

Greater mobile penetration and the advent of multiple digital platforms are helping doctors, patients and pharma companies to engage with each other in an integrated way across channels.
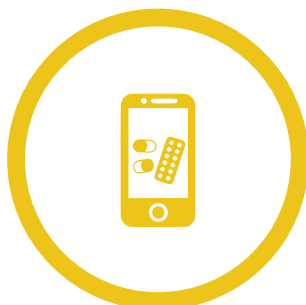
Online pharmacies

58% doctors believe that online pharmacies will be used for fulfilment.* E-pharmacies are not only increasing consumer convenience, but also enabling price transparency by allowing the comparison of different drugs.

STARTUP PROFILES   Practo[11]

Founded: 2009
Problem solved: Doctor discovery and appointment scheduling
How?: Practo Ray-online management system for doctors Practo.com-Search and booking engine for general physicians and specialists

10 mn users
1 lakh+ appointments booked every month
15 countries, 50 cities

"Uber for doctors"
Others
- lybrate
- Welcome cure

"" 60% of doctors are open to pharma companies using digital channels to share information.*

STARTUP PROFILES   1mg[12]

Founded: 2008
Problem solved: Home delivery and price transparency of drugs
How? Users can browse and shop for cheaper generics using the app

1 lakh prescription and OTC drugs
5 mn app downloads

Others
- Netmeds.com
- PharmEasy

6. Non-traditional players are making forays into healthcare

Non-healthcare companies are capitalizing on their existing capabilities and making massive investments in big platforms for digital health and fitness.

Google	• Google Ventures invested 31% of its fund in healthcare in 2015[13] • Google Fit (launched 2014) tracks health • Partnership with Novartis to develop and market **"smart contact lenses"** to help measure blood glucose levels
Apple	• Apple Watch to track wellness and collect biometrics • HealthKit platform available with iPhone, pilot with multiple hospitals
Samsung	• Invested USD 2 bn in biotech, focused on biosimilars[14] • Digital Health Innovation Lab tests new mobile health technologies • Launched two new digital health platforms: Simband and SAMIO • Expanded medical imaging business via portable CT scanners
Canon	• R&D operation with a focus on robotic-assisted surgery, CVD detection, brain imaging, and miniature endoscopy tools

7. Global R&D pipeline shows innovation is expanding

New innovations in R&D such as biologics, gene therapies and targeted therapies – the use of sophisticated technologies is making it easier to understand disease heterogeneity and personalize medicines

Early investors are supporting growth in key treatment areas and technologies – gene/cell therapy, antibodies, bioinformatics, genomics accounted for >USD 7 bn investment between 2013 and 2015[15]

STARTUP PROFILES
Market leader for genomics diagnostics in South Asia

Mapmygenome   Positive BioScience

Medgenome[16]
Founded: 2013
Problem solved: Improve research to personalize medicine
How? Genomics-focused research—decoding genetic information of an individual's genome to better understand diseases. Genomics diagnostics offers more than 100 tests across oncology, cardiology, ophthalmology, neurology and nephrology

Next generation–sequencing based genomic solutions in cancer immunotherapy and diabetes

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8. Shift towards outcome-based healthcare

Healthcare has historically been approached from a product/service point of view with no or limited safeguards against unnecessary procedures and poor care quality.

Decisions are being made using health economics.
Pharma companies are making decisions holistically instead of basing them on individual transactions by considering the cost of treatment instead of the cost per pill.

Payment structures are enabling risk-sharing
Rising healthcare costs have led to the emergence of value-based payment, which offers shared savings between providers and payers. It also incentivizes players to provide higher quality care and be involved in patients' well-being.

Pharma companies are offering beyond-the-pill solutions
The emphasis on patient-centricity is also visible in the actions of pharma companies, which have started focusing on long term outcome–based care as opposed to the previously followed prescription-based push model.

