

How India's Pharmaceutical Industry Supports Healthcare Affordability



India's pharmaceutical industry is often called the "pharmacy of the world." It supplies affordable, high-quality medicines both home and abroad. The sector has grown into a global powerhouse. It now accounts for a large share of India's manufacturing and exports. For example, it ranks 3rd globally by volume of drugs produced and 14th by value. It contributes ~1.72% to India's GDP. The industry drives foreign exchange earnings through medicines and vaccines. In FY24, India's drug exports reached ~Rs. 2,35,683 crore (US\$ 27 billion). In 2023, it generated ~Rs. 1,65,851 crore (US\$ 19 billion) in trade surplus. It also supports millions of jobs. In total, ~2.7 million people work in pharmaceuticals directly or indirectly. All these contributions help make healthcare more affordable and available.

India supplies 20% of the global demand for generics. Its generics and vaccines reach more than 200 countries. Millions of global patients rely on Indian-made medicines because of their low cost.

Domestically, the industry has helped millions access essential treatments cheaply. It provides the medicines used in government health programmes and private hospitals alike.

HISTORICAL DEVELOPMENT OF INDIA'S PHARMA SECTOR

The Indian pharmaceutical industry has a long history, which was only modernised after independence. Initially, India depended on foreign companies and imported medicines. When India gained independence in 1947, the pharma industry was small and technologically underdeveloped. The industry gradually accumulated capacity over the next decades. The turning points were the Drug Policy of 1978 and the Patents Act of 1970. They eliminated drug patents, and Indian companies were able to produce generic versions of older drugs. This policy made medicines much cheaper and let domestic companies grow.

The actual change was in the 1980s and 1990s. The industry was modernised and opened to international trade in that period. New processes and quality standards were implemented in companies. In 1991, the government opened its economy, and this enabled increased private investment in pharmaceuticals. Indian firms began exporting drugs. By the early 2000s, the industry had gained strong momentum. It was meeting rising domestic demand

and expanding exports. In those years, India emerged as a leading global supplier of affordable medicines, helping to treat diseases like HIV/AIDS with low-cost generics.

By the 2010s, India was well known as the “pharmacy of the world”. It ranked globally behind only China and USA in volume terms. It built world-class manufacturing facilities and an industry ecosystem. Generics and vaccines made in India saved money for patients at home and abroad. For example, Indian firms supplied life-saving HIV drugs and vaccines that earned India praise for its role in global health.

In recent years, growth has continued. The Indian pharma market was valued at ~Rs. 4,80,095 crore (US\$ 55 billion) in 2023. Industry associations and government reports project it will grow to Rs. 10,47,480- 11,34,770 crore (US\$ 120-130 billion) by 2030. Exports have been growing steadily, reaching Rs. 2,35,683 crore (US\$ 27 billion) in 2023. This growth reflects decades of capacity building. India’s status as a major generics maker is now firmly established. The industry’s history from traditional practices to a modern powerhouse shows how far it has come.



DOMESTIC ROLE IN ENHANCING AFFORDABILITY

India's pharma industry plays a central role in making healthcare affordable for Indians. Because many people pay out of pocket for medical care, low drug prices are critical. Indian companies keep prices competitive through economies of scale. The large domestic market and mass production allow companies to produce at low cost. This keeps prices lower than in many other countries. For example, Indian drug makers have cut prices on important medicines and offer patient assistance programmes. One analysis notes that most Indians struggle to afford medicines, and Indian firms step in by offering cheaper alternatives.

A key domestic initiative is the Pradhan Mantri Bhartiya Jan Aushadhi Pariyojana (PMBJP). This government programme funds branded generic outlets that sell medicines at steep discounts. According to the Ministry of Chemicals & Fertilisers, by early 2025 there were over 15,000 Jan Aushadhi Kendras across India. These stores sell quality generic medicines at 80-90% lower than branded equivalents. So far, consumers have saved over Rs. 30,000 crore (US\$ 3.44 billion) on medicines through these stores. The government plans to expand the network to ~25,000 centres by 2027, to reach even remote districts. This ensures affordable drugs get to underserved areas.



Private companies also help. Many firms produce generic drugs and biosimilars. Generic versions of off-patent drugs cost much less than the original brands. Biosimilars are follow-on versions of complex biological medicines, which are also cheaper. By developing and selling these low-cost alternatives, Indian companies make treatments accessible to more people.

