

EXPLORING THE MEDICAL DEVICE MARKET IN INDIA

Dissertation Submitted to



The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree of

Master of Business Administration (MBA)

in

Pharmaceutical Management

By

Akshay Kumar

Under the Supervision and Guidance of

Dr. Sudhinder Singh Chowhan

2024

Date: 18-Mar-24

To,

Akshay Kumar

V P O Gurbhari Shiv Nagar Colony, Kangra, Himachal Pradesh, 176001

Dear Akshay,

We are pleased to offer you the role of **Management Trainee** with **MarketsandMarkets Research Pvt. Ltd.** You will be part of the MarketsandMarkets team with an anticipated start date of **18-Mar-24.**

The key terms and conditions of employment are as set out in this letter:

Location of work

Your initial place of work will be **Pune**, However, your services are transferable, and you may be assigned, after reasonable notice, to any location in India or abroad where MarketsandMarkets conducts business. While on transfer you will be governed by the rules, regulations and conditions of service of that location.

Full time employment

Upon successful completion of your education degree, you will become Research Associate (a full-time employee) until then you will be treated as a **Management Trainee**.

You would not be directly or indirectly involved in any other form of employment apart from MarketsandMarkets during your tenure. Any such deviation/request must be routed through the Head of HR for approval.

Probation Period :

You will be on probation for a period of 6 Months.

Compensation

Management Trainee

You will draw a Monthly Gross Salary of INR 30,000. For Salary break up please Refer **Annexure B.**

Research Associate (Refer Annexure C) – Fulltime Employee

Once you are moved to the role of an Associate, your revised compensation will be INR 5,50,000 Per Annum of which your fixed component will be INR 5,00,000 Per Annum and your variable component will be INR 50,000 (to be paid on Monthly basis on pro-rata), the breakup of which is given in Annexure B.

The salary structure in the offer is as per the current employment and compensation structure of the Organization and will be governed in due course by the relevant policies of the Company as may be in force from time to time and subject to deductions under applicable laws as may be in force from time to time.

Variable Structure

The variable performance bonus is based on your performance in line with the goals and objectives defined by the Company for your role as also the Company's performance overall and any criteria as may be laid down by the company in its policies from time to time. Relevant details pertaining to the prevailing variable scheme shall be communicated to you once you join the Organization.

Service Agreement

As discussed, agreed and acknowledged by you during the time of interview; upon joining, you will be required to sign a service agreement which is for a period of 18 months and you will be liable to pay the Company an amount equivalent to INR 1,00,000 as penalty if you do not complete 18 months period. The details of which will be included in the Service Agreement.

Relocation

To assist with your relocation, you will be eligible for a relocation amount to an upper limit of **Rs 10,000**. In addition to this Company will provide lodging for 7 days. Such relocation amount can be claimed only upon submission of the Original receipts/bills and Original boarding pass and such reimbursement must be claimed within 1 year from the Date of Joining. Non-compliance of the above may result in non-reimbursement of the relocation expenses.

If you voluntarily resign from the Company within 12 months of your Date of Joining, the relocation amount in full shall be reimbursed by you immediately failing which the Company shall be entitled to such remedies or recourses as available under law.

Insurance

The company offers a medical Insurance scheme through its empaneled Insurance partners covering hospitalization expenses of upto **INR 2,00,000** as governed by the terms of such scheme and policy document which will be made available to you once you join the Organization.

Background checks

The Company shall be entitled, at its discretion, to conduct reference and / or background checks as per Company policy and this offer is conditional upon the result of such checks. In the event the results of such checks are unsatisfactory on any account, the Company may, in its sole discretion, revoke this offer / or terminate employment at any time.

Office Hours

You are required to work in according to the time schedule for the **APAC/EU Geography** being assigned to you. In all cases, the expectation is 9 hours of login time which includes an hour's break. You may also need to stretch as per the business needs.

Reporting Structure

Your immediate reporting will be to the **Senior Analyst/Team Lead** or anyone delegated by **Manager -Research/Domain Head in Future**

Copyright and Disclosure

During the period of your Job with the Company, you shall be liable to disclose all copyright works or designs originated, conceived, written, or made by you or in which you have participated with others, either on completion or in marketable form, promptly when required by the company. All rights and copyrights of the work / material you produce either at the company's premises or elsewhere shall belong to the company.

During the course of your engagement confidential information will/ may be made available to you, which must not be given out or used outside. In the event of termination of engagement, whether voluntary or involuntary, this information should not be disclosed, used or exploited by you with any other individual, company or service.

Termination of employment while on probation

Without prejudice as per the current terms of the offer, either party can terminate the employment by issuing a notice to the other of Two Months while the employee is in a probationary phase with the Organization. The notice clause applicable once the employee is confirmed with the Organization shall depend on the role and job level of the employee and is detailed in the Appointment letter which the employee is expected to sign as part of his/her appointment with the Organization. The Company reserves the right to refuse reimbursement of notice period from the employee and can insist that the employee serve the full notice period which the employee is obligated to do. The employment may also be terminated by the Company without notice for cause including but not limited to failure to perform duties, willful dishonesty, fraud, disobedience, poor performance, disorderly behavior, negligence, indiscipline, unauthorized absence from duty, conviction by any court of law, etc. Termination of employment and consequences of termination shall be governed by the applicable clauses as contained in the employment agreement.