Novartis[17]

Novartis AG signed a performance-based pricing deal with US health insurers Cigna Corp and Aetna Inc. for its new heart drug[11]

J&J[18]

Janssen's Psoriasis app provides tools for tracking and assessing the severity and impact of the disease

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Today, conversations and healthy debates on issues facing our industry and the healthcare system are critical to addressing some of the current challenges and opportunities of the future. Global borders are blurring, and patient-centricity has become the driving force for delivering responsible healthcare. We are committed to working with Government and all other stakeholders towards realizing our collective vision of putting the patient at the centre of all that we do.

- Kanchana TK, Director General, OPPI

"

" …We live in an age in which every moment counts heavily and the price of delay is human lives.

- Vijaya Lakshmi Pandit

"

HEALTHCARE IN INDIA

It's time to "Connect the Dots" across Stakeholders with the Patient at the Center

"Health for all" in India will remain a dream unless every stakeholder comes together to rally behind this vision.

India's Twelfth Five Year Plan articulates a long term vision to achieve Universal Health Coverage. "**Health for All**" is a vision that has the power the unite every stakeholder in the Indian healthcare ecosystem. Yet the reality today is that pharma companies (Indian and multi-national), providers, health care professionals, insurance companies and regulators are all pursuing their individual agendas. There aren't enough examples of the ecosystem collaborating to deliver a step change in patient outcomes. This is a gap, but also a big opportunity.

Five transformational themes are relevant for all stakeholders in the Indian healthcare ecosystem.

Every stakeholder group we engaged with had ideas around what it would take to transform Indian healthcare. Many of these relate to stakeholder specific changes and choices.

For example, the Government must address policy environment challenges that are limiting stakeholder participation. Pharma companies must innovate on their business model to allow them to address the rural/Tier 2 opportunity. Insurance companies must find a sustainable model to broaden coverage. Physicians must find ways to better engage with the patient of today who is more demanding and informed than ever before.

Five cross-cutting themes have the power to unite these diverse agendas and stakeholders. Each theme has the power to mobilize the ecosystem by **"Connecting Stakeholders and Transforming Outcomes"**

Five cross-cutting themes that have the power to unite the ecosystem

Payor

Providers
(hospitals)

Doctors

Pharmacos
(pharma
companies)

Patient

Regulators

1.
Using digital, data and analytics to power access and insights

2.
Leveraging multi-stakeholder partnerships to deliver targeted outcomes

3.
Raising the bar on "quality of care"

4.
Upgrading capabilities across the value chain

5.
Solving for funding efficiency and adequacy

HEALTHCARE IN INDIA

1. Using digital, data and analytics to power access and insights

Why is this relevant for the patient?

Internet access, smartphones and social media have fundamentally changed patient and doctor behaviour

70% of patients with internet access look up symptoms online before meeting doctors*

1 in 20 Google searches are healthcare related[1]

40% of consumers say information they find via social media affects the way they deal with their health[2]

220 million Indians have smartphones[3]

1 in 2 Indian doctors believe a significant proportion of their patients consult "Dr.Google"*

60% of Indian doctors are open to engaging with pharma companies through digital channels*

Technology is transforming diagnostics and home health solutions

Telemedicine offers a solution for both lack of access and lack of manpower

Remote monitoring solutions are playing a big part in **moving healthcare from the hospital to the home**, thus reducing the average length of hospital stay

Patients can measure blood pressure or glucose via smartphone

Wearable devices allow easy monitoring of key health parameters

We have not unleashed the power of data that is already available; advanced analytics is a potential game changer

- Data exists, but it is in silos and not digital, therefore underused
  - Advanced analytics makes it possible to surface **insights using complex and unstructured data sets**

  - **Integration** of data is a big opportunity. **Linking hospitals, pharmacies and laboratories** could save time and costs and enable better decision making

- **Real-world evidence** (e.g., efficacy of a biosimilar on Indian population), **disease surveillance and personalized medicine**– all enabled by big data and analytics

What can we do?

