



NAMASTE India:

Growth **ACROSS** the Board

With its huge population and growing middle class, India is an important market for the pharmaceutical industry, and one that offers huge rewards for forward-thinking companies.

India's importance in the pharmaceutical space is indisputable. With healthcare booming, a strong medical infrastructure, lower costs, and high levels of patient recruitment and retention, India presents enormous potential.

The pharmaceutical business has been growing by 12% to 13% over the past several years. According to Cutting Edge Information, this rate will increase as the population continues to grow and lifestyle-related diseases become more prevalent.

Currently, in value terms, India accounts for less than 2% of the world market and per capita expenditure on pharmaceuticals is relatively low. The Indian pharmaceutical industry represents about 8% of world pharmaceutical production, according to a report from Espicom.

But there is huge potential, with double-digit growth projected for the biopharmaceutical sector. This is being driven by the vaccines market thanks to greater awareness of disease prevention, increases in disposable income, and government participation in immunization programs. Continued growth is also expected in the diagnostic and certain therapeutic segments, including cancer and diabetes.

Partnerships a Major Draw

India has an established manufacturing base, with the largest number of FDA-approved manufacturing plants outside of the United States, says Dr. Tanjore Balganes, head of research at AstraZeneca India.

In an effort to control costs and improve medicine access, most multinational pharmaceutical companies are looking at sourcing medicines from Indian companies.

"Partnerships with Indian companies ensure that multinational pharmaceutical companies like AstraZeneca are able to develop and manufacture drugs at lower costs, while maintaining the high-quality standards that they adhere to," Dr. Balganes says. "Partnership opportunities are not restricted to the manufacture of drugs alone."

AstraZeneca has a number of research partnerships, including a collaboration with Jubilant Organosys. AstraZeneca is also partnering with several companies for drug development.

AstraZeneca is not the only large company establishing partnerships in India. In 2010, Abbott acquired Piramal Healthcare's domestic formulations business and

Upcoming Conferences

- ➔ **Vaccine World Summit India 2011**
March 1 - 3, 2011
Raddison Hotel Delhi, New Dehli
- ➔ **BioPartnering India**
May 4 - 6, 2011
Bangalore, India
- ➔ **2nd Annual Clinical Trials Asia Summit 2011**
May 13, 2011
ITC Maratha, Mumbai, India
- ➔ **BIO India International Partnering Conference**
Sept. 21 - 22, 2011
Novotel Hyderabad Convention Centre, Hyderabad, India
- ➔ **CPhI India 2011**
Nov. 30 - Dec. 2, 2011
Bombay Exhibition Centre, Mumbai, India

Indian Physicians on the Web

Physicians in India are accessing professional information from a variety of different online resources and at various times throughout the day, according to a survey — Taking the Pulse Asia v10.0 — from Manhattan Research. The finding means companies must offer on-demand, distributed content and services. For example, fewer than one-third of physicians in India using the Internet for professional purposes do so during the work day, with the majority accessing clinical information outside of the office, including before work, after work, and weekends.

The study also surveyed physician demand for various types of content and service features from pharmaceutical websites. Based on use/interest metrics, the ability to request a visit from a sales rep on pharma websites is a priority for online physicians in India. Additionally, more than half of this segment is interested in companies providing physician discussion forums and the ability to request journal reprints on their websites.

Peer-to-peer content is widely used among physicians in India. About three out of four online physicians in India turn to user-generated content for professional purposes through online professional chat rooms, message boards, or blogs.

Source: Taking the Pulse Asia v10.0 (2010), Manhattan Research. For more information, visit manhattanresearch.com.

formed a commercialization agreement with Zydus Cadila, and Pfizer agreed to commercialize biosimilar insulin from Bi-con. Pfizer has signed commercialization agreements for off-patent pharmaceuticals with Strides Arcolab, Claris Lifesciences, and Aurobindo.

According to Dinesh Thakur, president and CEO of Sciformix, there are many examples of collaboration between global pharma companies and India-based companies.

