



Arogya Parivar:

Novartis' BOP Strategy for Healthcare in Rural India

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This case was prepared by Jean Wee, Research Associate, under the supervision of Amitava Chattopadhyay, the GlaxoSmithKline Chaired Professor of Corporate Innovation at INSEAD and Fellow of the Institute on Asian Consumer Insight, Anuj Pasrija, Head of Group Social Business, Novartis, and Olivier Jarry, Managing Partner, 3xBL Triple Bottom Line Consulting as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. All data depicted herewith is for illustrative purposes.

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The Next Big Thing

In his seminal work “The Fortune at the Bottom of the Pyramid” (2005), C.K. Prahalad likened the distribution of wealth and income to a pyramid, with a small number of affluent individuals at the top and a large base made up of the poor in developing countries. Although poor, the bottom of the pyramid (BOP), he argued, was a potentially huge market. Members of the development community such as the World Bank and WHO tended to focus on meeting the needs of the poorest of the poor (the billion people who live on less than \$1 a day), but a larger segment of the low-income population – about 3.8 billion people – who live on \$2 to \$5 a day, could be made the focus of a market-oriented approach (Exhibit 1). They had no bank accounts or access to financial services, no phones, relied on subsistence or the informal sector, and lacked access to basic healthcare. Prahalad argued that businesses could serve these underserved and underprivileged segments without losing money – or even at a profit. Here was a potential opportunity to do well in business while doing good.

The BOP had long been underserved when it came to health care. In many Asian and African countries, where those at the bottom of the pyramid typically faced the double burden of infectious diseases and rising rates of diabetes and cardiovascular disease, there could be a market opportunity in addressing their needs in a way that met both social and commercial goals (see Exhibit 2). Along with reports that several multinational companies like Hindustan Lever and Coca-Cola had been profitably selling their products to low-income populations in emerging markets, such findings convinced the top management at Novartis that it was time to seriously consider the possibility of commercial opportunities among the world’s poor.

Novartis

Headquartered in Basel, Switzerland, Novartis was created in 1996 through the merger of Ciba-Geigy and Sandoz, two companies with a rich and diverse corporate history. In line with its mission to “discover, develop and successfully market innovative products to prevent and cure diseases, to ease suffering and to enhance the quality of life,”¹ Novartis had led the way in bringing many innovative products to market for patients and consumers worldwide.

Although focused solely on healthcare, Novartis offered a diversified portfolio of healthcare solutions that included innovative medicines, generic pharmaceuticals, preventive vaccines, diagnostic tools and consumer health products. In 2005, its products were sold in more than 140 countries, generated revenues of US\$32.2 billion, and it employed some 91,000 people around the world (see Exhibit 3).

Novartis had a strong history of philanthropy and corporate social responsibility and its contributions to fighting leprosy and malaria were regarded as world class among global health stakeholders. But could Novartis reach the underserved in a more scalable and sustainable fashion while pursuing its strategic priorities of innovation and growth? Could a “social business” rather than a philanthropic approach generate both sustainable financial returns and a societal impact? (see Exhibit 4)

1 www.novartis.com/about-novartis/index.shtml

The Concept of Shared Value

There were two ways of looking at BOP markets. With the growth in emerging countries expected to change the pyramid into a diamond thanks to a burgeoning middle class (Exhibit 5), one way to go would be to wait for the economic growth of these countries to catch up with the rest and sell to the affluent. The other way would be to seize the initiative, reach out to underserved segments, and grow the business by seeing the poor as customers but with different needs. Companies planning to enter BOP markets therefore had to re-orient their business models to systematically uncover unmet needs and invent new and better ways to meet them. If they were to make a meaningful impact and attractive returns, they had to do so at scale. In the words of Michael Porter, professor of competitive strategy at Harvard, companies had to change tack and embrace the concept of “shared value”² –

“...creating economic value in a way that also creates value for society by addressing its needs and challenges. Businesses must reconnect company success with social progress. Shared value is not social responsibility, philanthropy, or even sustainability, but a new way to achieve economic success. It is not on the margin of what companies do but at the centre.”

However, there were significant barriers to entry – mostly downstream delivery-based challenges such as missing skills and knowledge, limited market information, ineffectual regulation, inadequate infrastructure, limited access to financial products and services, and limited resources or ability to pay.

Novartis’ senior management gave the nod to investigate BOP opportunities, supported by a simple mandate: To prove that Novartis could sustainably improve access to healthcare for the world’s poor.

Opportunity Knocks, but Where?

Empowered by this directive, a team was assembled to initiate a two-step process: (i) To identify a target country and a market segment with the potential to improve health results for poor people at scale while yielding economic value for the company. (ii) After understanding the needs of the target market, to decide on the specific approach Novartis should take, be it developing a new product/service or strengthening local supply chains.

Emerging markets were being eyed by pharmaceutical companies due to the growing demand for modern medicines from the new middle class at a time when demand in the developed world was slowing. It was predicted that emerging market drug sales would reach US\$400 billion by 2020, equivalent to the revenues currently generated from the US and Europe’s G5 markets combined.³ The obvious places to begin looking for commercially viable BOP opportunities were Brazil, India, Russia and China (or BRIC), along with South Africa and Turkey, as they were the largest and fastest growing emerging markets (see Exhibit 6). India

2 “Creating Shared Value”, Michael E Porter and Mark R Kramer, Harvard Business Review, Jan 2011

3 Source: IMS Health, 2007

was a logical choice⁴ as first priority, given the evident growth potential of the market (see Exhibit 7):

- The volume and density of the population – close to 1.2 billion – of whom 25% lived below the poverty line. A 2007 report by McKinsey had forecast that the Indian pharmaceutical market would triple in size by 2015, from US\$6.5 billion to US\$21 billion. There was also a huge opportunity to have an impact on health as nearly 65% of the population lacked access to medicine.
- The presence of private healthcare – this eliminated the need to work through intermediaries in the government, often a source of red tape.
- An array of products already registered and licensed in India – many of Novartis' products addressed the disease burden.

Furthermore, there had already been some commercially successful BOP projects in India, such as Hindustan Unilever's Project Shakti.⁵

Studying the Indian Healthcare Market

In starting a 'social business', Novartis was tapping into an entirely new market that was markedly different from traditional affluent consumers. While their nutritional and healthcare needs were shared, the poor were more exposed to infectious diseases and their access to healthcare was drastically different. Novartis needed answers to seven key questions:

1. Which poor patients to serve – the poor in urban areas or rural villages?
2. What investment would be required to develop this new customer segment?
3. How its traditional "go-to-market" strategy had to evolve to reach the new segment
4. How to align the new business model with its other business activities without causing conflict or disruption
5. How to manage and staff the new business
6. Could it ever be scalable? (beyond the pilot schemes being run by other pharma companies)
7. Would it be sustainable, i.e. profitable enough to continue expanding?

According to the National Sample Survey Organization in India, about 85 million people were living on \$1 to \$10 per day in urban areas and 435 million in rural areas. For Novartis, it made sense to go where the majority of the potential customers were located. It was also easier to

4 While big, the Chinese market presented significant regulatory pressures, making it difficult for Novartis to scale a country-wide strategy.

5 Hindustan Unilever trained rural women from self-help groups to be their salespeople, using these women as their distribution channel to create awareness and bring consumer goods to remote villages.

start with a “clean slate” in a new territory (i.e., rural areas) for the purpose of measuring performance,⁶ rather than being mixed with its existing lines of business.

To understand whether the company could serve the rural Indian market, however, Novartis needed accurate information about local healthcare consumption patterns, the way patients’ sought treatment, the cultural aspects of healthcare, and existing barriers to entry. According to research published by the World Health Organization (WHO), of an estimated 730 million people in living in rural India, 80% were daily wage workers, many without access to potable water and essential medicines due to the poor state of infrastructure and facilities. Despite the availability of industry reports on local healthcare, their findings were often contradictory. Novartis therefore conducted its own epidemiology⁷ study using Smart Analyst, a company based in Delhi.