Pharmaco

- Omni-channel doctor engagement to increase reach and frequency
- Social media analytics and insights for patient engagement
- Digital tools for greater patient compliance
- Enhancing rep productivity through analytics; digitally-enabled capability building

Physician & Provider

- Remote consultation
- Appointment scheduling
- Digitalization of data (eRecords)
- Tracking patient flows
- Remote monitoring – home healthcare
- Clinical decision support: Evidence-based medicine

Government

- Linking digital patient records to Aadhaar: A disruptive opportunity from the standpoint of cost, convenience and access to big data

Startup ecosystem
- Online pharmacies
- Diagnostic and monitoring apps

Sanofi

launched a patient support program called Saath7, to help diabetic patients manage their disease appropriately[4]. It includes device demonstration, home counselling, tele-counselling and a messaging service for medication reminders.

Watson's

successful diagnosis rate for lung cancer is 90%, compared to 50% for a human doctor[5]

CellScope[6]

developed an iPhone attachment and app that detects ear infections

2. Leveraging multi-stakeholder partnerships to deliver targeted outcomes
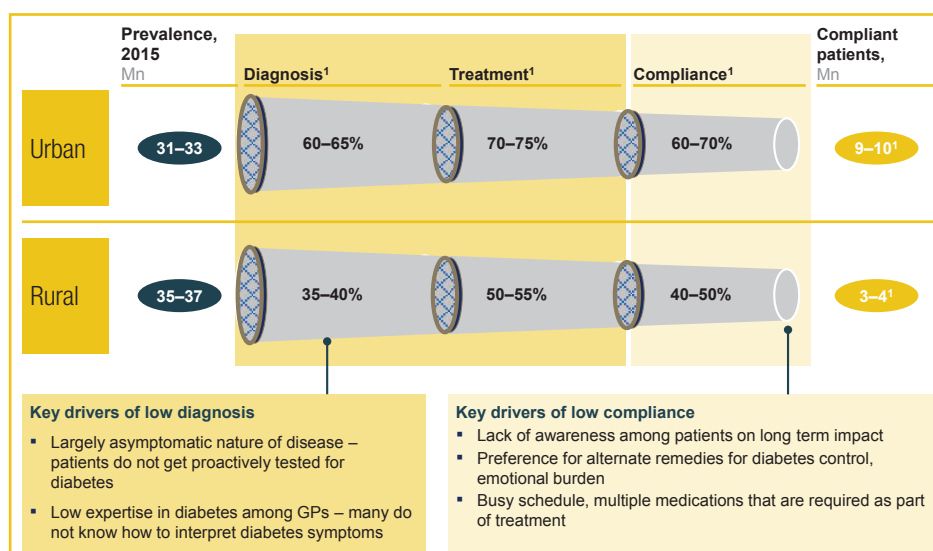
Why is this relevant for the patient?

Gaps exist across the patient funnel in India. Awareness is low, diagnosis is often delayed. Not all diagnosed patients are treated- and even when the right treatment protocol is followed, adherence and compliance is a big concern.

Complex challenges require multi-stakeholder interventions:

Diabetes example

Gaps exist across the patient funnel; no single stakeholder can make a difference to the outcomes

	Prevalence, 2015 Mn	Diagnosis[1]	Treatment[1]	Compliance[1]	Compliant patients, Mn
Urban	31–33	60–65%	70–75%	60–70%	9–10[1]
Rural	35–37	35–40%	50–55%	40–50%	3–4[1]

Key drivers of low diagnosis
- Largely asymptomatic nature of disease – patients do not get proactively tested for diabetes
- Low expertise in diabetes among GPs – many do not know how to interpret diabetes symptoms

Key drivers of low compliance
- Lack of awareness among patients on long term impact
- Preference for alternate remedies for diabetes control, emotional burden
- Busy schedule, multiple medications that are required as part of treatment

2 out of 3 CEOs believe partnerships with central and state governments will be an integral part of their business model going forward*