General

This letter shall be construed to be a mere invitation to offer ("Offer Letter") and the acceptance of this Offer Letter is not to be considered to be a binding contract guaranteeing employment for any specific duration. The Company reserves the right to vary or alter the terms and conditions of this Offer Letter and the right to revoke this Offer Letter without cause and without notice period of such revocation upto any time prior to the Date of Joining.

You are bound to abide and adhere to the policies, rules and regulations enforced by the company from time to time including those related to conduct, discipline, benefits, salary review, retirement and any other matters as though these rules, regulations and orders were a part of the agreement. Such policies rules and regulations may be subjected to alteration and amendment at The Company Name's own discretion by the management.

Non-Competition and Non-Solicitation

For a period of 2 years after the termination of your employment with the Company, you will not directly or indirectly be associated with, manage or advise a Company or firm that is in the same business as the company, unless with the specific written approval of the Company.

After termination of your employment with the Company, you agree not to hire the services of any individual employed with the Company, either on permanent or a temporary basis, to directly promote the business of any new Company or concern you may be associated with for a period of six months from the date of exit.

On the Date of Joining, you will be required to execute the Company's standard non-disclosure and inventions assignment agreements, the Company's standard employment agreements and such other documents as may be required by the Company's policies in force at such time.

Governing law

This Contract shall be governed, interpreted and enforced by and in accordance with the laws of India.

Roles and Responsibilities:

- Conduct market research, using both systematic and intuitive research techniques, on new high growth technologies and products within an industry vertical to meet unmet needs of the market.
- Perform secondary research to build the analytical sections within each report and to identify data-points / market trends that would validate the market data against internal databases.
- Undertake primary research activities, such as identifying interview participants, developing contacts, and participating in interviews to generate quantitative and qualitative insights.
- Follow the table of content to complete the in-depth market assessment for individual Micro and Macro markets.
- Contribute to market engineering by assessing current market size and building forecast models for micro and macro markets across North America, Europe, APAC, and ROW
- Contribute to competitive intelligence sections in research studies by analyzing the key market players, their strategies, and their product portfolios.
- Analyze market shares of the top leaders & provide critical argument on the future leaders.
- Co-ordinate with senior research analyst/analyst and other members of the team to complete assigned tasks.

Acceptance of our offer

Please acknowledge a copy of this Offer Letter as a token of your acceptance within **next two working days**, failing which this Offer Letter shall stand terminated automatically. Any inability on your part due to any reason whatsoever to join the Company on or before the Date of Joining should be reported to the contact persons as mentioned in **Annexure A, failing which the Company shall have the right to withdraw this Offer Letter at its discretion.**

The Company is excited about your joining and looks forward to a beneficial and productive relationship.

Sincerely,



Dhara Shah

Vice President - Human Resources

On behalf of MarketsandMarkets Research Pvt Ltd

Declaration

I have carefully read and understood the terms of this agreement /offer letter including Annexure 1 and Annexure 2 and accept the same unconditionally. I agree to be bound by rules and regulations of the company as may be amended from time to time.

Agreed to and accepted:

Akshay Kumar

Signature

Date

Annexure A

Documents required at the time of joining

We request you to submit copies of the following documents:

- a. Resume/CV copy
- b. Copy of X, XII, Graduation, PG Degree / Diploma / other qualification Certificates / Degree
- c. Identity & Address Proof : Driver's license / Election ID Card
- d. Service certificates / Relieving letter of the last employer (if employed previously)
- e. Passport
- f. Latest salary slip [for last three months]
- g. 1 cancelled cheque of any bank, saving account's in your name
- h. Experience certificates (from at least previous 2 employers)
- i. Copy of PAN Card and Aadhar Card
- j. Copy of TDS certificate/Form 16 of previous employer
- k. Your appointment letter at your last company and also all the subsequent compensation review letters, if any.
- l. Particulars of blood group and any medical allergies
- m. Recent passport sized photographs (five nos)

The Company reserves the right to request for any additional documents to be submitted along with the above on the Date of Joining or at any time during the term of employment

Contact Person:

- Pranav Kulkarni
+91-8087401206
pranav.kulkarni@marketsandmarkets.com
hrops@marketsandmarkets.com

Annexure B : Management Trainee

Name	Akshay Kumar	
Designation	Management Trainee	
Date of Joining	18-Mar-24	
CTC	3,90,300	
COMPONENTS	Monthly (Rs.)	Annual (Rs.)
Basic Salary	15,000	1,80,000
HRA	6,000	72,000
Education Allowance	0	0
Hostel Allowance	0	0
LTC/LTA	0	0
Food Allow/Meal Vouchers	0	0
Special Allowance	9,003	1,08,036
Sub Total (A)	30,003	3,60,036
Health Club Allowance	0	0
Telephone Allow /Expense	0	0
Academic Allowance	0	0
Chauffeur Allowance	0	0
Car Allowance	0	0
Total Reimbursement (B)	0	0
Total Gross Salary(C=A+B)	30,003	3,60,036
P.F.(Employer contribution)	1,800	21,600
E.S.I. (Employer contribution)	0	0
Gratuity	722	8,664
Total Deferred Benefits(D)	2,522	30,264
CTC(E=C+D)	32,500	3,90,300
Variable- Performance Bonus		0
TOTAL ANNUAL CTC		3,90,300