India’s Health Infrastructure: the State of Play

Doctor/patient and nurse/patient ratios in India were respectively 0.6 and 0.8 per 1,000, while the number of beds was 1.5 per 1,000 people. Compared to other emerging market averages (e.g., China, Brazil and South Africa, where the ratios were 1.2 doctors, 2.6 nurses, and 4 beds per 1,000) India was underserved. In the developed world, the figures were significantly higher, with as many as 8 beds per 1,000 people in some markets.^{8,9} Moreover, 80% of specialist doctors in India were based in urban areas (leaving rural areas largely deprived of specialist treatment).¹⁰

Access to reliable health care in rural India was limited. The rural population accounted for 70% of the country’s population but less than 20% of total spending on formal healthcare. In terms of the disparity between rural and urban areas, the difference in life expectancy was 12 years longer for urbanites. While the national doctor-patient ratio was 1:1700, the ratio in rural areas was 1:25,000.¹¹ Full-scale hospitals with specialist doctors, pathological laboratories, operating theatre facilities and the like were limited to cities and towns that served as district headquarters.¹²

Beyond these, infrastructure consisted of community health centres (CHC) located in larger Tehsil¹³ towns, primary health centres (PHC) located in block towns,¹⁴ and sub-centres

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- 6 To justify its sustainability and convince management to subsidise the programme before it broke even, Novartis had to measure the performance of its venture from Day 1.
- 7 Epidemiology is the science that studies the patterns, causes, and effects of health and disease conditions in defined populations.
- 8 Gupta, Rajat “A Healthier Future for India”. Retrieved 02-03-2011.
http://www.gken.org/Docs/A%20Healthier%20Future%20for%20India_rajatgupta.pdf
- 9 Nigam, Navin Chandra “India Healthcare Reform: A Much Needed Prescription”.
http://www.asianhbm.com/healthcare_management/indian-healthcare-reforms.htm, Retrieved 02-03-2011.
- 10 http://en.wikipedia.org/wiki/Healthcare_in_India. Retrieved 02-03-2011.
- 11 Economic Survey of India (2007-2008)
- 12 India is divided into 28 states and 7 union territories, which are further subdivided into 629 districts of differing sizes and population. Each district has a district headquarter city/town that acts as the administrative centre for the district, with about 100,000 in population.
- 13 Districts are subdivided into tehsil towns or county, encompassing 200-600 villages.
- 14 In some states, tehsils are divided into blocks.

located in villages of over 5,000 people (see Exhibit 8). CHCs were primarily staffed by three specialist doctors as well as general practitioners, a nurse and a pharmacist, and had pathological lab and maternity facilities. One CHC served about 120,000 people. There was one PHC for every 30,000 people, and PHCs were staffed by a full-time general physician, nurse, laboratory technician, and pharmacist. Sub-centres catered to up to 10,000 and were staffed by a full-time auxiliary nurse midwife (ANM) (see Exhibit 9) and a multi-purpose health worker (MPW or MPHW).¹⁵ These sub-centres received scheduled regular doctor visits.

Programmes like polio vaccination, eye check-ups and adolescent nutrition were planned and executed by CHCs and PHCs, which also included 'health camps'. Patients at CHC/PHCs normally came from villages within a 10-15km radius, while sub-centre patients came from three or four villages in the vicinity. At the CHC/PHC/District Hospital, patients were usually referred cases, and in most instances were admitted as emergency cases.

Rural medical practitioners (RMPs) made up a significant component of the medical infrastructure in rural areas. They had often graduated in alternative medicine (ayurveda, homeopathy and Unani),¹⁶ or were not qualified.¹⁷ Unqualified practitioners had mostly achieved grade 12 education but were not formally trained in health services. Many had served as assistants to city doctors and had started up their own practice in villages. RMPs relied on basic equipment such as a thermometer, stethoscope and a blood pressure (BP) instrument. They did not charge fees for the consultation but for the treatment. Their income thus came from dispensing medicine. While villagers were aware of the limited knowledge of RMPs, they found them accessible, affordable and available. There were usually two to three established practitioners in villages over 5,000 people, and one or two in villages of 2,000 to 5,000 people. Although only qualified to treat ailments like colds, coughs, fever and diarrhoea, they were often required to treat tuberculosis (TB) or HIV/AIDs.

When the ailment went beyond their ability, some (but not all) RMPs helped their patients to get to a PHC. In such cases, villagers paid to transport themselves and the RMP – the RMP was a source of confidence and comfort to the villager in that he could help to get things done, such as tests at a diagnostic centre or pathology laboratory.

Aside from RMPs, another popular source of medical help were chemists (pharmacists). Few villages had a chemist. Only larger villages located near a highway had one. Most chemists dispensed on prescription but some dispensed medicines relying on their experience, even giving out low-level antibiotics. Unlike RMPs, however, chemists would not leave the retail

15 MPW or MPHW is a trained male nurse who is involved in health programmes of the government like malaria, tuberculosis, polio, and hepatitis.

16 Ayurveda, traditional Hindu medicine, is native to the Indian subcontinent and a form of alternative medicine. Homeopathy treats patients with highly diluted substances with the aim of triggering the body's natural system of healing. Unani-tibb means "Greek Medicine", and is widely practiced in South Asia. It refers to the tradition of Graeco-Arabic medicine, based on the teachings of Greek physician Hippocrates and Roman physician Galen, and developed into an elaborate medical system by Arab and Persian physicians based on the concept of the four humours: phlegm, blood, yellow bile and black bile.

17 Graduates in alternative medicine can legally practice homeopathy, ayurvedic or Unani. They are not supposed to practice allopathy i.e. conventional Western medicine, but most do, even though it is illegal to do so without a degree.

outlet to give advice to those in need. Many village grocery stores stocked general drugs like analgesics, vitamins, paracetamol, diclofenac,¹⁸ and even some antibiotics.

Less popular were the qualified doctors who started their own clinics or nursing home in small towns. Some of these were retired doctors from the PHC/CHC system, while others were practicing in government hospitals and moonlighting. Their patients came from the small towns and surrounding villages, and were referred by the village RMP, most of whom had tie-ups with these clinics. Charges ranged from Rs.100 to Rs.300, depending on the type of ailment.¹⁹ Most clinics had a pharmacy within or supported a medicine store in the neighbourhood. Although aware that doctors in nursing homes were qualified, patients found the fees high and preferred to consult the local RMP, especially when going to a qualified doctor out of the village meant losing a day's pay (Rs.100 or more) and covering the cost of transportation (up to Rs.100). Government hospitals were often short staffed and the doctor might not be available, so the effort and expense of getting there were wasted. Furthermore, leaving the village for treatment often created a social stigma, for which villagers were ostracised.

With a greater understanding of the workings of rural healthcare in India, Novartis now had to decide how to proceed. There was clearly potential as it already had a portfolio of products to treat the most prevalent medical conditions/ailments among rural BOP consumers. But in the absence of qualified doctors – most medicines required a prescription from a certified physician for compliance reasons – its traditional business model (marketing medicines to physicians and via the mass media) could not work.

Management also realised that RMPs – whom Novartis initially planned to exclude from any programme as “unqualified” to dispense medicine – could become a critical stumbling block if they were antagonized, since they were often a pillar of the community. Conversely, they could become allies if they were involved in awareness creation and monitoring patients. Lastly, because the target customers were daily wage earners, Novartis could not sell multiple days' worth of treatment (as was standard practice in traditional markets).²⁰

Health-Seeking Behaviours among the Rural Poor

To study the behaviour of potential patients on the ground, Novartis chose four representative states: two states with the poorest rural health infrastructure (Rajasthan and Uttar Pradesh), one each with moderate infrastructure (Maharashtra), and one good (Andhra Pradesh) rural health infrastructure. The study took an ethnographic²¹ approach, encompassing a broad set of respondents that included male patients belonging to the R2/R3 socio-economic class (SEC) (see Exhibit 10) who had suffered/were suffering from health disorders which they thought were difficult to deal with (TB, diarrhoea, and malaria); females who had or were having

18 Used for body ache and fever.

19 In early 2011, the exchange rate of the Indian Rupee to the dollar and euro was approximately Rs. 45 and Rs. 62 respectively.

20 This turned out to be less of an issue – in practice, the pharmacists/chemists dispensed drugs in small, affordable quantities (although this was illegal in most cases as a split package did not contain the required medical information).

21 The systematic study of people and their culture using data collection methods meant to capture the social meanings and ordinary activities of people in naturally occurring settings.

issues related to pre- and post-natal health including child nutrition; RMPs; auxiliary nurse midwives (ANM); angan wadi workers (AWW); chemists; and medical practitioners. The objective was to uncover 'pain points' in the system and understand their cause and effect.

The research revealed that, by and large, seeking medical care from a practitioner was a last resort, only used once the situation became unbearable. Until then, a variety of traditional herbal remedies prepared at home were used. Men controlled the purse strings and decisions about who could be consulted for treatment or when a patient could be taken to a doctor in town. Getting treatment for children's ailments was a family priority but adults could not expect similar attention/urgency – wage-earners taking precedence, while older people and women were lower in priority. In most households, men were responsible for the logistics if a patient had to be taken to a clinic or hospital in town (often with the loss of a day's pay).

ANMs (for women) and RMPs were generally the first healthcare touchpoint, as there were no doctors in most villages and villagers had difficulty understanding healthcare facilities in town. RMPs usually checked for symptoms in patients and dispensed medicines, rarely sending them for diagnostic tests (which therefore were not seen as important). Treatment decisions were also influenced by people outside the nuclear family²² – ailments were the subject of wide discussion and the advice of educated neighbours was valued. If a patient failed to get well, s/he might then be referred to a clinic, by which time their health would usually have deteriorated and the patient weakened. Different types of doctors – those with a Bachelor of Medicine (MBBS), homeopaths, ayurvedic and RMPs – were not clearly differentiated in the minds of the rural BOP population.