1 Diagnosis, treatment and compliance rates are based on triangulations of estimates from IDF, primary interviews, databases such as decision resources, disease foundation websites and validated from the evidences from large cohort studies conducted in the country and expert discussions

SOURCE: CBHI; MoH; WHO - burden of disease; Expert interviews; Literature search; IDF; Press search

There is evidence that concerted action works

Polio success story[7]

Stakeholders involved: Government, Pharmacos, NGOs, WHO, and celebrities

- Outcome of a concerted effort spanning awareness creation, availability, monitoring and community engagement
- Government launched the **Pulse Polio Immunization Program** and set up the **National Polio Surveillance Project** with WHO
- Drug suppliers came together to develop affordable, high-quality vaccines at scale
- NGOs, celebrities and government institutions together played a big role in creating mass awareness and providing at-scale administration

What can we possibly do?

Prioritize areas for partnerships

Focus where it matters the most- e.g.

- **NCDs**, cause of 60% deaths in India[8]
- **Upskilling medical talent** e.g, Ayush and Anganwadi doctors, nurses etc.
- Strengthening **primary healthcare** capability and infrastructure

Pilot at the state/district level

- Innovative, India centric models are key given complexity of our health system, And states are often best positioned to drive innovation

> "As State governments get more autonomy in design of programs and their integration across levels of care, there is a real opportunity to innovate"

Design for scalability and sustainability

- Build a strong case of health economics
- Use data to sharply prioritize interventions
- Convene the right stakeholders across the ecosystem
- Emphasis joint accountability
- Set in place a strong governance architecture to monitor impact

AROGYA PARIVAR[9]: Social responsibility meets business growth

- A for-profit social initiative by Novartis to reach rural India's underserved millions
- Awareness creation through patient education on nutrition and hygiene and physician education
- Accessibility through local distributors and health camps in villages
- Affordable medicines and healthcare services close to home to bring down costs
- Outreach has brought health education to 24 million people and direct health benefits to 2.5 million patients in India
- Started as a pilot in 2 states; now scaled up to 11
- Concept replicated in other emerging markets like Kenya and Indonesia

Why is this relevant for the patient?

Much of the dialogue in Indian healthcare centers around access and cost. Yet from a patient perspective, what matters the most finally is likelihood of the desired health outcome. This is where quality of care plays a big role. NHS England defines quality across three simple criteria[10].

- Care that is clinically **effective**
- Care that is **safe**
- Care that **provides as positive an experience for patients as possible**

1. Clinical outcomes

Besides the challenge of spurious drugs, doctors perceive a clear difference in quality and efficacy of medicines made by different companies

> **Many of the smaller drug companies provide medicines of unacceptable quality**

India's provider landscape is incentivized by procedures not outcomes. The biggest beneficiary of a shift to outcomes based incentives will be the patient. Outcomes focus also leads to a greater emphasis on preventive care, early detection and better diagnosis. Which in turn will lower total cost of care

> **Today our focus is on volume of services provided-physician visits, tests, procedures. Patient-centric care will require us to shift focus to patient outcomes.**

2. Clinical safety

Medical errors rank amongst the top 10 killers globally, with 1 in 10 hospital admissions leading to an adverse event[11]

India records over 5.2 million injuries each year due to medical errors and adverse events[12]

Reasons range from errors in medication to hospital acquired infections to faulty equipment, to lack of skills[13]

3. Patient satisfaction

Recent survey of government hospitals indicated a third of patients were not satisfied for various reasons[14]

Indicator	AIIMS	RML	PGIMER
Staff behaviour	46%	45%	45%
Cleanliness	6%	7%	5%
Cost of treatment	7%	8%	6%
Quality of treatment	19%	10%	10%
Other reasons	46%	35%	37%

What can we possibly do?