Annexure C : Research Associate

Name	Akshay Kumar	
Designation	Associate	
CTC	5,50,000	
COMPONENTS	Monthly (Rs.)	Annual (Rs.)
Basic Salary	16,700	2,00,400
HRA	6,680	80,160
Education Allowance	200	2,400
Hostel Allowance	600	7,200
LTC/LTA	2,783	33,400
Food Allow/Meal Vouchers	0	0
Special Allowance	12,100	1,45,204
Sub Total (A)	39,064	4,68,764
Health Club Allowance	0	0
Telephone Allow /Expense	0	0
Academic Allowance	0	0
Chauffeur Allowance	0	0
Car Allowance	0	0
Total Reimbursement (B)	0	0
Total Gross Salary(C=A+B)	39,064	4,68,764
P.F.(Employer contribution)	1,800	21,600
E.S.I. (Employer contribution)	0	0
Gratuity	803	9,636
Total Deferred Benefits(D)	2,603	31,236
CTC(E=C+D)	41,700	5,00,000
Variable- Performance Bonus		50,000
TOTAL ANNUAL CTC		5,50,000

Salary Structure Clause

Leave Travel Allowance claims will be treated as per existing tax laws and the remainder will be paid as Special Allowance and taxed accordingly.

The performance based variable pay is an indicative amount and may vary depending on your performance and the Company's performance.

You should be on the rolls of the company at the time of the payout to be eligible for performance based variable Pay. You would not be eligible for this payout if you have resigned /exited or serving notice.

Please note:-

- PF amount mentioned shall differ based on nationality as per governing laws.
- Conditions Apply as per the prevailing company policy.

DECLARATION BY STUDENT

I hereby declare that this dissertation titled Exploring the medical devices market in India is the bonafide record of my original researchwork. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished workof others has been duly acknowledged in the text.



Akshay Kumar

04-July-2024

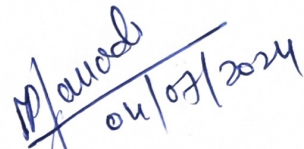
CERTIFICATE

This is to certify that dissertation titled “**Exploring the medical device market in India**” is a record of the research work undertaken by **Akshay Kumar** in partial fulfillment of the requirements for the award of the degree of MBA (Pharmaceutical Management) from the IIHMR University, Jaipur under my guidance and supervision and his/her approach to the research study has been sincere, scientific, and analytical.



DR. SUDHINDER SINGH CHOWHAN
Faculty Guide
IIHMR University, Jaipur

04-July-2024



DR. MANTHAN D.
JANODIA
School Dean
IIHMR University, Jaipur

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(Associate Professor)

2024

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Akshay Kumar

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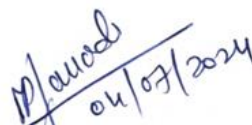
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A handwritten signature in blue ink, appearing to read 'Sudhinder', with the date '04/07/24' written below it.

DR. SUDHINDER SINGH CHOWHAN
Faculty Guide
IIHMR University, Jaipur

04-July-2024

A handwritten signature in blue ink, appearing to read 'Manthan D. Janodia', with the date '04/07/2024' written below it.

DR. MANTHAN D.
JANODIA
School Dean
IIHMR University, Jaipur

ABSTRACT

Title: Exploring the medical device market in India

Author Name: Akshay Kumar

Advisor Name: Dr. Sudhinder Singh Chowhan

Methodology:

Research Questions:

1. What are the key factors driving the growth of the medical device market in India?
2. Who are the major players dominating the market in this industry?

Objectives:

1. To access the SWOT analysis of medical devices market in India.
2. To explore the growth and potential of India's medical device market.
3. To identify the major players along with business segment and revenue of this industry in India.

Materials and Methods:

Type of study- Exploratory followed descriptive study

Type of data- Secondary data

Research instruments- Research papers, publications, journals, annual reports, government websites.

Analysis tools- MS Excel

Study Population

Inclusion Criteria:

- Top public and private companies more than 10 years in medical device industry.
- Analysis of latest available revenue sheets and recent news contributing to medical device industry.

Exclusion Criteria:

- Companies with less than 10 years of service in this industry.

Duration of study: 3 months.

Sample size: Profiling 3 companies working in this segment.

Data Collection:

Data for secondary research was gathered from a variety of sources including journals, articles, company websites, annual reports, product brochures, corporate profiles, general internet searches, medical literature, and searches through newspapers and magazines. These sources were used to identify various centers of specialization and articles that could provide valuable insights for market analysis and forecasts.

Keywords: Medical devices, Indian market, Trade, medical device regulations, Government initiatives.

ACKNOWLEDGEMENT

I am writing to express my profound gratitude to everyone who supported me in completing this project. I am deeply appreciative of their inspiring guidance, invaluable constructive criticism, and friendly advice throughout the project work.

I am sincerely grateful for their insightful and illuminating perspectives on various issues related to the project.