“Dr. Reddy’s Labs had collaborations with Novo Nordisk, Ranbaxy had a drug discovery collaboration with GlaxoSmithKline, GlenmarkPharma with Lilly, and so on,” he says. “Some of these alliances are fo-

FACT

INDIAN AND MULTINATIONAL COMPANIES ARE EXPANDING THEIR FOOTPRINT IN RURAL AREAS AND SMALL TOWNS BY DEPLOYING LARGER SALES FORCES AND ROLLING OUT HEALTH-DEVELOPMENT CAMPAIGNS AROUND CHRONIC DISEASES.

Source: IMS Health.
For more information, visit imshealth.com.

cused on specific therapeutic areas, while some are more broad. More recently, there has been a flurry of activity among large pharma companies to source a portfolio of compounds from India-based companies for their established markets business units, for example Pfizer with Strides Arcolab and Claris Biosciences, and Sanofi-Aventis with Shanta Biotech.”

As the pressure on biopharma’s development pipelines continues to grow, companies are setting their sights on a future where Asia is a major contributor to drug discovery and research innovation, says Anil Raghavan, country head of Quintiles India.

“Increasingly, Western biopharma companies are turning to research-based partnerships as a way to source high-end expertise and build up drug discovery investment in Asia,” Mr. Raghavan says.

Sanofi-Aventis, for example, has entered into an agreement to conduct multiphase oncology clinical and translational research with Indox, an Indian academic oncology network.

A Clinical Must

The Indian government has laid the groundwork for increased oversight of clinical trials and implemented harsher penalties for investigators/companies that violate GCP guidelines, Mr. Raghavan says.

“India’s Central Drugs Standard Control Organization (CDSCO) also recently launched a set of clinical trial inspection guidelines to provide clearer directions to regulatory inspectors in conducting clinical



“India helps companies drive productivity and cost rationalization initiatives.”

MANISH GUPTA / Indegene



“A highly skilled scientific employee base that is proficient in English makes India a good destination for R&D.”

DINESH THAKUR / Sciformix

trial inspections, which will lead to greater consistency in the quality of how clinical trials are inspected,” he says.

Since the introduction of regulatory changes in 2005, India has become an increasingly attractive destination for Western sponsors, and that growth is predicted to continue, says Edward Brennan, M.D., president and CEO of Indipharm.

“India can help companies drive productivity and cost-rationalization initiatives,” says Manish Gupta, director, Indegene. “Large patient pools offer faster and lower

cost trials. The country now has more than 50 drug research centers, and more are expected this year. Moreover, India has 74 U.S. FDA-approved pharmaceutical manufacturing facilities, more than any other country outside of the United States.”

According to a report from Ernst & Young and the Federation of Indian Chambers of Commerce Industry (FICCI), India has one of the fastest subject recruitment rates globally (almost three to five times the global average), with screen failure and drop-out rates of 40% to 50%, compared with global averages. As a result, India contributes 15% to 30% of global enrollment in multicentric studies where it is a participant.

According to Bharat Doshi, senior director, Southeast Asia/India, Kendle, the country offers a great deal of capacity for clinical work.

“With about 17.5% of the world’s population, India hosts only 1.5% of the world’s total clinical trials,” Mr. Doshi says. “With medical expertise comparable to anywhere in the world and disease patterns gradually changing to mirror those of developed nations, India can and should accommodate more clinical research.”

Some analysts have predicted that 15% of all global clinical trial activity will occur in India by 2015.

Dr. Brennan says the large, often treatment naïve, patient population facilitates faster recruitment and lower trial cost per patient.

With a population of almost 1.2 billion and disease patterns that increasingly mimic the remainder of the developed world, patients can be enrolled in studies for even more challenging indications, Mr. Doshi says.

“For example, for indications with low incidence rates, large centralized hospitals may be ideal sites for enrollment, while for exceptionally rare indications, tertiary hospital sites or key opinion leaders of national stature may prove to be good sites,” he says.

High-quality data and analytical resources, improved healthcare infrastructure, as well as information technology, also make India an attractive prospect for clinical research, Mr. Raghavan says.

With the industry facing heavy demands to increase productivity, decrease costs, and shorten the time to market for new drugs, the opportunities presented by a market such as India are too important to overlook.