Government / Regulator

- Consider defining and legitimizing standards for quality across the care spectrum, including provider landscape
- Consider building transparency through accreditation systems that capture both input and output metrics
- Consider consolidating the quality agenda under a common regulatory authority

Payor- private and public

- Offer **financial and non-financial incentives** for better accreditation outcomes, e.g., could offer higher reimbursement for National Accreditation Board for Hospitals and Healthcare providers (NABH) accredited hospitals

Providers

- **Report and continuously monitor** clinical outcomes
- Leverage **technology** to improve data collection
- **Standardize care protocols**
- Bring quality to the top of the agenda; sensitize and train staff

Pharmacos

- Robust **data management** and **documentation**
- **Upskill talent**
- Embed quality into product development and tech transfer
- Build a **culture of quality**

NHS uses quality dashboards to to capture information on outcomes from healthcare providers. This enables them to monitor the quality of services, enable comparisons and monitor improvements[15]

Tiered accreditation models for hospitals using "gold star" or other rating systems are used in countries like Egypt, Brazil and Mexico allowing the best hospitals to advertise their expertise to nationals and international customers[16]

Indian Pharmaceutical Alliance (IPA) has constituted a Quality Forum that is convening leading Indian pharma companies to create targeted guidelines and best practices[17]

4. Upgrading capabilities across the value chain

Why is this relevant for the patient?

Science and technology are advancing rapidly; disease patterns are shifting; the patient context is changing— stakeholders must upgrade their own capabilities to be of relevance to patients

56%* of doctors say their biggest challenge is staying up to date on latest disease and molecule research

" Medical recertification is not mandatory in India. But we need to ensure doctors keep educating themselves **"**

82%* of doctors say there is a significant difference in the quality and capability of sales reps they meet

" Knowledge is superficial; many of the reps I meet cannot answer questions about the product they detail **"**

73%* of pharma CEOs cite "talent gaps" as one of the top 2 challenges they face

" Talent is a real issue for this industry; we struggle to attract people from outside, even when their capabilities are relevant **"**

Private providers cite "lack of medical talent" as one of their top 3 concerns[18].

- 55% of all doctors in India do not have medical qualifications[19]

- India has a medical workforce of 1.9 per 1,000 including doctors, nurses, AYUSH and RMP work force- far below the WHO guide line of 2.5 per 1,000[20]

- Big shortage in specialists for secondary and tertiary care[21]

- At current growth rates, infrastructure will not keep pace with demand. India will end up with a total bed density of around 1.7 to 1.9 beds per 1,000 people against the global average of 2.9[22]

What can we possibly do?

Pharmacos

- Invest in building new capabilities:
  - **Digital** to improve reach and engagement and optimize costs
  - **Analytics** to capture insights from a data-rich value chain
  - **Customer-centricity** is becoming increasingly relevant to differentiate in a crowded market that is over-reliant on "share of voice"
  - **Business development** to collaborate with other pharma companies and tap into the emerging ecosystem of new-age startups

Physician

- **Continuous medical education** to stay abreast of rapid scientific advancements
- **Allopathic training to AYUSH** practitioners
- **Increase in PG seats** in medical colleges
- **Embracing digital disruptions** to serve patients better, e.g., telemedicine, online listing and appointments, patient-education tools

Providers

- **Business model innovations**- capex, equipment usage, doctor models, payment modes
- Leveraging **emerging technologies** for remote management, data collection, connected devices etc
- Evidence-based health protocols

Government

- Consider strengthening PHCs, leveraging technology and partnerships
- Learning from UHC models in other countries to create an India-centric solution

Generation[23]

- More than 75 million young people are unemployed worldwide. But many employers cannot find people with the skills they need for entry-level jobs. Generation was created in 2014 to help bridge this gap, at speed and scale

- The model includes a short but intensive "boot camp" covering the relevant technical, behavioural and mindset skills

- Employer engagement from the start, data tracked throughout

- Active in five countries

SughaVazhvu[24]

- Mission to provide manageable and accessible primary healthcare for the rural Indian population

- Strong technology backbone, focus on training AYUSH practitioners and community-based health workers