Treatments that were of short duration, provided quick relief and were inexpensive (see Exhibit 11) were considered 'good'. In general, BOP consumers perceived injections as more effective, providing immediate relief, thus enabling them to resume work. They did not cause upset stomachs, as tablets were perceived to do, and only needed to be taken once a day. Medication in syrup form was preferred for children. However, syrup when recommended for women was considered serious, which made intake more regular. Consequently, in line with patient preferences, tablets were prescribed for adults and syrups for children, with injections being recommended for seriously ill patients.

Practitioners in rural areas had their own criteria of efficacy, economy and reliability for prescribing brands. Price was an important concern as the bulk of their customers were from the BOP segment. Efficacy was also an important criterion – medicines were trial-tested before being regularly prescribed as providing quick relief was key to building and maintaining a strong practice. Health providers in Uttar Pradesh and Rajasthan were also found to promote local brands due to better margins.

Most health practitioners stocked medicines and other requirements on a weekly or bi-weekly basis from nearby towns, and stocks were typically obtained from wholesalers. However, in Maharashtra and Andhra Pradesh, where the infrastructure was better, medical representatives (mostly from Indian companies) had reached out to rural areas and were updating doctors with new product offerings.

22 Neighbours were usually cousins or extended family members.

Nonetheless, patients were not knowledgeable about the companies that produced the medicines or their brands. At best, they were aware of the largest players like Glaxo, Ranbaxy and Cipla. (There was some awareness of Sandoz, the generic arm of Novartis, through the calcium supplement Calcium Sandoz, but virtually no knowledge of Novartis). While there were some differences across regions, due to low literacy levels many patients were unsure if the medicine bought was the same as that prescribed. If medicine was expensive, less than the full dose prescribed would be bought, as patients could not afford the complete prescription. Some patients even returned medicines to the chemist once they felt better, even if the prescribed treatment had not been completed. Others, such as more aware males from SEC R2 households, bought medicines without a prescription – mainly analgesics and anti-inflammatories like Combiflam and Crocin.

Medical expenses were paid from one's savings or, if needed, with loans from friends and relatives. These were normally interest-free as it was not socially acceptable to charge interest on such loans. Other informal forms of support included doctors giving samples to poor patients and credit extended by healthcare providers (RMPs, chemist stores) to regular patients. Banks did not provide financing for medical treatment due to the absence of proper medical facilities in rural areas. There was little awareness of health insurance policies, and as a result low penetration of insurance in rural areas. Hence out-of-pocket costs were high²³ and often resulted in debts being incurred or assets being sold to raise cash.

A Focus on TB

The results of the ethnographic research suggested that Novartis was not a recognized name among consumers. Nutrition and allergy products were not known or prescribed by health service providers, and therefore not consumed in households. The study also highlighted that while fever, mother/child nutrition and allergies were common, they were not considered serious ailments.

Families were usually most concerned for young men, especially the chief wage earner whose health affected the income of the household. The most serious ailment among men was TB, which made them too weak to work. The Directly Observed Treatment – Short Course (DOTS) programme, recommended by the WHO and run by the government, offered free treatment for TB, including medicine. The treatment was designed to monitor medicine consumption and completion, but the process was cumbersome and rural patients were generally ignorant of the procedures, particularly less literate patients who tended to perceive the programme as inaccessible, non-transparent and inefficient. Again, there were indirect costs as rural patients had to get to a hospital every two days, yet often ended up not being able to see the doctor or receive their medicine, despite the loss of a day's pay, cost of transportation and the related social stigma. Hence rarely did these BOP consumers benefit from the programme. Some tried to access private services but found the cost prohibitive. Among women, the major issues were infertility, miscarriage, and urinary/reproductive tract infections, as well as TB (see Exhibit 12).

23 According to national estimates in recent years, private expenditures on healthcare in India were about Rs.1,650 billion, of which 99% was out-of-pocket (Central Statistical Organisation, 2004).

For Novartis, TB was a good entry point to the Indian BOP market as the country accounted for 23% of the world's TB cases and few Indians had access to appropriate treatment services. The price of TB drugs was controlled in India, and was thus affordable for target consumers if they had access to them. The treatment period was at least six months and could be extended to 18 months in the case of a relapse or other complications, making it a long-term treatment that would generate revenue. Furthermore, Sandoz was number one for TB medicines in India and globally. In fact it already had an existing corporate social responsibility (CSR) initiative on TB in India, which could be easily transformed into a sustainable model for Novartis. The fact that the poor were already paying for – but not getting – appropriate services provided an opportunity for setting up a sustainable business (as opposed to a subsidy-based model).

A critical first challenge for Novartis would be to build awareness of the symptoms of TB, the diagnostic tests required, the treatment needed, the specific drugs in its portfolio to be used, the expected outcome, and the physicians capable of offering proper treatment and follow-up. Given the lack of literacy and sense of mistrust that prevailed, its efforts needed to come through some interpersonal mechanism with individuals embedded within the community who would be trusted. And it all had to be done with the cost constraints of the villagers in mind, which would limit the maximum amount that could be spent on the programme.

A second challenge was how to make the programme available and accessible, i.e., to identify doctors within reasonable distance who were capable of diagnosing, treating and following up, as well as diagnostic centres, laboratories where tests could be run, as well as pharmacists who were conveniently located and could carry adequate stocks of the required medications. Novartis' existing distribution network in India was focused exclusively on urban areas so it had to configure the 'last-mile' to reach rural patients. The chemists/pharmacists would have to reassure patients that they were getting the medicine prescribed by the doctor.

Thirdly, Novartis had to make it affordable for patients. Although the DOTS programme was free, there was a cost to patients if diagnostic equipment failed to function or medicines were unavailable, along with the indirect cost of loss of income and travel. While patients were willing to (and often did) pay, treatment at private clinics could cost from Rs.10,000 to 15,000 (Exhibit 13) was beyond the reach of most R2/R3 consumers. Oddly, patients were often misinformed about the total treatment cost and believed it to be much higher than the actual cost (hence avoided seeking treatment). Novartis needed to correct this perception and make patients realize that treatment was affordable.

It also needed to encourage 'health-seeking behaviour' – i.e., prompt BOP patients to look for medical help. Besides TB, conditions including malnutrition, iron deficiency and diabetes were common, but in the absence of health education in rural communities, they often did not recognize the symptoms and failed to consult a doctor (due to the cost and time involved) until these became severe.

A Plan of Action

In thinking about the direction to take, Novartis had to keep in mind that BOP consumers did not like leaving the village or going far afield. Yet its 'reach' did not extend beyond the district HQ level (population around 100,000), unlike domestic Indian players Lupin, Cadilla, Ranbaxy and others, which already had distribution access in smaller towns.

GlaxoSmithKline, Sanofi-Aventis and a number of local players such as Piramal occasionally ran patient contact programmes in rural areas, but generally it was just medical representatives (MR) visiting health service providers to brief them about the firm's products/brands and seek prescription support. In any case, it was illegal for MRs or any pharmaceutical employee to engage patients directly with the products or make patients aware of the need to seek early and complete treatment. Putting more MRs in the field to reach doctors practicing in small towns and more remote locations was a possibility, but it would not address the patient behaviour issues identified by Novartis. A different approach was needed:

- Novartis could create a team within the company to be health educators (HEs), who would go around the villages, create awareness, identify households with patients, educate them about TB and other infections, convince them of the reliability of paid services for treatment, handhold them through the treatment process and ensure that the patient be completely cured in the process. However, this raised cost issues and, more importantly, compliance issues.
- Another way would be to outsource the work of HEs to independent local entrepreneurs, organized into a network of cells to cover certain distances. Novartis considered various structures for the cells. For example, it started with one low-qualified supervisor and many aides per cell, but found it more effective to have smaller teams per cell (three people per cell) that were more qualified and ambitious.
- It also considered partnering with other pharmaceutical companies to enlarge the drug portfolio, as well as partnering with non-pharmaceutical companies (such as Hindustan Unilever, Pepsi/Frito, Mahindra, Tata, etc.) to tap the distribution channels they had built up over the years.

While the need was clear, Novartis had to be sure the numbers made sense. To figure out the return on investment (ROI), Novartis multiplied the per capita spend on health care by the number of people in the target market, then mapped the results to its disease therapies. This helped estimate the need and the potential market size. It also looked at costs – what sort of fixed and variable costs the company would incur, and what kinds of economies of scale were required to cover the cost? The most important metric of all was if and when the company would break even. Financial modelling showed that Novartis could expect to break even in around 60 months.²⁴

Besides looking at its products and surrounding customer support structures, there were internal business management issues to settle. Novartis had to decide who in the company would be responsible for managing this seemingly risky venture. Novartis' affiliates in India expressed concern about any new approach which could potentially impact their short-term financial results; they wanted to continue to invest in their traditional business lines.