I wish to extend my deepest thanks and honor to Dr. [Dean's Name] for his constant encouragement and inspiration. I am also very grateful to my manager, Tushar Genji, for his invaluable guidance and mentorship throughout my internship. Lastly, I owe a special debt of gratitude to my mentor, Dr. Sudhinder Singh Chowhan, for his keen interest in my project and unwavering support until its completion. I wholeheartedly thank him for his invaluable suggestions.

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INTRODUCTION

This medical device industry is a very critical part of health sectors as it enables the tools for Indian diagnostics, monitoring, and treatment. Such industries have varied areas of products, ranging from basic items such as thermometers and disposable gloves to advanced imaging systems and robotic surgical instruments. Growing prevalence of both chronic and infectious diseases is one of the main drivers for the rising demand of medical devices in India. These changes, with increasing lifestyle modifications, rapid urbanization, and an aging population, have led to various non-communicable diseases, such as diabetes, cardiovascular diseases, cancer, and respiratory disorders. For instance, India possesses the world's second-biggest population of diabetics; continual monitoring and management of diabetes would be required with the help of devices such as glucose monitors and insulin pumps.

Government initiatives like 'Make in India' and 'Ayushman Bharat' give impetus to industry growth by encouraging domestic manufacturing and increased access to healthcare. 'Make in India' aims at increasing the domestic manufacture of medical devices, thus reducing the country's reliance on imports and improving the quality of locally manufactured products. Various challenges have arisen, with high dependence on imports and adverse regulatory environments chief among them. Advanced medical devices are imported; for example, high-end diagnosis imaging systems are imported. This creates problems regarding cost and stability in supply chains, not to mention compliance with international standards.

It is in the face of challenges and opportunities that heavy investment in research and development has enabled the leading multinationals and domestic companies to provide cost-effective, India-specific medical devices. With growing collaborations between local firms and overseas companies, technology transfer and skill development are facilitated, and also, the market reach is extended. This would entail long-term growth in the medical device market of India with increasing healthcare awareness, a rising burden of chronic diseases, supportive government policies, and technology. It can be expected to lead to reduced imports, more affordable, and accessible healthcare. The growth drivers will need to be understood and the challenges mitigated for the future development of the industry.

As of 2022, the medical devices industry in India is valued at approximately USD 11 billion (Rs. 90,000 crore) and is projected to reach USD 50 billion by 2030. Over the past three years, the industry has consistently experienced a compound annual growth rate of 15%. India ranks among the top 20 medical device markets globally and stands as the fourth largest market in Asia, following China, Japan, and South Korea.

The startup landscape in India's medical device sector is expanding rapidly, fueled by technological innovation and entrepreneurial drive. These startups are harnessing advancements in AI, IoT, and digital health to pioneer new solutions for healthcare challenges. Despite encountering regulatory and funding hurdles, these ventures play a pivotal role in meeting local healthcare demands, improving access, and making healthcare more affordable. Government initiatives and support programs aimed at nurturing innovation and entrepreneurship within the medical device industry further bolster the growth and dynamism of startups in India.

LITERATURE REVIEW

Year	Author	Study	Findings
2020	T. C. James Abha Jaiswal et al	A survey was undertaken to gather the opinions of important stakeholders, the majority of whom were in the industry. (1)	Several policy initiatives have been launched recently to guarantee the industry's significant and sustained expansion. However, the industry must expand more quickly than in the past due to the expanding needs for public healthcare. There is a need to create awareness about the quality medical devices that are supplied within the country.
2021	Manas Manu, Gaurav Anand	A review of medical device regulations in India, comparison with European Union and way-ahead. (2)	In the last several years, India has made significant strides in the fields of medical equipment and healthcare. In the medical device industry, India has set a new standard with the implementation of IMDR in 2018. These days, the procedures are more transparent, and the governments encourage producers to shift toward producing more domestically rather than importing.
2016	Anjan Bose, Charu Sehgal	Medical Devices Making in India - A Leap for Indian Healthcare (3)	Work together on goods and innovation originating in India: Medical technology and device incubators must to be urged to cooperate with business and academics in order to promote entrepreneurship and innovation. This could help unique items made in India become commercially successful.

2019	Kale, Dinar and Wield, David	In search of the missing hand of "collaborative action": evidence from the Indian medical device industry. Innovation and Development (4)	The Indian government is capable of fostering the growth of significant new sectors through public policy. Public policy, therefore, has not yet proven effective in the medical device sector. There must be many public policy initiatives. A significant cross-institutional, public-private project akin to the Biotechnology project involving a wider array of pertinent players would constitute a crucial advancement in establishing a sector whose inventive capacities are important for enhancing health and fostering social and economic progress.
2019	Bhavana B Bhat, et al	Medical Device Industry in India: Past to Present (5)	India's healthcare system is severely underdeveloped in comparison to other nations, and it requires urgent attention as well as several reforms. India is still falling behind other countries in terms of innovation and production, despite the country's medical device industry growing significantly as a result of programs like "Make in India." The medical device industry has seen a sharp increase because to government assistance and technological advancements made by industry specialists.
2023	Dr. Preeti Kumar, et al	Equitable Access to Medical Devices- India (6)	A medical device industry that is capital-intensive and dependent on costly research and development can benefit from foreign investment by multinational corporations (MNCs) with substantial resources; however, in order to establish a strong medical device industry that one day may rival the pharmaceutical manufacturing industry in India in meeting the healthcare needs of both this nation and others, it is necessary to guarantee the

			long-term availability of both capital and skilled human resource in the nation.
2021	Nipun Shrestha, Sanju Gautam et al	Burden of chronic kidney disease in the general population and high-risk groups in South Asia: A systematic review and meta-analysis (8)	This study established Chronic kidney disease (CKD) as a key health priority in South Asia. One in seven participants in our study had CKD. In comparison to the general population, CKD was nearly twice as common in adults with hypertension and diabetes. This finding therefore reflects an urgency for lifestyle interventions that target common risk factors for NCDs and thus reduce the progression of CKD in future events.