“Time and speed are key components to drug development and India provides both with outstanding quality,” Dr. Brennan says. “In addition, with the tremendous rise in the number of middle-class citizens, India has become an important market for new drugs.”

In fact, sales of pharmaceuticals are expected to rise 12% to 15% per year in India over the next 10 years, compared with growth of less than 5% in the United States and Western Europe, Dr. Brennan adds.

India also offers a huge scientific talent pool, with 3 million graduates, 700,000 post-graduates, and 1,500 Ph.D.s a year.

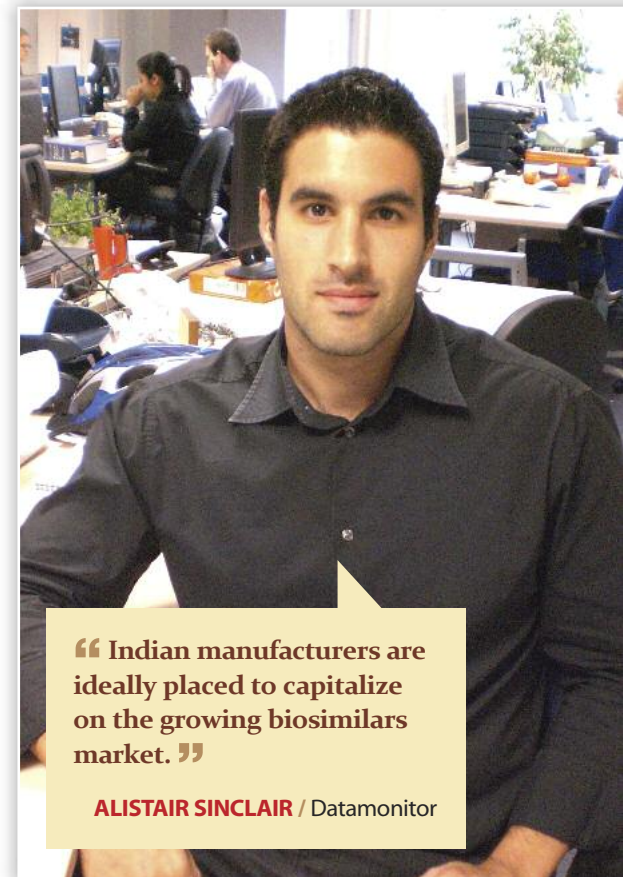
Mr. Gupta says more and more companies are starting to leverage India because of its highly educated trained work force, which can deliver benefits beyond cost-savings.

“Every year around 45,000 pharmacy graduates and more than 3,000 post graduates in the life sciences and chemistry are added to the talent pool,” he says. “This large pool of talented professionals can be leveraged for a wide spectrum of activities — joint research programs, sourcing of branded generics, clinical trial analytics, patient-support programs, physician-engagement programs, development of sales training materials, and a host of other value-added programs are now being done in India. These programs let pharmaceutical companies not only reduce the cost of operations but also the cost of innovation, which is extremely critical for an industry that is trying to reconfigure itself.”

Challenges and Opportunities

Quintiles’ Mr. Raghavan says for India to realize its potential as an incubator for drug innovation and discovery, several factors must come to fruition, including enhanced intellectual property protection and ensuring patient safety.

“As Western companies begin to become more confident about growing the scope of



“ Indian manufacturers are ideally placed to capitalize on the growing biosimilars market. ”

ALISTAIR SINCLAIR / Datamonitor

outsourcing to Asia — a vital step in creating the critical mass necessary to foster innovation — they must believe patents are safe,” he says. “Fortunately, significant progress has been made to enforce IPP, and India has placed the need to address IPP issues near the top of its agenda.”

It is also imperative that everyone works to ensure that research is conducted in compliance with good clinical practices, local and international regulations, and the highest ethical standards, Mr. Raghavan says.

Mr. Gupta says the major opportunities and challenges are at two levels.