After completing a thorough analysis, the Novartis team decided that the rural healthcare market in India could be a sustainable business – a potentially \$6 billion business opportunity for the pharmaceutical industry, as well as improving health outcomes for hundreds of millions of poor people.

24 Source: Novartis

The Pilot Programmes

Based on the research input described above, the team at Novartis decided to go ahead with three pilot programmes in the states of Maharashtra and UP in January 2007. With this, Arogya Parivar ('Healthy Family' in Hindi) started as an outsourced, separately managed unit that operated independently of Novartis' other more traditional lines of business, relying mainly on external services that were independent from the mother company.

The first thing Novartis had to do was to find a partner to which it could outsource the recruitment and management of the health educators (HEs). It had to find a partner who could understand its business model, recruit and manage the right people, and in total compliance with the multiple laws and regulations applicable to pharmaceutical companies in India. Given the start-up nature of Arogya Parivar, it was also important that the partner could leverage its own infrastructure to run the operation e.g. paying employees on their personal debit card/cash cards instead of via a bank account. Novartis also needed the partner to deliver clear performance reports, able to adapt to any evolution in its thinking, and able to understand Novartis' rules for scalability.

Its initial attempt to work via the Contract Sales Organizations (CSOs) commonly used by pharmaceutical companies did not pan out as they could not think beyond the traditional pharma model of MRs visiting doctors to "push" their drugs. After considering many companies, Novartis decided to work with Teamlease, a local recruitment agency, to recruit HEs with the following criteria: (1) an education level from 10th grade to 2-3 years of university, preferably in biology or healthcare, and (2) a character with the energy and desire to assist rural development and courage to resist harsh conditions.

Through Teamlease, Arogya Parivar recruited roughly a third of HEs made up of "pharma-like" people who understood compliance and the science behind the drugs but who were often less commercially creative and energetic; a third made up of consumer goods people who were good for commercial energy and understanding the rural consumer but who needed to be trained for science and compliance; and the remaining third from NGOs who were strong on compassion with populations and understanding health issues but needed training in commercial aggressiveness and compliance. The resulting mix worked well to achieve what Arogya Parivar set out to do.

The HEs were trained in TB, nutrition, allergies and infections so that they could give sound advice. Arogya Parivar's main aim was to create awareness of these diseases and the existence of treatment so that people could get screened and diagnosed if they had any concerns. HEs were tasked to create awareness of the Arogya umbrella programme and the availability of services – doctors, diagnostics and chemists – as well as increase the programme's acceptance. They also had to help spread the news about the affordability of treatments such as TB treatments.²⁵ However, they were not allowed to recommend drugs,

25 Novartis provided TB medicines at the price mandated by the government and tried to design a complete service around it while maintaining total cost as low as possible. Depending on the seriousness of the case, there were many variables to the cost of treatment, but overall, Novartis tried to establish the minimal cost to address TB for the easy cases at Rs 3,000 (6 months, including drugs, some doctor visits, some RMP monitoring, some tests). Effectively, Novartis sold the drugs at the maximum price allowed by government price controls, and the margins earned were used to pay for the awareness and education programmes.

brands or products, and could only refer potential patients to doctors that were on the programme using a doctor referral card with a serial code number. The HEs were paid the national average minimum wage (around US\$120 per month),²⁶ excluding travel expenses, with no marketing or sales targets. Their job was purely to inform.

In the beginning, the HEs targeted community meetings, e.g. where an ANM was conducting an immunization programme, a self-help meeting or a meeting at a choupal²⁷ regarding village matters, which they would attend and then use the audience to talk about the symptoms of TB, the cure, and the Arogya Parivar programme. Initially these had between 20 and 40 participants but as the programme gained traction, community meetings were organized by the HE with both men and women to educate local communities (and particularly women) about health care issues like nutrition, hygiene, disease prevention and symptom recognition.

To cater to local preferences and cultural biases, education topics and programming, as well as the form of delivery, were adapted by the HE to match local preferences, so as to increase acceptance. Community meetings with men were organized in high schools or the panchayat bhawan (council building), while women were accessed through self-help groups or with the help of the anganwadi worker. In a day, the HE would conduct at least four group meetings in two villages, distributing advisory leaflets on healthcare. (Exhibit 14 shows how Arogya Parivar worked on the ground). During these group meetings, people who had questions or were seeking medical help would approach the HEs and discuss the options available, often without privacy in the meeting place. At first, the HEs kept detailed registers of everyone they talked to, but the practice stopped after a while as it created logistical as well as privacy issues.²⁸ However, the recommendation of doctors was retained as it was important to the proper administration of drugs.

On the distribution side, Arogya Parivar worked to develop a network of doctors to take on patients, as well as a network of chemists/pharmacists to stock relevant products using sales supervisors (SSs), who were responsible for doctor education, pharmacy distribution, and organizing health camps with the HEs. They talked to doctors, diagnostic centres and chemists about the programme, the potential patients that might come from the health camps, and the importance of giving them the right medicines. SSs were careful to tell doctors that there were no restrictions on the drugs to prescribe, (i.e., they need not use Novartis drugs). To ensure that there was no push back from the government or government doctors, Arogya

These programmes represented half of the treatment costs. <<For more difficult cases, the patient would be informed>> of what the total cost and duration of the treatment would be. [Hopefully the patient would be informed in all cases, not just in the more difficult ones.]

26 The minimum wage rate varied by state and the figure of US\$120 is the average of the minimum wage across all states.

27 Village meeting place

28 In the beginning, for those who contacted them after such community meetings, the HE would explain to the patient and family that they were there to help them get full treatment, and would engage with the patient and the whole family to explain the process, the cost, etc., and get buy in; at no point in this process was the DOTS program criticized. Once there was buy in, the HE recorded the details of the case and the patient was advised to meet a specialist doctor in the local area for treatment. The name and contact number of the doctor would be stated, so that the family could make enquiries and develop trust. The registration card/referral card prepared by the HE was in the form of a leaflet so that information about the ailment was contained within it, and results could be tracked. Arrangements were also made to go for an initial test, which normally cost Rs.30.

Parivar also contacted government doctors and told them about the programme, all the while making sure that there was no criticism of the DOTS programme.

Challenges

Novartis initially underestimated the extent to which infrastructure issues would impede growth. Creating awareness from scratch was difficult. Arogya Parivar had to consider the media to use for outreach. One of the initial attempts to create a buzz was the use of branded audio-visual (A/V) vans. Arogya Parivar tried it out using a Tata Tempo Traveller 407 with A/V equipment and an inverter to provide electricity, which would ferry a couple of HEs, a driver and a support staff. However, the cost and the constraints of pavements being too narrow to reach the heart of the villages meant that it had to scale down to a smaller family-passenger carrier like a Maruti 800 van. The van would travel some 50-60kms a day, targeting select villages in UP in the operation area of each HE, attracting an audience of 500 or more. Promotion activities with groups of men and women included handing out Sandoz chewable calcium tablets for women. Enquiries generated during the campaign were passed to the HE for follow-up. However, at US\$80-100 a day, the van was expensive and resource-intensive. Arogya Parivar had to consider other methods to engage with villagers.

One alternative was to collaborate with other organizations²⁹ with vans already going around. While this reduced the cost, one concern with this option was how much time allocation would Arogya Parivar's message get and when (during the A/V presentation) it would appear relative to the other party's messaging. Another method they considered was to put on a 15-minute street theatre (*nukkad natak*) using local village actors to deliver Arogya Parivar's message. This was a cheaper method as the actors cost about US\$15-US\$17, but there were some constraints. First, there was no standardisation or consistency as the actors had a tendency to improvise despite training; secondly, they did not like to travel and were unable to commit to more days as they had their own businesses to run. This could be resolved by making a video clip of the *nukkad natak*, but there was still the problem of getting the A/V equipment around to screen the clips, as the HE could not possibly lug around a TV, a player and an electricity inverter without risk to the equipment or even to his personal safety (without the van). A third option was to tap the public-speaking skills of the HEs through story telling. However, this option would rely heavily on their willingness to follow the standard script. One way to reduce this dependence was to use illustrations to accompany the speeches. When Arogya Parivar looked into the possibility, it seemed feasible to construct a kit that could be packaged in a carrying tube the size of a small golf bag, comprising a frame and B3-sized beautiful pictures that followed a standardized script.