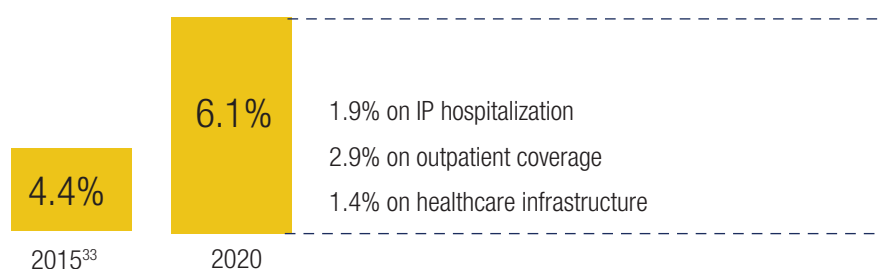- Impacted 5,000+ clinics with 50,000+ patient visits

5. Solving for funding adequacy and efficiency

Why is this relevant for the patient?

At 62%, India has one of the highest out-of-pocket spends in the world[25]. This is not sustainable. In an economic environment of low per-capita income, it is not possible to create access with high out-of-pocket spend.

The ecosystem looks to the government to ensure that funding for healthcare is secured and appropriately deployed. Other stakeholders could also have a big part to play in what could inevitably be a hybrid solution.

Universal coverage will require an increase in health expenditure to 6.1% of GDP[26]

6.1%

4.4%

1.9% on IP hospitalization

2.9% on outpatient coverage

1.4% on healthcare infrastructure

2015[33] 2020

Which implies that government spending will need to move up to at least 3.1% of GDP, a 3x increase[27].

The current draft of the National Health Plan reaffirmed plans to increase the share of government spending from 1% of GDP to 3% by 2025, and introduce some form of universal healthcare coverage. Resources will need to be allocated to make this a reality[28].

Private funding mechanisms will also play an important role

In a hybrid public-private model, private coverage can be supplementary instead of being completely substitutive

> " Investing in public health financing through insurance coverage is important. As is constructively involving the private sector in this journey to maximize their contribution. "

Efficiency of spend remains key in a resource-constrained environment

Upfront investments in preventive and primary care and outcome based incentives will help drive down total care costs. Efficiency of existing public health programs can also be optimized.

What can we possibly do?

Collaborate to transform government provided primary care

PHCs suffer from challenges in reach, infrastructure and a lack of trained medical staff. Delayed diagnoses, misdiagnosis and improper care often culminate in poor outcomes and create a need for more advanced and expensive care. Prioritizing primary healthcare, especially in underserved rural areas, could be the first step in addressing this challenge.

While primary care remains a core focus of the government and the public health system, the private sector can play a role through technology solutions, expertise and support in upskilling healthcare professionals. Strong linkage to the secondary network is also important.

Deliver broad and diversified health insurance coverage for secondary and tertiary care.

As the government's role in secondary and tertiary care shifts from provider to payor, tailored health insurance packages could play an increasingly important role. Outcomes-linked incentives and pooled purchasing could help improve quality and lower costs. Private health insurance schemes can play a supplementary or complementary role by covering new and innovative treatment.

66

More funding is necessary but not sufficient. Funding must be well deployed. And key enablers like monitoring of health outcomes, IT enabled management, targeted capability and capacity building must all be harnessed towards the same aligned goal.

99

Micro-health insurance in action: The **Yeshasvini Cooperative Farmers Health Care Scheme**[29], introduced by the Karnataka government, **is one of the largest self-funded healthcare schemes** in India, with 30 lakh beneficiaries contributing a nominal amount of INR 250 under the rural scheme and INR 710 under the urban scheme annually[30]. They can avail cashless treatment that covers 648 network hospitals and nearly 823 defined surgical procedures.

HEALTHCARE IN INDIA
In conclusion: Where will this lead?

Imagine an India where

No child dies of a disease that could have been prevented by a vaccine

No new mother suffers or dies for lack of basic care

New drug discoveries are made in this country

Every Indian has access to healthcare

While the task ahead is daunting, India's citizens' deserve a better healthcare system. Every stakeholder can do their part in making this dream a reality.