“First, India is a fast-growing market with a changing demographic profile and a rise in chronic diseases, such as diabetes and cardiovascular ailments,” he says. “Its rural market has huge potential that is relatively untapped. The key challenges that the global pharmaceutical industry face are pricing and local competitors that understand the nuances and levers of branded generics in the developing market.

“The second major opportunity is using India as a resource base for a wide gamut of



“ Efficient and fast patient recruitment in India can save biotech and pharmaceutical companies a considerable amount of time. ”

DR. EDWARD BRENNAN /
IndiPharm



“ India will emerge as a significant market for the biopharmaceutical industry and for healthcare service providers, serving as a productive hub for pharmaceutical innovation. ”

ANIL RAGHAVAN / Quintiles

India: Healthcare System Fast Facts (2005 — 2009)

» Population	1.16 billion
» No. 1 cause of death	Ischemic heart disease
» Total Healthcare Spending	\$60.6 billion
» Healthcare Spending per Capita	\$52
» Out-of-Pocket Spending per Capita	\$40
» Government Healthcare Budget	\$11.5 billion
» Social Insurance	\$2.5 billion
» Physician Density (per 10,000 people)	6.0 (2004)
» Percentage of Patients with Private Insurance	0.2%

Source: Cutting Edge Information.
For more information, visit cuttingedgeinfo.com.

FACT

INDIA'S PHARMACEUTICAL INDUSTRY COMPRISES 270 LARGE R&D BASED PHARMACEUTICAL COMPANIES, INCLUDING MULTINATIONALS, GOVERNMENT-OWNED, AND PRIVATE COMPANIES, AND AROUND 5,600 SMALLER LICENSED GENERICS MANUFACTURERS, ALTHOUGH ONLY ABOUT 3,000 COMPANIES ARE INVOLVED IN PHARMACEUTICAL PRODUCTION.

Source: Espicom.
For more information, visit espicom.com.



“ Given fierce competition for talent, companies must invest in training and retention strategies to ensure a highly qualified work force focused on patient safety. ”

BHARAT DOSHI / Kendle

activities — sourcing APIs, conducting clinical trials, contract research, and a wide range of activities in the sales and marketing area,” he adds. “The main challenge is going to be the pace at which major pharmaceutical companies drive the change to effectively leverage an offshore model.”

A stumbling block for biotech companies working in India is the lack of a comprehensive framework for the approval of biologics. However, the Indian government is working to streamline and enhance the country's regulatory structure and is also pulling together economic incentives to encourage biotech clusters.

Furthermore, support from the Indian government for initiatives such as Biotech

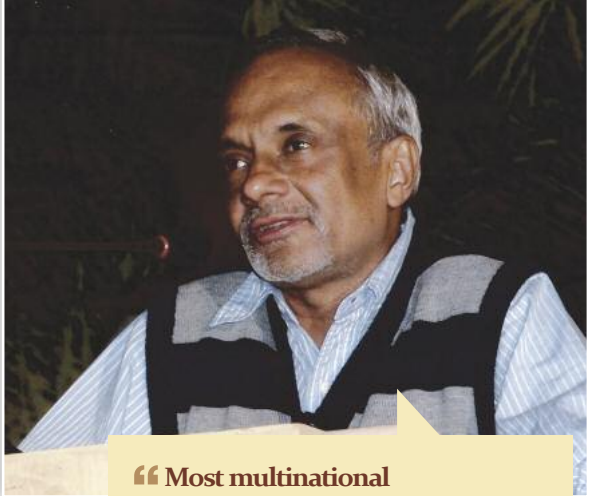
Industry Partnership Programme (BIPP) and Biotech Industry Research Assistance Programme (BIRAP) helps support the biotech industry.

Mr. Thakur says the biotech industry in India grew 17% between 2009 and 2010.

“The latest count shows 265 registered biotech firms with 75% of them having been registered in the past five years,” he says. “The top five homegrown biotech firms have significant collaborations with established international companies. The Department of Biotechnology, established in 1986 under the of the Ministry of Science and Technology, has been at the forefront of supporting the industry through various tax subsidies, exemption from Value Added Taxation (VAT), and investment in facilities and financial assistance with patents.”