The industry is also reaching patients through partner networks. For instance, smaller distributors use franchise models (like PCD pharma franchises) and third-party manufacturing to ensure



medicines penetrate rural markets. These business models give small wholesalers and retailers access to affordable stock. Indian manufacturers provided vaccines and other essential drugs at no or low cost under government initiatives during COVID-19, which contributed to the reduction of the spread of the disease. In addition to the sale of medicine, pharmaceutical firms in India contribute to the health programmes of the population.

Beyond selling medicine, Indian pharmaceutical companies support public health initiatives. They provide or develop drugs and vaccines used in government programmes. For example, the industry supplies low-cost medicines under Ayushman Bharat, India's national health insurance scheme for the poor. Thanks to affordable drugs, Ayushman Bharat has extended healthcare to over 600 million people. Many state

vaccination drives also use locally made vaccines, which cost less than imports. In short, Indian pharma keeps drug prices down through generics, smart manufacturing, and by supporting government health schemes, thus easing the burden on patients and families.

GLOBAL FOOTPRINT AND EXPORT IMPACT

India's pharma sector has a huge global impact, boosting healthcare affordability. It exports to ~200 countries, including highly regulated markets such as the US, EU, Japan, and Australia. India is the world's largest provider of generic medicines by volume. Its generics account for ~20% of global generic exports. In 2023 alone, India's pharma exports were Rs. 2,35,683 crore (US\$ 27 billion). These include not only small-molecule drugs but also vaccines and complex products.

Indian companies supply vital medicines to many low- and middle-income countries. For example, antiretroviral drugs for HIV/AIDS in Africa are mostly made in India. India also provides malaria, TB, and COVID-19 medicines

and vaccines to the world at low cost. One business blog notes that exports from India to Africa and the Caribbean have become "a lifeline" for patients struggling with high healthcare costs. When Indian firms export an essential drug, it not only earns revenue, but often directly saves lives. This export model "creates a ripple effect of improved health outcomes" globally.

Exchanging drugs internationally also earns India foreign exchange. In April 2024, India exported Rs. 21,211 crore (US\$ 2.43 billion) worth of drugs, up from Rs. 19,727 crore (US\$ 2.26 billion) in April 2023. These exports strengthen India's economy by adding to growth and tax revenue. They also build India's reputation. Trusted Indian companies now have marketing approvals in stringent regulatory systems, showing they meet high quality standards. This reputation helps open new markets for future products.

India also contributes to global health through manufacturing. Its vaccine industry is among the largest in the world. A report notes that the global vaccine market is huge; over Rs. 6,98,320





crore (US\$ 80 billion) and growing. India, being a leader in vaccine manufacturing, stands to benefit. For instance, under the global COVID response, India produced large quantities of vaccines and sent doses abroad. This reinforced India's role as a global "disease prevention" leader.

Finally, Indian firms are entering new areas. They are developing biosimilars (biotech versions of biologic drugs) and innovative molecules. Although India started with simple generics, it is moving

up the value chain. Future vaccines, biologics, and even drug discovery can come from India's labs. As a result, India is shifting from being a low-cost supplier to a more innovative partner in world healthcare.

ROLE OF GOVERNMENT SCHEMES

Government policies have supported the pharma sector's growth and its impact on affordability. Several major initiatives have been launched in recent years:

• Jan Aushadhi Pariyojana (PMBJP):

- It is government-led and directly reduces drug costs for citizens. The plan to expand to 25,000 outlets by 2027 reflects its success.

• Pharma Production Linked Incentive (PLI) scheme:

- The government has provided massive subsidies on domestic production. In this PLI programme, ~Rs. 15,000 crore (US\$ 1.72 billion) is to be allocated between 2020-21 and 2028-29. The companies receive bonuses on the production of specific drugs and active pharmaceutical ingredients (APIs). It is aimed at turning India into a self-reliant country and less dependent on imports. This would assist in reducing the long-term costs.

• API parks and bulk drug parks:

- Rs. 1,000 crore (US\$ 125 million) from the 2024 budget was allocated to construct bulk-drug parks. These industrial parks offer infrastructure such as land, utilities and logistical services to drug ingredient makers.

• Strengthening pharma industry (SPI) scheme:

- The government launched the SPI scheme to upgrade pharma clusters. With a fund of Rs. 500 crore (US\$ 57.3 million), the plan is to improve quality control labs, common facilities, and worker skills in existing pharma hubs. This helps small and medium firms raise standards and productivity, leading to affordable and better medicines.