INDIAN SCENARIO

Indian Medical Device Market

The present value of the Medical Devices industry in India is approximately USD 11 billion (Rs.90,000 Cr) in 2022 and is likely to reach USD 50 billion by 2030. Over the past three years, the industry has consistently grown at a compound annual growth rate of 15%. India represents not only one of the top 20 medical device markets in the world but also the fourth largest in Asia for medical devices, ranking after China, Japan, and South Korea.

Medical devices are segregated into five major segments:

- Consumables & Disposables include needles and syringes, etc.
- Diagnostic Imaging includes MRI, X-Ray, Ultrasounds, etc.
- Dental Products includes dentures, braces, etc.
- Orthopaedics & Prosthetics include knee implants, artificial joints.
- Patient Aids include hearing aids and pacemakers, etc.

Demand side factors

Rise in the prevalence of chronic diseases

There has been an increase in the prevalence of chronic diseases, posing a significant challenge in public health. The factors contributing to the chronic diseases are due to lifestyle changes, urbanization, sedentary lifestyle. Major chronic diseases that are affecting the Indian population are cardiovascular diseases, diabetes, cancer, chronic respiratory, and hypertension.

CVDs are the leading cause of death globally. Of the people who died in 2019, as many as 17.9 million died due to CVDs 32 percent of the total. Out of these, 85 percent died from heart attacks and strokes.

An estimated 36 million people die each year from chronic illnesses, with persons 60 years of age and beyond accounting for three-fourths of these deaths.

Type 2 diabetes affects an estimated 77 million Indians over the age of 18, of whom 25 million are prediabetic, meaning they have a higher chance of getting the condition in the near future. Over 50% of people do not know they have diabetes, causing a serious health problems if it is not identified and treated in a timely manner. In India the prevalence rate of diabetes is 8.5% and it affects 774,194,700 of adults annually.

Ageing population

India's population is aging quickly, causing a change in demographics. The percentage of the population that is elderly is growing as life expectancy rises. The country's chronic disease prevalence will be significantly impacted by this change.

By 2050, one-fifth of India's population will be above the age of sixty. In 2022, 149 million were 60 years of age or older, or nearly 10.5 percent of the population. By 2050, that will more than double again, to 20.8 percent—347 million.

A rise in the penetration of insurance

There has been a surge in penetration of insurance in India. The increase can be contributed to the government initiatives, regulatory reforms, and rise in awareness among population.

In the life insurance industry, India has emerged as the sixth most promising market among the developing insurance markets globally and grown at an annual growth rate of 32–34%. IRDA, with vigilance and further advancement in view, aspires to turn the vision into action of "Insurance for all" by 2047; Ayushman Bharat provides Rs. 5 lakh health coverage, annually, to every family for the hospitalization expenses incurred towards secondary and tertiary care.

Supply side factors

Indigenous manufacturing

Domestic manufacture would make it possible for healthcare services to expand farther into India's rural areas, improving access to medical devices. The simple availability of medical devices will minimize the time it takes to open new healthcare institutions and boost the operating efficiency of existing ones. India imports majority of the medical devices, so it opens a huge opportunity especially emerging players to boost local manufacturing and easily availability of medical devices.

Healthcare Scenario

The healthcare industry in India has grown to be one of the most significant in the country in terms of jobs and income. With the government placing greater emphasis on it and the market's increasing demand for healthcare goods and services, it has changed quickly in the last ten years and gained a great deal of attention. Over 100 million people in India are over 100 years old, while the country's population is expanding at a rate of 1.6 percent annually. Ministry of Health and Family Welfare has got an allocation of Rs 89,155 crore in 2023-24. In the budget, the government has allocated approximately 33 percent of the Ministry's budget to NHM, about 29,085 crore in 2023-24. The outlay for PM- Ayushman Bharat Health Infrastructure Mission of ABHIM for creation of primary health infrastructure has been increased from Rs 1,885 cr in 2022-23 revised estimates to Rs 4,200 cr in 2023-24 Budget Estimates, thereby going up by 123 per cent. Pradhan Mantri Jan Arogya Yojana is a programme of public health insurance. Under PMJAY, there is a cashless and paperless

benefit cover of Rs. 5.00 lakh per annum per family. As of date, AB-PMJAY covers 10.79 crore households, approximating more than 50.00 crore persons across the country.