A decision needed to be made as to whether to scale up the vans alone or in partnership, or go with one of the other options under consideration. As a short-term measure, to build awareness and to expand health care access, Arogya Parivar held health camps, bringing doctors into rural areas. The doctors provided health checks and would refer the patients to

29 The vans – about 3 of them – were used mainly in Maharashtra where Arogya Parivar had a good alliance with small hospital chains that already had such vans for their own health camps or non-profit activities. Arogya Parivar had also tried to hitch a ride with Novartis Animal Health which had vans going around visiting farms and selling products from the vans, by putting some HEs on board, but it was not very efficient for either party.

other doctors if necessary. They were not incentivized or obliged to use Novartis products and were free to prescribe the medicines they believed were most appropriate.

The unreliability of the supply chain also had a negative impact on patients' trust in the system and willingness to continue with the treatment, making adherence to the treatment regime an on-going challenge, particularly when education about compliance was lacking. As it was fundamental to the treatment of diseases such as TB, at some point HEs suggested to the physicians that they ask patients to "pledge" to follow instructions precisely. Nonetheless, it remained a struggle to educate patients and even the doctors. Often, patients wanted to stop the medication once they felt better, and doctors would let them, telling them to come back if they fell sick again.

To improve supply chain reliability, Arogya Parivar had to figure out how to improve last-mile availability. There were four options: 1) let Novartis build a direct distribution network to the small villages; 2) use HEs as deliverymen; 3) appoint NGOs as secondary distributors; or 4) motivate existing distributors to help. Each option had its pros and cons.

There were industry restrictions on Novartis to increase the number of distributors – this would require formal approval from the industry association. Given that distributors were part of the association, obtaining permission would be difficult if not impossible, as existing distributors would likely oppose such a request. Furthermore, it might not be efficient for Novartis to expand its own distribution given the current scale.

The second option, using HEs as deliverymen, had legal as well as ethical constraints. HEs were not supposed to distribute drugs, as it could be seen as being involved in selling drugs directly to consumers, which was illegal. Even if they could act as deliverymen, Novartis required drug distribution to be done by qualified pharmacists due to quality issues (e.g., keeping drugs at the correct temperature etc.).

As for partnering with NGOs, they were often not allowed to sell products; and even if and when they could, they were not supposed to make a profit if they wanted to retain their non-profit status.

The last option required motivating existing distributors to extend their network. One idea was to create customized journey plans, replenishment cycles (e.g., number of days before replenishment of stock) and aggregation points (a central point to deliver the supplies) for each distributor and show them the increased revenues possible with a minimal increase in delivery costs through optimized routing and aggregated bulk-order delivery scheduling, along with their existing orders (from other drug companies).

To reach out to rural women, it was essential to get female HEs. Arogya Parivar thought of recruiting an all-female workforce, but few females were educated, and those who were tended to live in urban areas and were typically unwilling to relocate. There were also safety issues, so some were unwilling to travel or wanted to return to their homes during daylight hours, requiring them to finish work by 3pm. As a result, Arogya had to settle for 30-40% female workforce and 60-70% male workers. This worked to some extent, but when it came to addressing specific female health problems, using male HEs became awkward. Once a male HE started talking about female-specific health issues, the audience would gradually melt away till no one was left (80% of these talks were attended by women).

Arogya Parivar had to find some way of recruiting more female help. One possibility was to tap self-help women's groups like Accredited Social Health Activists (ASHA). These were health workers that were already in the community as part of the Indian government's National Rural Health Mission (NRHM) to improve healthcare in rural India. ASHA members were local women trained by the Ministry of Health and Family Welfare to be health educators and promoters in their communities. As they shared similar social goals, Arogya Parivar believed that the ASHA women might be willing to help. Aside from shared goals, Arogya Parivar often tapped ASHA women as a source for recruiting HEs, so there was already a spirit of collaboration and Arogya Parivar provided complementary strengths to their existing programmes with its network of doctors, pharmacists, information/knowledge etc. Using ASHA women to team up and talk about women's health issues (where only male HEs were available) was one possible way round the problem of insufficient female HEs. Other options included working with anganwadi workers already embedded in the community, and alliances with NGOs, both local and global, to carry its message. NGOs, however, were often leery of for-profit companies, particularly "Big Pharma".³⁰ Finding one that shared similar missions and goals was not easy.

With the rural poor, affordability was a major consideration. Many Novartis drugs were simply out of reach price-wise. To make them affordable, ideally Novartis would need to make the same product with the same quality but cheaper. However, this could result in urban patients buying the cheaper drugs in rural areas. Traditional business units selling in the city areas would object to the cannibalisation of their market. Another way would be to repackage drugs into smaller units, a tactic commonly employed by the fast moving consumer group (FMCG) market such as cigarettes,³¹ with similar quality and margins as those sold in the cities. While ethically it would have been impossible for the margin to be higher (as for cigarettes), a similar margin would be required to enable Arogya Parivar to break even at some point, as the business model was actually more expensive "per pill" compared to the urban one, due to the distribution issue highlighted above. Unlike FMCG items, there was a limit to how small the units could go, as there was a trade-off between affordability and adherence. For example, selling a 10-tablet pack (for a complete cure) would force the patient to finish them, but if repackaged as a 1- or 2-tablet pack, the patient might stop the treatment once s/he felt better to reduce out-of-pocket expense. A third option would be to produce a separate brand³² specifically for the BOP market, marketed and distributed only in rural areas at lower prices and thinner margins, which could potentially sell huge volumes without cannibalization.

Changing local beliefs and habits associated with healthcare services was another uphill task. It was essential not to criticize or pour scorn on village practices – which would lead to instant

30 Arogya worked with a couple of NGOs which shared its goal and mission, such as Population Services International (PSI), which had hundreds of educators going around. As part of the pilot stage, during the PSI educators' "downtime" when donors move to other topics and their workload was low, Arogya Parivar would "borrow" these educators, train them and compensate them as third parties. Another NGO that Arogya Parivar worked with was AED-POUZN, promoting the usage of zinc for diarrhoea using an ayurvedic version of zinc that Novartis created (as zinc was a prescription product in India and not easily available) that could be distributed more freely as an over-the-counter drug rather than prescription.

31 Tobacco companies would sell them by per stick instead of the usual per pack, at a higher margin.

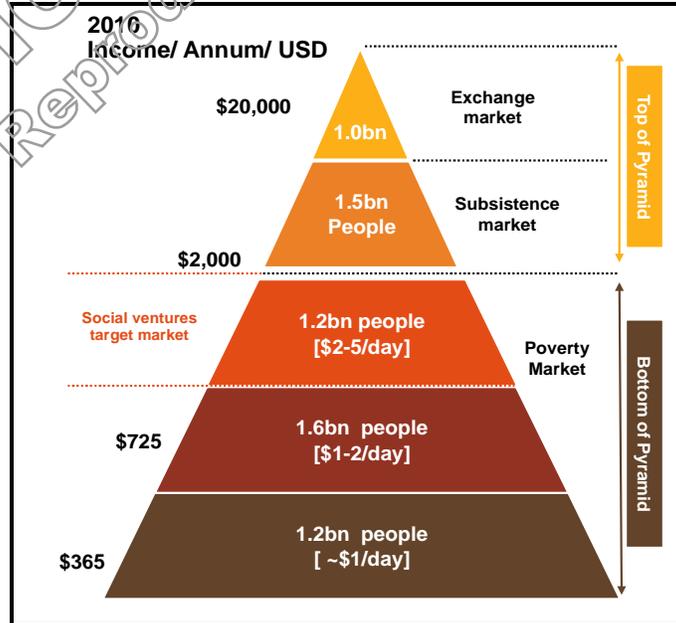
32 i.e. a different range of medicines dedicated to meet BOP needs. Novartis' existing range met only about 20-25% of the BOP need, whereas a new dedicated range (with new molecules) might be able to treat 60-70% of their diseases.

alienation – and employ more subtle methods. One possibility was to suggest the correct therapy on top of the village practices, although such an approach was not strictly ethical. Another was to use “infotainment” such as Bollywood-style videos, with heroes and villains creating comic relief while endorsing good healthcare practices.³³ Getting advocates – Bollywood heroes, national heroes, or even local village heroes like the headman, headmaster, or postmaster – was another potential avenue for increasing buy-in, as villagers were likely to listen to their advice. A similar avenue could be to make the drugs more acceptable by changing to a more familiar “liquorish” flavour or packaging calcium tablets for children in more cute pill bottles that they would be drawn to.

Which direction(s) should Arogya Parivar take?

33 One example was a hero being stronger because he consumed calcium, and so able to defeat opponents.

Exhibit 1
Bottom of the Pyramid



Source: Novartis

NB: Top of the Pyramid people would be earning \$55/day (Exchange market), and \$5.5/day (Subsistence market) respectively.