In terms of the emerging biosimilar market, Datamonitor research suggests that Indian manufacturers are well positioned to capitalize on the future growth of this market both domestically and internationally.

Alistair Sinclair, healthcare analyst at Datamonitor, says the domestic market for biosimilars in India is limited by low levels of health insurance and therefore poor access to biologic drugs; however given the high level of branded-generic loyalty of the



emerging middle class, this could be a driver of biosimilar uptake.

“Because many copycat biologics are already available in India and often approved as new drugs rather than biosimilars, it is difficult to quantify biosimilar sales in the emerging markets,” Mr. Sinclair says. “Nevertheless, estimates in India range from as low as \$20 million and as high as \$200 million. This could be expected to grow to \$580 million by 2012.”

While the domestic market shows potential, many Indian biosimilar manufacturers are also looking to expand globally.

“The developed pharma markets may be difficult to access alone due to the complex and expensive clinical trial and registration process,” Mr. Sinclair says. “However, licensing agreements with multinational companies, such as the recent deal between Biocon and Pfizer, can facilitate access to these markets.”

Mr. Raghavan says India’s complexity in terms of its ethnic and linguistic diversity, infrastructure challenges, and lack of experience in conducting clinical trials to global standards are the key challenges.

Feasibility analysis and clinical trial site identification are complicated by the fact that healthcare information technology infrastructure is at a very early stage of development, and there is a dearth of quality data on disease prevalence. Nevertheless, there have been significant improvements in all these areas recently, Mr. Raghavan says.

While there are challenges to working in India, the rewards justify these, Dr. Brennan says.

“Communication, regulatory, cultural, and time-zone barriers can and will present themselves so it’s critical to work with a partner that is able to bridge these gaps and assure that the interaction between the sponsor and the sites is seamless,” he says. “Managing expectations and meeting timelines is critically important.”

Mr. Thakur adds that because there isn’t a real system for providing healthcare in the country, individual physicians, who don’t have access to a network or infrastructure that allows for coordinated delivery of healthcare, are the primary caregivers.


“Most multinational pharmaceutical companies are looking to source medicines from Indian companies to control costs and improve access to medicines.”


DR. TANJORE BALGANESH /
AstraZeneca India

“Excellent physicians and facilities are available in tertiary centers in major cities, but there is a large patient population that is remote to these centers,” he adds. “Patient education and understanding also are major challenges, which have led to some very visible abuses within the country. This is changing though with investments in tertiary, secondary, and primary medical care and as new healthcare models emerge.” **PV**


PODCAST
Building a Communications Bridge for Trials in India
THOUGHT LEADERS:
Dr. James A. Bannon and Dr. Edward J. Brennan, Jr., IndiPharm

EXPERTS

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A Picture of HEALTH

With a large rural population and a growing middle class, India confronts both communicable diseases and the spread of noncommunicable diseases (NCD), such as cardiovascular disease, chronic lung disease, diabetes, and cancer.

According to WHO estimates, India has one of the largest population subsets suffering from several long-term diseases, including TB (25% of total worldwide TB population is Indian), HIV/AIDS, cardiovascular diseases, and diabetes.

Non-communicable diseases (NCDs) now account for about half of all deaths of Indian adults, a percentage projected to grow even higher, according to a report from Cutting Edge Information.

Many risk factors for NCDs are caused by lifestyle choices that are often common in

more developed countries. In particular, tobacco use, obesity due to physical inactivity, and unhealthy diets are leading factors for diseases such as cancer, hypertension, and diabetes. The increase in diabetes has led to the development of government programs to increase awareness of risk factors.

NCDs impact people in India about 10 years earlier than they affect those in more developed countries. This gap is due to economic factors, a still-developing health infrastructure, and a population less educated about the warning signs and risk factors associated with NCDs, the Cutting Edge Information report notes.

Cardiovascular disease and diabetes are extremely prevalent in India, as is cancer, with most malignancies occurring with approximately the same frequency as in the United

States and the European Union, says Edward Brennan, M.D., president and CEO of IndiPharm.

Cancer therapies are also a growing market due to high unmet need, increased awareness, and the comparative affordability of domestically produced drugs.