HEALTHCARE IN INDIA
Challenges

> We know that whatever we do is simply a droplet in the ocean. But if that droplet were missing, the ocean would be lacking.

-St. Teresa of Calcutta

Primary healthcare is the backbone of health service delivery. India was one of the first countries to recognize the merits of primary healthcare; long before the 1978 Declaration of Alma-Ata, India adopted a primary healthcare model derived from the recommendations of the Health Survey and Development Committee Report 1946, chaired by Sir Joseph Bhore.

Today, there are over **25,000** primary healthcare centres (PHCs) that provide essential healthcare services across the country. However, delivering quality primary care to large populations is always challenging. Communicable diseases, maternal, perinatal, and nutritional deficiencies continue to be key contributors to mortality.

As the government has acknowledged, the current primary healthcare structure is rigid, making it unable to respond effectively to local realities and needs.   Our nation's diversity requires local adaptation of basic healthcare services and their delivery mechanisms. The challenge confronting us is how best to reform, revitalize, and resource primary health systems to deliver different levels of service aligned to local realities, ensuring universal coverage, equitable access, efficiency and effectiveness, through an empowered cadre of health personnel.

OPPI member companies have supported primary health systems in many countries.

OPPI and its members commit to working with the Government as a knowledge partner to address those challenges that PHCs face related to

- Upgradation of current manpower skills
- Optimizing the use of medicines (including generics)
- Resource planning, disease awareness
- Screening protocols
- Pharmaco-vigilance
- Bringing their global experience to offer solutions for common health system failures

Non-communicable diseases like diabetes, cardiovascular diseases, respiratory disorders and cancers are all rising at an alarming pace. Our healthcare system should be patient-centric. An integrated patient-oriented approach combined with a universal chronic disease management framework is imperative. Restructuring and strengthening healthcare systems has resulted in a decline in the incidence of infectious disease. This provides adequate evidence that the same result is possible for NCDs.

OPPI members fully support the Government's endeavour and initiatives in containing this disease burden and look forward to working with them to achieve India's NCD reduction goals set for 2025 through:

- Convergence with ongoing public health programs for awareness and screening and enhancing multi-sectoral, multi-stakeholder approach and work together to raise awareness on common risk factors affecting the entire community. Conducting mass media campaigns to increase awareness on early diagnosis and primordial prevention of NCDs

- Including awareness and prevention on NCDs as an essential part of school curriculum in order to make a necessary shift in social behavior and begin instilling 'healthy living' as a norm, at a very young age

- Promoting physical activity and healthy eating through "role models"

- Adopting a pre-emptive approach towards awareness, prevention and reduction of NCDs risk factors in the fight against NCDs as it slows or stop the progression of diseases. It is cost-effective and achievable as it targets only those who are at pre-disease stage

Antimicrobial resistance (AMR) has emerged as a significant threat to global health. The problem is so serious that it threatens the achievements of modern medicine; that common infections and minor injuries can kill is a very real possibility for this century.

The hard-won gains made in health and development in India are put at risk by increasing AMR and the sustainability of the public health response to many communicable diseases, including tuberculosis, malaria and HIV/AIDS risks being seriously jeopardized.

In September 2016, and before the United Nations General Assembly (UNGA) High-Level Meeting on AMR, 13 global pharmaceutical companies – including Johnson & Johnson, GSK, Sanofi, Cipla and Wockhardt – presented a roadmap laying out four key commitments they will deliver by 2020 to reduce AMR.

OPPI and its members commit to working with the Government as a knowledge partner to raise public awareness about AMR that will:
- Reduce inappropriate antibiotic use

- Improve surveillance and infection control measures

- Support ongoing research and development into novel antibiotics through financial and regulatory incentives

- Deepen commitments to develop and adopt advanced diagnostics to address over-prescription in patients

*Data based on survey on Indian doctors and CEOs conducted by Mckinsey

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