Disease Pattern

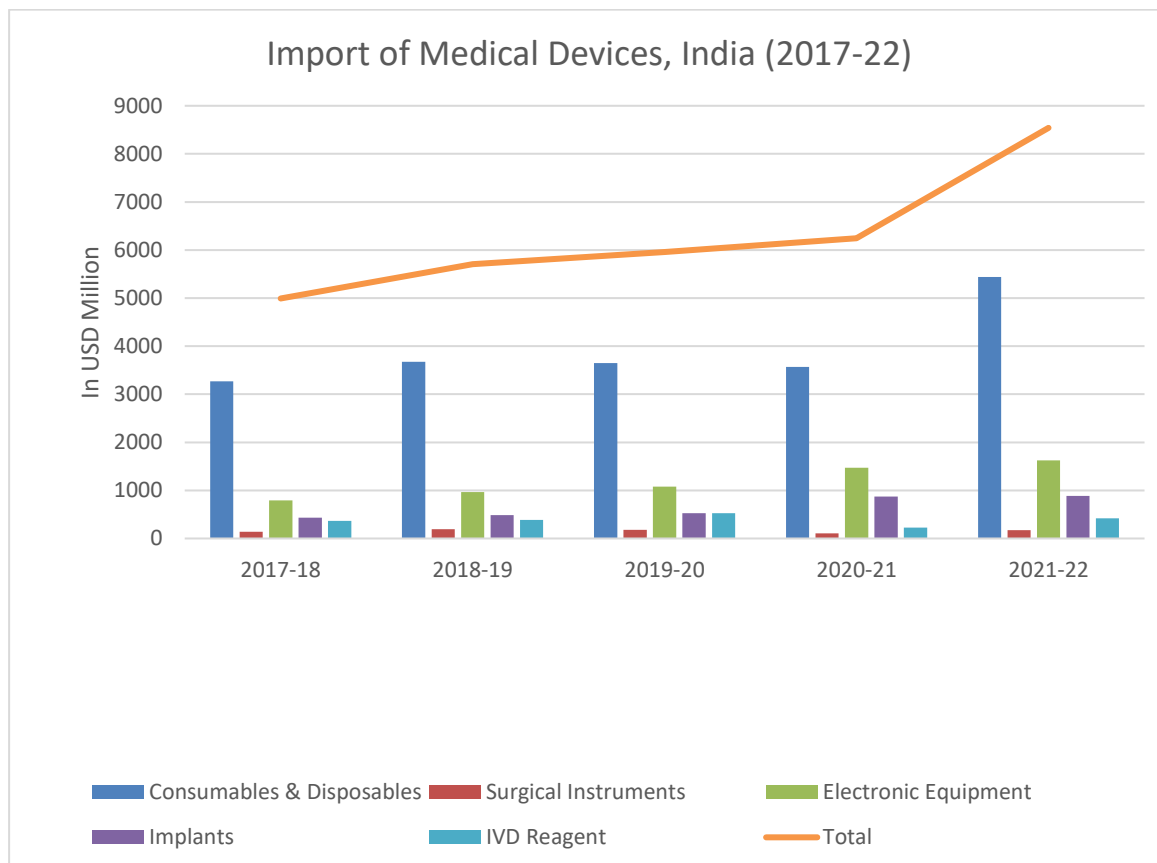
In the USA and Germany, cancer (21–28%) and cardiovascular disease (31–34%) are the leading causes of death, followed by kidney problems (3-4%) and Alzheimer's disease (9-13%). India, much like these industrialized nations, has high mortality rates from cardiovascular diseases and cancers. While these diseases are more prevalent in other countries, their incidence is notably increasing in India. Additionally, chronic respiratory disorders are more severe in developing countries such as China and India. In India prior to the pandemic, ischemic heart disease, stroke, and chronic obstructive pulmonary disease were India's top causes of death. The combined effect of these three non-communicable diseases (NCDs) in 2019 was anticipated to be 226 fatalities per 100,000 persons. In addition, 112 deaths per 100,000 persons were attributed to diarrheal illnesses, tuberculosis, and newborn issues. 101 million Indians had diabetes in 2021, while 1.46 million received a cancer diagnosis in 2022.