“Over the past two years we have also seen an increase in the number of trials in CNS diseases, such as depression and Parkinson’s disease, and inflammatory diseases, such as rheumatoid arthritis and inflammatory bowel disease,” Dr. Brennan says.

The top cause of death is ischemic heart disease, which accounted for 15% of total deaths in India in 2002. One of the main risk factors for ischemic heart disease is smoking, and Indians have a high incidence rate of smoking and tobacco use, according to Cutting Edge Information. Diabetes mellitus and cholesterol levels are also risk factors for ischemic heart disease, and each is on the rise in India as the country develops.

Even with the rise of NCDs, communicable diseases still impact a large percentage of the Indian population. Indeed, communicable



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DR. TANJORE BALGANESH
AstraZeneca India



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DR. EDWARD BRENNAN / IndiPharm

diseases account for 38% of diseases — even higher among the poor, Cutting Edge Information notes.

According to Dr. Tanjore Balganes, head of research at AstraZeneca India, over the past 40 years no new TB drug has been added to the cocktail currently available and the world is now actively seeking new drugs for TB treatment.

Dr. Balganes believes the emphasis needs to be on a collaborative, multi-stakeholder approach.

“We need to employ a variety of strategies and collaborations if we are going to succeed in sparking antibiotic development — TB research, in this case,” he says. “Though we don’t have all the answers, AstraZeneca is committed to being an active part of the solution in collaboration with partners in academia, government, nonprofit organizations, and others.”

India also has an incredibly high rate of mortality due to HIV/AIDS, second only to South Africa, Cutting Edge Information reports. Cultural factors play a large role in the prevalence of HIV/AIDS; stigma and discrimination make it difficult to promote education and prevent new infections.

Stigma has also made it difficult for many people with AIDS to seek medical treatment. An overall lack of knowledge about HIV/AIDS and how it can be transmitted further propagates the discrimination; many Indians believe sharing food with someone is enough to transmit the disease.

The healthcare system in India is divided into three main sectors: public, private, and private nonprofit. While the Union Government provides national public health programs, the states are responsible for the brunt of healthcare. The National Health Policy and the 10th Five-Year Plan involve guidelines for improving healthcare infrastructure and expanding coverage to the public.

The public sector consists of the Primary Health Centers (PHC) and Community Health Centers (CHC). PHCs cover rural health services and outpatient and outreach services, while CHCs cover in-patient treat-



“ More than 40% of the people hospitalized in India borrow money or sell assets to cover their medical expenses. ”

MANISH GUPTA / Indegene

ment and other specialized services. Many of the hospitals in the public sector are understaffed and operate on low budgets, making specialized treatments harder to access.

Public hospitals run by the government provide consultation and hospitalization services at minimal or no costs. Only the most essential prescriptions are free, and newer, more specialized and nonessential drugs end up being costly. For this reason, many people turn to the private sector if they can afford it. Those who cannot, representing a vast majority, pay out of pocket.

According to Manish Gupta, director of Indegene, the accessibility to healthcare in India is affected by twin issues — affordability and inadequate infrastructure.

“Credible research studies by various groups have revealed that more than 85% of the population has no insurance or medical benefits, more than 50% of the Indian population does not even have access to affordable modern medicines, and more than 40% of the people hospitalized in India borrow

money or sell assets to cover their medical expenses,” he says. “Innovative financial solutions, such as microinsurance and the use of telemedicine, are now being considered as possible solutions to the problem of access.”

Mr. Gupta adds that India has invested less than 1% of its GDP on healthcare over the years and this is reflected by a poor infrastructure that has an urban focus. About 75% of the medical consultants are urban-based, leading to inadequate distribution of medical care. It is estimated that the urban physician-to-population ratio is almost six times the rural concentration of physicians. **PV**

EXPERTS ►



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pharmaceutical company that offers an integrated approach to the discovery, development, and marketing of medicines. For more information, visit astrazenecaindia.com.



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marketing success of life-science companies through its ability to understand, analyze, and apply knowledge of science and clinical practice. For more information, visit indegene.com.