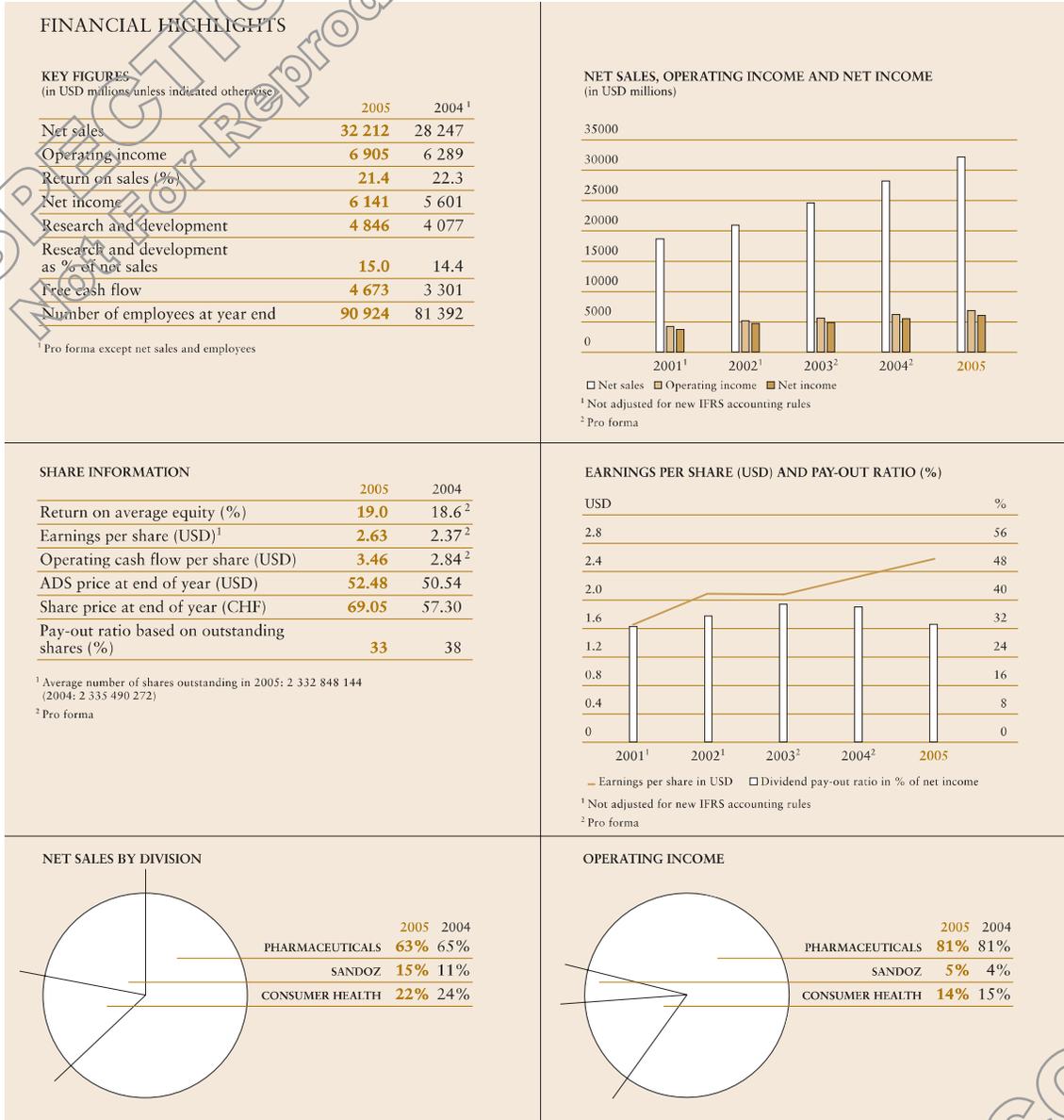
Exhibit 2
BOP Healthcare Expenditure

	BOP Income (billion in 2002 PPP dollars)	BOP Income (US\$ billion)	% of Household Expenditure on Healthcare*
Africa	429	120	4.2
Asia	3,470	742	2.75
Eastern Euro	458	135	4.6
Latam & Car	509	229	4.7

Source: “The Next 4 Billion”, IFC and World Resources Institute (WRI), March 2007

*estimated by case writer from source data.

Exhibit 3
Novartis' Financial Highlights



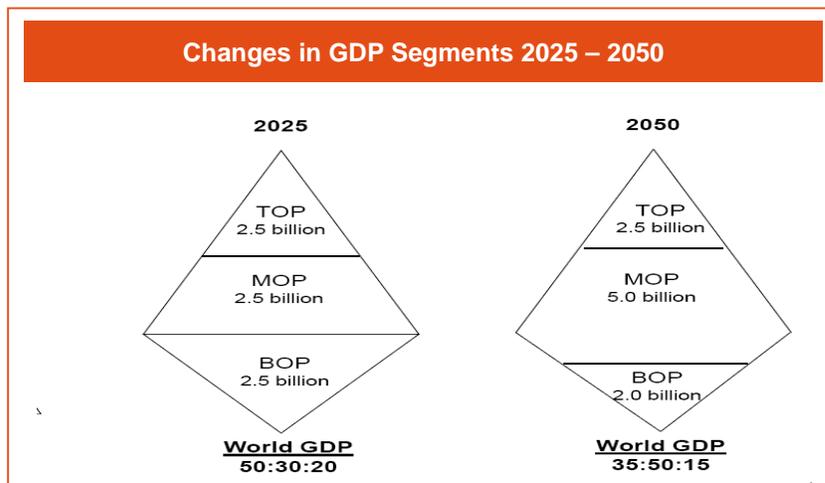
Source: Novartis Annual Report 2005

Exhibit 4
From Philanthropy to Social Business



Source: Novartis

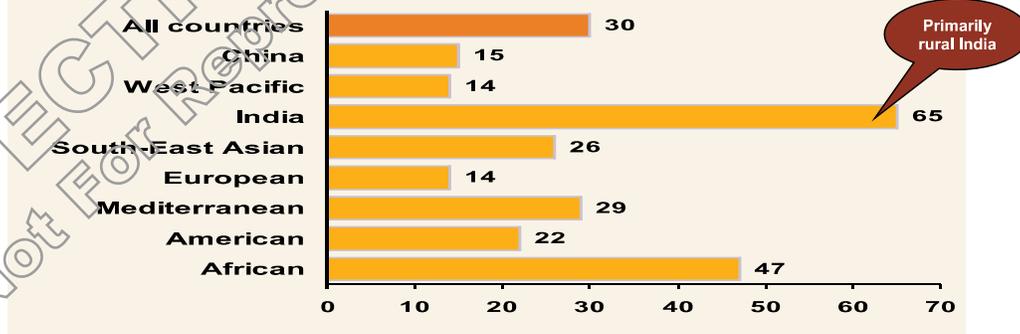
Exhibit 5
Growing Middle Class



Source: Novartis

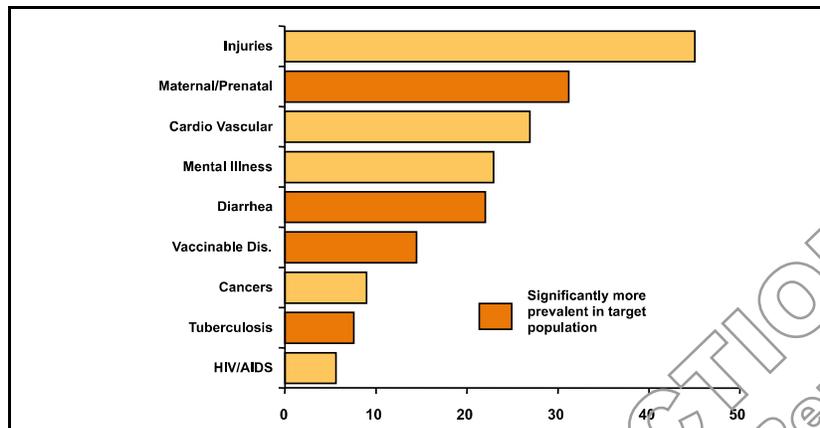
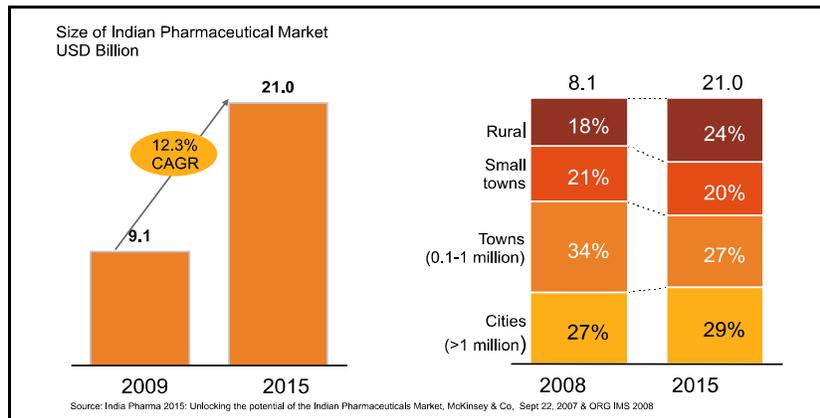
Exhibit 6
BOP Opportunities