National pharmaceutical pricing policy and NLEM:

- India has the National List of Essential Medicines (NLEM) and price controls to ensure costs are kept under control. The NLEM has price limits on drugs in the Drug Price Control Order (DPCO). This discourages unreasonable increases in the prices of basic drugs. The government regularly revises the NLEM to add additional medicines (such as adding chronic disease drugs). Regulators are seeking to encourage cheaper alternatives by requiring generics to be sold by the generic name and prohibiting illogical combinations of drugs. Even though it is said that price controls will deter investment, it will make life-saving drugs affordable to the poor.

• Pharma R&D incentives:

- To stimulate innovation, India has offered tax breaks on R&D spending (although some benefits were reduced after 2021). The government also funds drug discovery and biotechnology research. This support encourages companies to invent new treatments which can later be produced cheaply at scale.

Government insurance and health programmes use the pharma sector. For instance, Ayushman Bharat (PMJAY) provides health coverage to the poor. The availability of inexpensive generic medicines means that this insurance can treat many patients without costing the treasury much. Over 600 million people have accessed services under Ayushman Bharat, with cheap medicines being a key factor. The government also procures drugs for immunisation drives and disease control (such as TB, malaria). By partnering with domestic firms for procurement, the government ensures consistent supplies at reasonable prices.

Through these schemes, the government has aligned industry growth with public health goals. The incentives encourage local production (lowering import bills) and higher quality (through common labs and standards). The government's wholesale purchase of medicines (through GPO or free supply for hospitals) also keeps prices in check. Overall, active industrial policies have made pharmaceuticals affordable and widespread.

INNOVATION AND R&D FOR AFFORDABLE ACCESS

Leading Indian firms have boosted their R&D budgets each year. India's top 10 pharmaceutical companies now have pipelines with dozens of novel drug candidates (NCEs/NBEs).

Research and development expenditure: Top Indian companies have increased their research and development (R&D)

spending annually. The pipelines of the 10 leading pharmaceutical firms in India now contain dozens of novel drug candidates (NCEs/NBEs). They are developing treatments in areas like oncology, neurology, and complex generics. This R&D focus is partly driven by the PLI scheme, which encourages innovation. Heavy investment in research helps India create its own intellectual property. New drugs developed in India can be produced locally at scale, keeping costs down. It also helps the country diversify beyond low-margin generics.

Quality and standards: Companies are increasing quality along with innovation. International authorities (USFDA, EMA, WHO) are very demanding. For example, the percentage of significant compliance problems during USFDA inspections dropped to 9% in 2023 (as compared to 19% in 2013). In 2023, the government also revised manufacturing standards (Schedule M) to enhance quality. High quality control implies safer drugs. It also creates a confidence in Indian products across the globe which enables it to export to additional markets.

New divisions: Biotech and biosimilars. Indian companies are producing biosimilar versions of biologic drugs (such as insulin or monoclonal antibodies). Biosimilars are cheaper than the branded originals. Currently, the biosimilar exports of India are minimal, but this is an area of growth. The government is promoting pharma and biotech startups, providing grants on biotech parks, and forging tie-ups between universities and industry.

Contract research and manufacturing: India has a growing base of CDMOs (contract development and manufacturing organizations) and CROs (contract research organizations). These firms manage everything from drug



discovery research to clinical trials. Due to India's vast skilled workforce, they offer services at a cost lower than in Western countries. This "China+1" opportunity (diversifying away from China) could mean more global companies outsourcing research and manufacturing to India. This trend can bring in new funds and expertise to the Indian pharma ecosystem, further boosting innovation.

Technology and digital Health: Many Indian companies use technology to enhance affordability of care. They develop tele-medicine and AI-based diagnostics platforms and mobile health applications. These devices help patients to stick to therapies and control chronic illnesses at a low cost. As an illustration, smartphone applications can be used to remind patients to take their medications. Health monitors (trackers and sensors) can notify the doctor early before the patient visits the hospital. Although not drug development per se, this digital innovation in healthcare is supported by pharma (e.g. partnerships with tech firms) and reduces healthcare spending.

In summary, India's pharma R&D is deepening. It is not only about creating cheap copies, but also new affordable treatments. By 2030, companies plan to introduce several new drugs. The trade-off between cost and innovation is not easy, yet the efforts such as R&D tax benefits, grants and PLI support are making a difference. Eventually, additional indigenous innovation will reduce the cost of innovative treatments.