Trade

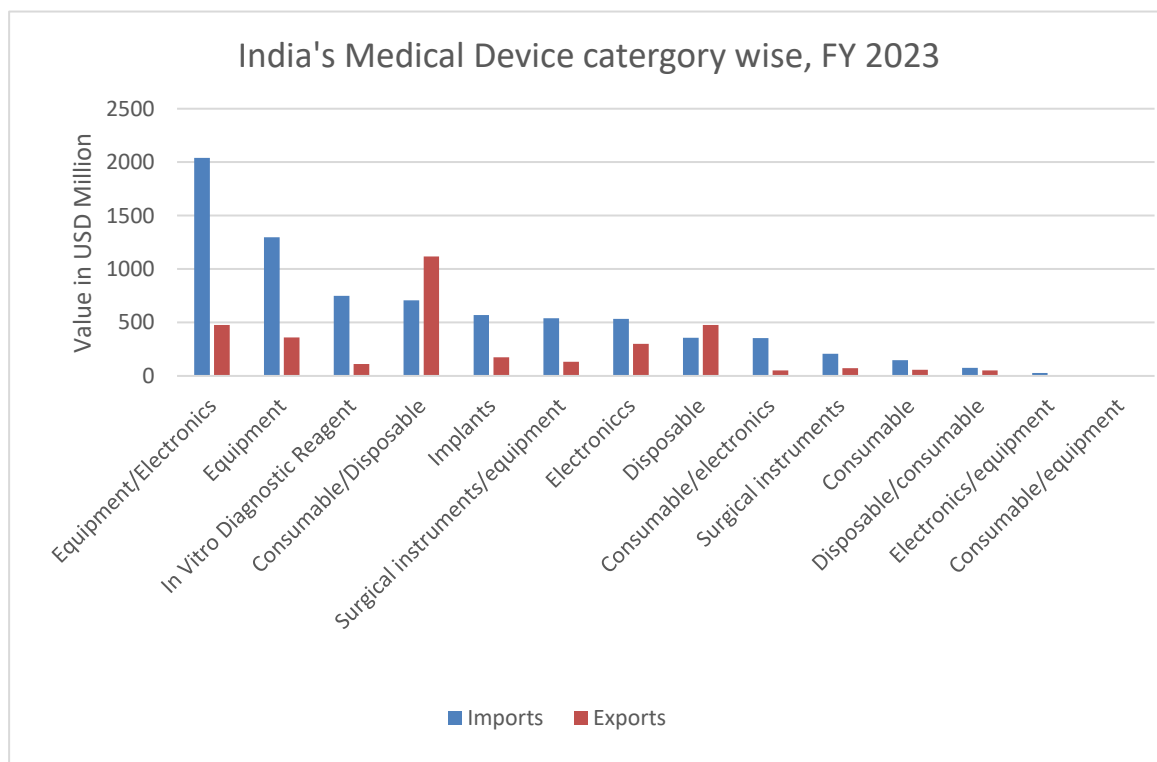
India imports over 80% of its advanced medical equipment from outside producers. This includes PCR, ultrasonic scanning, medical imaging, and cancer detection equipment. India is mostly dependent on imports from the US, Singapore, China, Germany, and the Netherlands.

In 2022-23, India exported medical devices worth USD 3.39 billion and imported medical devices valued at US\$ 7.49 billion and are expected to rise to USD 10 billion by 2025. India's imports of medical devices increased by 41% between FY 2021–22 and FY 2020–21, from IND 44,708 crore to IND 63,200 crore. Certain kinds of medical equipment, like surgical instruments, IVD reagents, implants, disposables, electronics, and consumables, are in greater demand, according to research.

India's imports of medical devices increased from IND 4,569 crore to IND 40,649 crore between FY 2016–17 and FY 2021–22. The value of surgical equipment imports rose dramatically from IND 243 crore during this time.



Graph 1: Import of medical devices, India (2017-22)



Graph 2: Import and Export of medical devices category wise, India (2023)

Government Initiatives

The government of India has come up with several initiatives for the medical device industry, from 'Make in India' to R&D, and has also allowed 100% FDI for medical devices to augment the market.

2024: In March 2024, PLI Scheme was officially opened to 13 medical device manufacturing plants and 27 new bulk drug park projects. The events were inaugurated by the Minister of Chemicals and Fertilizers and Minister of Health and Family Welfare. Medical device parks are expected to bring down the cost of production since they shall provide all the required infrastructure whereby businesses shall simply plug and play.

Thus, the PLI scheme in medical devices works on inculcating domestic manufacturing, making it less dependent on imports, and increasing competitiveness with respect to the global market. The Scheme shall accord financial incentives that will be based on incremental sales of high-value medical devices, which may represent radiology and imaging products, anesthetics, respiratory equipment, implants, and high-end electronic devices pertaining to diagnosis and therapy. It has catalysed huge investments, augmented manufacturing capabilities, and encouraged innovation and R&D in the sector. Besides that, it is likely to create jobs and build a strong ecosystem in manufacturing. But all this would only happen when supported by a congenial regulatory environment, infrastructure, and seamless policy support continuously, which is necessary for long-term growth and stability in the sector.

2023: It is envisaged that the National Medical Devices Policy, 2023, will foster orderly growth of the medical devices industry to meet public health objectives of innovation, quality, affordability, and accessibility.

The National Medical Devices Policy, 2023, is to increase the domestic medical devices sector of India through domestic manufacturing coupled with innovation and R&D, and strengthening the regulatory framework. It outlines financial incentives, support for infrastructure development, and creation of a skilled workforce. The policy envisages reducing import dependencies, increasing access to healthcare, and establishing India as a global leader in the manufacturing of medical devices with the creation of medical device parks and public-private partnerships. This will result in economic growth with the availability of quality and affordable medical devices besides creating jobs.

2022: A programme on the "Promotion of Medical Device Parks" has been approved by the Department of Pharmaceuticals in August 2022. This would be operational from FY21 to FY25, and it would entail a total financial investment of Rs. 400 crore, with a maximum support of Rs. 100 crore for each Medical Device Park.

The Department of Pharmaceuticals, with its headquarters located in Noida, will establish an export promotion council for medical equipment, which was approved by the Indian government in September 2022.

Promotion of medical device parks is another core thrust area of the national policy seeking to encourage domestic manufacturing of medical devices. These will provide state-of-the-art infrastructure, including advanced manufacturing facilities, research and development centers, and common testing labs for the medical devices sector. These medical device parks will thus contribute to the reduction of manufacturing costs and developing better product quality while attracting investments by providing an enabling environment for innovation

and production. Besides, it would create employment, develop industry collaboration, and act as a stimulant to all-round growth and competitiveness of the medical devices industry in the country.