Percentage of population lacking access to essential medicines, WHO



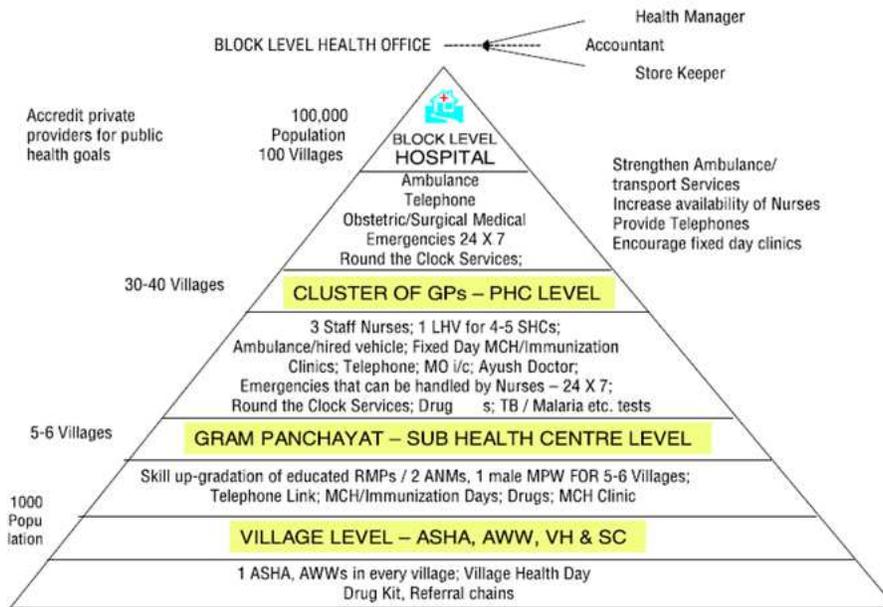
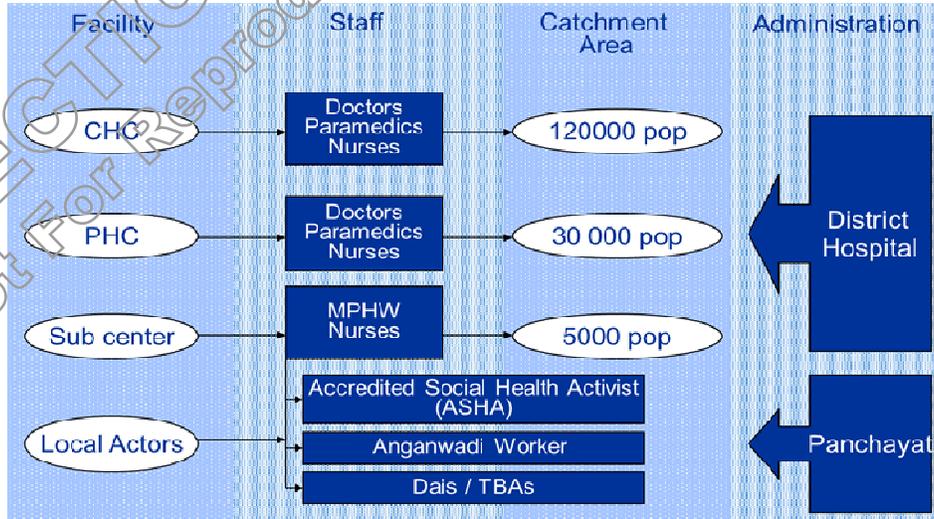
Source: "Diseases of poverty and the 10/90 Gap", International Policy Network, November 2004

Exhibit 7
India's Pharmaceutical Market



Source: Novartis
NB: One DALY is one lost year of healthy life

Exhibit 8
India's Public Healthcare System



Source: National Rural Health Mission (NRHM)

NB: CHC= Community Health Centre; PHC= Primary Health Centre; SHC= Sub Health Centre; MPHW= Multi-purpose Health Worker; Dais = traditional midwife; TBAs= traditional birth attendant; Panchayat= Gram Panchayat (GP) = village council; LHV= Lady Health Visitor; MCH= Mother & Child services; MO= Medical Officer; RMPs= Rural Medical Practitioner; ANM= Auxiliary Nurse Midwife; AWW= Anganwadi Worker; VH&SC= Village Health & Sanitation Committee

Exhibit 9***Auxiliary Nurse Midwife (ANM), Anganwadi Worker (AWW)
and Rural Medical Practitioner (RMP)***

- **Auxiliary Nurse Midwife (ANM)**
 - She is located in the village health centre and responsible for 2-3 villages in the vicinity
 - She is educated up to 12th standard or a graduate and trained under government programs on RCH and child issues. They are specially trained to undertake immunization and vaccination of expecting mothers and children
 - They are also trained for child delivery
 - Recent government programs requires ANMs to visit door to door to identify pregnant women, conduct pre-natal and post natal checks and immunize them. Post delivery the children also need to be vaccinated.
 - They use the space for anganwadi worker (under integrated child development program) for extending their services in villages without health centre
 - Distribute iron folic acid to pregnant women and ORS for children under WHO programs. They are also helping in monitoring TB patients under DOTS and also send blood smears for detection of malaria.
- **Anganwadi Worker (Integrated Child Development Scheme)**
 - The program is to provide nutrition to children below 5 years and also provide pre-nursery education
 - One anganwadi worker is deputed for every 1000 population. Usually a matriculate, she is trained in child nutrition and RCH.
 - Each worker has to survey all households in her area and record all children below 5 years of age and also keep information of pregnant women.
 - She notifies the ANM about the pregnant mothers for checkups.
 - She has been assisting the ANM by bringing the children for vaccination.
 - She helps in monitoring TB patients, distribution of contraceptive products, clean delivery kits and occasionally supplies sanitary pads
- **Rural Medical Practitioners**
 - There are about 2-3 established practitioners in 5000+ villages and about 1-2 in 2000-5000 pop villages. Though there are number of rural practitioners, not all have respectable image.
 - Most of these rural practitioners are matriculates but not necessarily formally trained in health services. Many who had served as assistants to city Doctors start their clinic in villages. Some of them could have been trained under different health programs.
 - Very few of them are educated in Homeopaths or ayurvedic medicine but they prescribe allopathic as well.
 - A thermometer, stethoscope and a BP instrument are mostly the instruments used.
 - RMPs usually do not charge professional fees but charge for the medicine. (profit from dispensing the medicine is the fee)
 - Villagers are generally aware of the limited knowledge of the rural medical practitioner (RMP) but they find him accessible, affordable and available.

Source: Novartis

Exhibit 10
*Socio-economic Classification of Rural Indians*³⁴

EDUCATION	TYPE OF HOUSE		
	Pucca ¹	Semi Pucca	Kuccha ²
Illiterate	R4A	R4A	R4B
Below SSC	R3A	R3B	R4A
SSC/ HSC	R2	R3A	R3B
Some College not Graduate	R1	R2	R3B
Grad/ PG (General)	R1	R2	R3A
Grad/ PG (Professional)	R1	R2	R3A

¹ Proper brick construction

² Mud hut

SSC/HSC=Secondary School Certificate/Higher Secondary School Certificate

Source: Market Research Society of India (MRSI)

Exhibit 11
Cost of Treatment

	Uttar Pradesh	Rajasthan	Maharastra	Andhra Pradesh
RMP	Rs10 – 50 (glucose drip ~Rs60)	Rs10-30 (glucose drip Rs40-60)	Rs 20-30 (glucose drip Rs40-50)	Rs15- 40 (Glucose drip Rs50)
Private doctors in town	Rs50- 100(Glucose drip ~Rs75. Hospitalisation cost high Rs500+	Rs50-75 Medicine extra	Rs50-75 medicine extra	Rs50-75 medicine extra
Government hospital	Rs5 for registration, Rs5-15* charges for lab tests Patients buy medicines	Some medicines given free only to BPL** card owners	Medicines are available but sometimes run out of stock	Medicines are available but sometimes run out of stock
* Lab staff usually fleece the unaware patient by overcharging **Below poverty Line				

Source: MART

34 In rural India it was difficult to assess the income of people. Therefore, a socio-economic classification of households had been arrived at by a relationship between education of chief wage earner and type of dwelling. SEC R1 represented the affluent and SEC R4 the destitute. Note that there is now a new form of classification as of May 2011 which is different from the earlier one as it combined both Urban and Rural classifications together, compared to the earlier one which separated the Urban and Rural classifications.