OUTLOOK AND POLICY RECOMMENDATIONS

India's pharmaceutical sector is poised for further growth, but success will depend on smart policy and collaboration. Key areas include:



- Quality exports expansion:** Analysts estimate that India's pharma exports may increase 10-15 times by 2047. To achieve this, India must focus on specific markets and products. As an illustration, Europe and East Asia are not as penetrated as North America. India could export more specialty generics (such as inhalers, injectables) and vaccines. Policymakers should support companies to navigate international regulations. Agreements on regulatory harmonisation can ease exports. Focusing on 'China+1' supply chain shifts will also open API opportunities.
- Focusing on specialty and biosimilars:** Generic tablets and capsules will remain a staple, but high growth may come from complex generics, biosimilars, and NCEs. Government and industry should invest in building capabilities for these advanced products. This may require joint public-private labs, incentives for biotech startups, and continuing education for specialists.
- Enhancing production of APIs:** To cut costs and ensure supply, India needs API makers. The PLI scheme and API parks should be fully implemented. Beyond funding, it may help to coordinate between chemical and pharma industries, since many chemical firms can become API suppliers.



Continued emphasis on “Make in India” for raw materials will reduce foreign dependence.

- **Healthcare financing and insurance:** To improve affordability, India should increase public health spending (a recommendation of many experts). Expanding insurance coverage means patients can afford more treatments. The government might consider subsidising health insurance for low-income groups. More free drug provision at public hospitals and clinics (backed by generic supplies) would also help.

- **Digital health and telemedicine:** The pandemic showed how telemedicine can cut costs and improve access. India should continue integrating digital health records and teleconsultation into its healthcare system. Pharma companies could partner to provide medicine delivery and remote monitoring. Cheap medicines and digital tools will further boost preventive care, reducing expensive hospital stays in future.

- **Regulatory streamlining:** Simplifying the process for drug approvals (especially for exports or new molecules) would encourage innovation. At the same time, price regulation should be predictable. A clear framework

balancing industry viability with public interest is needed. For example, “outcome-based pricing” or value assessment for new drugs could be explored.

- **Talent development:** The government and industry must invest in education and training. More seats in pharmaceutical universities, incentives for PhD research in drug discovery, and collaboration with global institutes will build expertise. Also, upskilling manufacturing workers on new technologies will improve productivity.

- **Public-private partnership:** Cooperation between government and industry will be the success. It is significant to jointly fund research programmes, develop treatment guidelines jointly, and work together in



pandemic preparedness. Industry can also contribute to the public health through corporate social responsibility programmes that contribute to the affordability (e.g. sponsoring clinics or health camps).

- **Sustainability and resilience:** Indian pharma should strive to be eco-friendly (waste minimisation, green chemistry) in accordance with the global trends. This will initially increase expenses, but as global consumers are concerned with ESG, it will pay off. Affordable medicines during crises will also be achieved by building supply chains that are shock resistant (e.g. diversification of import sources). Overall, the policies that



promote innovation and access will be central.

In general, policies that encourage innovation and access will be key. India's industry has already shown that quality and low cost can go together. With the right support, it can develop new drugs that are affordable by design. The goal should be not just a large industry, but one that ensures equitable healthcare access.

CONCLUSION

India's pharmaceutical sector has transformed over decades to become a pillar to national health and the global drug supply. The industry's production of generic and specialty medicines has kept costs down and saved patients and governments enormous sums. With government schemes like Jan Aushadhi and PLI, India has built a robust system that prioritises affordable access. Domestic patients benefit from low prices, and poorer countries benefit from India's exports. As a result, millions receive essential treatments than would otherwise be possible.

However, challenges remain. The health system requires additional investments and extended insurance. India needs to keep on enhancing its quality cheques, promote innovation and make sure that remote and low-income people access these affordable medicines. India can spread the benefits of its pharma revolution by filling regulatory and infrastructural lapses, and by establishing industry-government alliances.

In the future, India is poised to enhance its leadership in the world. The bright future is projected by the domestic market of up to US\$ 120-130 billion and the export potential of up to US\$ 350 billion by 2047. India will improve its economy and contribute to countries getting healthier in case the policies remain in favour of research, manufacturing, and fair access.

The journey from humble beginnings to "pharmacy of the world" has shown what Indian industry and policy together can achieve. By maintaining this momentum and focusing on patient needs first, India's pharmaceutical sector will keep driving healthcare affordability for all.