Exhibit 12**Major Medical Conditions in India and Current Treatment**

Malaria	<p>According to the Indian government's Million Death Study (MDS)³⁵, some 205,000 Indians under age 70 died annually from the disease. Many malaria deaths occurred outside of hospitals as malaria can strike fast, with patients going in to a coma within 48 hours, making it difficult to diagnose and treat. According to the MDS, 90% of deaths from malaria occurred in rural areas, and 86% occurred outside of any sort of health facility.</p> <p>RMPs diagnosed malaria when patients come to them with a very high temperature accompanied by shivering. No blood smear test or other blood test for malaria was conducted in UP and Rajasthan. For Maharashtra and AP, they were conducted once a patient goes to a PHC. RMPs usually treated almost all high fever cases with paracetamol and chloroquine. It was interesting to find that the PHC labs rarely detected malaria in Rajasthan, but RMPs still prescribed chloroquine. RMPs usually charged Rs.25 per consultation, which included medicine. Patients reported a treatment period of 15 days to 1 month, with total expenditure during the period of Rs.100-150.</p>
Tuberculosis (TB)	<p>India accounted for about 30% of the global burden of TB. An estimated one in two of the adult population was infected with the TB bacterium. Every year, two million people in India developed active tuberculosis – more than in any other country in the world. And about 450 000 died from it – more than the total deaths from AIDS, malaria, and tropical diseases combined.</p> <p>Tuberculosis detection varied across the states studied. Patients approached RMPs and ANMs when coughing was accompanied by blood. In UP and Rajasthan, where the health infrastructure was poorest, detection tended to be late as the link between RMPs and PHCs was poor. In Maharashtra and AP, where the health infrastructure was moderate to good, detection occurred earlier with the help of the RMP.</p> <p>Following detection, treatment also varied as a function of the state's healthcare infrastructure. In Rajasthan and UP, TB patients reported difficulty in accessing the services of the DOTS programme of the federal government. They shared their experience of poor services of ANMs, non-availability of medicines at hospitals, or non-functioning of diagnostic equipment. In Maharashtra and AP, however, treatment was good under the DOTS programme. However, patients perceived the government supplied medicine to be not as efficacious as those available privately, and the queues at PHCs also made access to treatment less available than at private clinics. Treatments were seen as taking up to nine months. In the more developed states, there was follow up to ensure that the treatment was completed, but this was not the case in UP and Rajasthan. In these states, since the medicine had to be purchased, the patient needed money.</p> <p>Patients usually spent Rs.100-200 before TB was suspected. Where the DOTS programme was not accessible, since all diagnostic tests were in private clinics, expenses for these were Rs.250. Medicines prescribed cost Rs.15-Rs.60/day. As a result, TB treatment cost was believed to be Rs.10,000-15,000 for the 6-9 months (Exhibit 12).</p>

35 The Million Death Study would follow the lives and deaths of 1.1 million households throughout India until 2014. This nationally representative survey would gather information about risk factors and causes of death for members of these households to yield a detailed picture of how and why people die.

<p>Diarrhoea, coughs & colds, fevers</p>	<p>Due to the poor level of hygiene and nutrition, these maladies were common in rural areas.</p> <p>Diarrhoea was a problem in all the states studied, but was higher in UP and Rajasthan. Rural BOP consumers perceived poor quality drinking water as the cause of diarrhoea. Some of them also associated the ailment to poor hygienic conditions around their habitat. However, very few related diarrhoea to aspects like washing hands before having food. RMPs usually treated diarrhoea with ORS and antibiotics. The treatment period was about 3-7 days and, not surprisingly, the diagnosis and treatment was better in Maharashtra and AP. Patients reported spending Rs.75-100 for diarrhoea for adults; treatment for children usually did not cost anything as they were taken care of by the ANM. R2 households tended to seek private treatment for children from a qualified doctor. Expenses at a private clinic were between Rs.200-1000, depending on the need for admitting for observation and stabilizing the case.</p>
<p>Pre and Post Natal Issues</p>	<p>Infant mortality ratio was very high in India. According to the UN population division infant mortality was 60/1000 live births in India (2005), compared to low single digits in advanced countries or neighbouring emerging markets like Sri Lanka (12.9/1000 live births). One key reason for high infant mortality was inadequate nutrition for the mother and child. Half of the children in India were underweight, one of the highest rates in the world and nearly the same as Sub-Saharan Africa. Anaemia was a big problem among Indian children and their mothers and India contributed to about 5.6 million child deaths every year, more than half the world's total.</p> <p>In India, pregnancy was seen as natural and normal, and not needing any special medical attention beyond a few check-ups. Usually there were no female doctors in rural areas and women found it difficult to approach RMPs or male doctors. It was up to the auxiliary nurse midwife (ANM) stationed at the sub-centre to identify pregnant women. The ANM was mandated to give free iron and folic acid, monitor pregnant women's health, do prenatal check-ups, and promote institutional births rather than home births. Following birth, they were also mandated to vaccinate the children as required. Pre-natal check-ups were free at a community health centre or PHC, while delivery in a government facility cost Rs.500. However, some R2 households consulted private clinics where the cost of check-ups during the whole 9 month period would amount to Rs.500, while child birth expenses in private clinics cost Rs.2,000 (normal delivery) to Rs.7,000 (Caesarian).</p> <p>The quality of diet was poor among BOP consumers across rural India, with women suffering more as they first fed male members and children, before eating themselves. As a result, women tended to be anaemic; pregnancy aggravated their condition. Although iron and folic acid supplements were freely distributed by ANMs to combat anaemia, pregnant women were reluctant to take these nutritional supplements as they were seen as medicines. Instead, they gave excuses like bad taste, nausea etc. to not take them. With the endemic levels of anaemia, without the supplement, the incidence of miscarriages, pre-mature births and infant deaths increased. Due to their lack of education and limited perspective, the R2 and R3 females could not draw the link between the value of supplements for their nutrition and the success of their pregnancy. Pregnant women also had no awareness of the need for calcium and its impact on their long term well-being. In fact, most women needed to take frequent breaks while working at home, due to feeling tired and dizzy, but attributed this as being normal and not something lacking in their nutrition or a cause for seeing a doctor.</p>

**Pre and Post Natal
Issues (cont'd)**

The poor spacing of pregnancies, anaemia, and poor diets of children raised health issues for children. In the more advanced states of Maharashtra and AP, children at the bottom of the pyramid might receive nutritional supplements such as Horlicks and Boost, but not so in the less advanced states like Rajasthan and UP.

Source: "India: Undernourished Children: A Call for Reform and Action", World Bank, 18 May 2006; "Hunger critical in South Asia", BBC, 13 October 2006; "Malaria in India May be 13 Times Worse Than Feared", Kristen Minogue, 29 October 2010.

Exhibit 13
Cost Breakdown of Typical Private TB Treatment (pre-Arogya Parivar)

Daily TB medicine costs (Rs 16/day) for 6 month treatment – Rs 2880 (Rs 16 x 30 x 6)

3 X-rays over the 6 months: Rs 600 (Rs 200 x 3)

Sputum test and other blood tests: = Rs 135 (Rs 45 x 3)

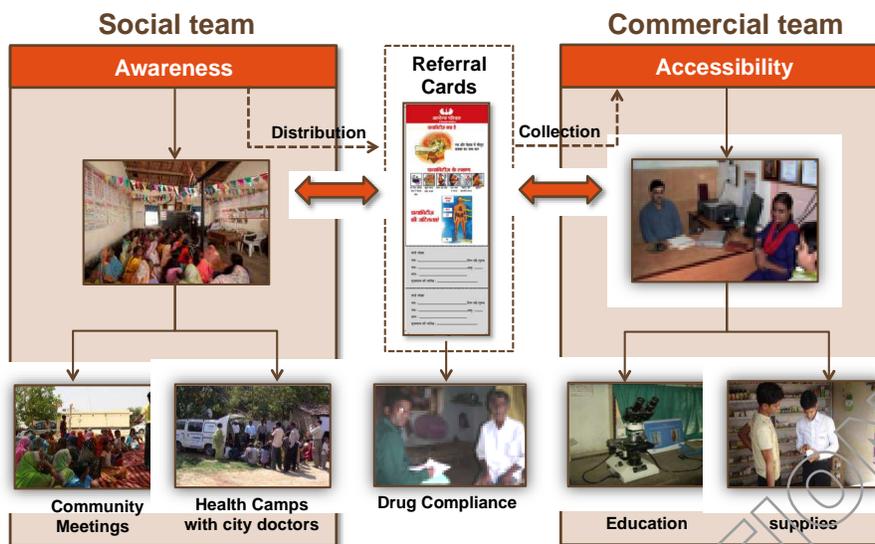
Doctor fees for 4-5 visits: Rs 1250 (Rs 250 x 5)

Vitamin supplements (range from Rs 5 to Rs 30 per day): Rs 900 (Rs 5 x 30 x 6) to Rs 5400 (Rs 30 x 30 x 6)

Travel and other costs for the patient and companion at Rs 300 – 500 per visit: Rs 1500 (Rs300 x 5) to Rs 2500 (Rs500 x 5)

Source: MART

Exhibit 14
How Arogya Parivar Works on the Ground



Source: Novartis