2021: The Rs. 15,000 crores PLI Scheme for Pharmaceuticals was announced in March 2021 with the stated objective of increasing investment and output in the pharmaceutical and medical device industries to strengthen India's manufacturing capability, so more diversified and affordable medications shall reach customers.

Twenty-six projects for medical devices have been approved with a committed investment of Rs 1,206 crore under the PLI scheme so far. This will not only help in the growth and innovation of the MedTech industry but also lay the base for India to be a global manufacturing and innovation hub in the years to come.

The Quality council of India, in collaboration with Indian Manufacturers of Medical Devices, rolled out the Indian certificate of medical device 13485 Plus system for verification of quality, safety, and efficacy of medical devices in June 2021.

To improve the acceptance of Indian medical devices in the international market, the government said in October 2021 that it was going to create a new bill pertaining to medicines, cosmetics, and medical devices.

It was announced in October 2021 that the PLI program for medical devices has accepted 13 firms and added to domestic production in the country.

In September 2021, the government approved a plan to set up a medical devices park in Nalagarh industrial township in the Solan district of Himachal Pradesh for Rs 5,000 crore (USD 674.36 million).

Government approved a medical devices park at Oragadam, Tamil Nadu, in the September 2021. This is likely to attract an investment of around Rs. 3,500 cr, with direct and indirect jobs for about 10,000 people.

The Uttar Pradesh government announced in July 2021 that it would set up a medical park. This is expected to generate an estimated Rs 500 crore for the state.

Investments

2023: Agappe, diagnostic technology in Kerala, launched the Mispa i200 Immunology CLIA analyzer and its first HX series haematology equipment made in the country on December 20, 2023, ushering in a new era in diagnostics.

LTTS and Nvidia collaborated in November 2023 to develop AI-driven, software-based endoscopic equipment designs with the goal of enhancing scalability and picture quality. The engineering services firm reported this agreement in a regulatory filing.

The Securities and Exchange Board of India (SEBI) approved Healthvista India, the parent company of the healthtech firm Portea Medical, to go public in April 2023. The IPO consists of an offer for sale (OFS) of up to 56,252,654 shares valued at Rs. 800 crore (USD 95.9 million) and a new issue of equity shares valued at Rs. 200 crore (USD 24 million).

Medtronic declared in May 2023 that it would invest over US\$ 350 million, or roughly Rs. 3,000 crores, to expand the Medtronic Engineering & Innovation Center (MEIC) in

Hyderabad. The largest research and development (R&D) facility for Medtronic located outside of the US is called MEIC.

The Japanese manufacturer and distributor of personal healthcare goods, Omron Healthcare, stated in May 2023 that it would establish a medical device manufacturing facility in Tamil Nadu at a cost of Rs. 128 crore (USD 15.5 million).

Siemens Healthineers, a medical technology company focused on digitalizing healthcare, transforming care delivery, improving patient experience, and precision medicine, announced in March 2023 that it would invest Rs. 1,300 crore (USD 157.2 million) in Bommasandra, Bengaluru, to establish a campus.

2022: Wipro GE Healthcare announced that it has collaborated with Boston Scientific, a manufacturer of medical devices, to offer complete and state-of-the-art cardiac interventional care solutions in India.

Boston Scientific expanded their research endeavors in India in 2022 when it opened a new research and development facility in Pune. This facility is the company's second in the nation; the first was established in Gurugram in 2016. With its merged R&D center, Boston Scientific now has the second-largest R&D footprint outside of the Americas in India. The new R&D center is dedicated to research projects in a variety of therapeutic domains, such as peripheral treatments, cardiac rhythm management, and interventional cardiology.

At its Global Technology Centre (SGTC) in Gurugram, Stryker opened a neurovascular research facility in 2022 with the goal of creating ground-breaking treatments for brain stroke.

The new lab is divided into three main sections: a performance lab with neurovascular simulators and 3D printing capabilities, a neurovascular catheterization lab furnished with imaging and communication technology, and a designed area for doctor interaction.

Med-tech startup SS Innovations has developed the SSI-Mantra, touted as the country's first-ever Made-in-India Surgical Robotic System, which was delivered in July 2022 to RGCI, Rajiv Gandhi Cancer Institute and Research Centre, New Delhi.

The first of its kind in South Asia, the Surgical Robot Experience Center (SREC) has opened in Gurugram, Haryana, by the efforts of Medtronic. The training and education of surgeons in robot-assisted surgery will be the main focus of the SREC.

2021: Cipla introduced 'Spirofy' in November 2021, which is the first handheld, wireless spirometer in India based on a pneumotach.

In India, the medical equipment industry is open to 100% FDI. The most FDI is drawn to categories including implants, consumables, and equipment and instruments.

Innovation Imaging Technologies Pvt. Ltd. (IITPL) opened a "state-of-the-art" facility in Bengaluru in October 2021 with the goal of producing 240 catheterization laboratories in the ensuing year. The corporation hopes to improve the nation's cardio-vascular disease treatment system by launching this effort.

The transaction between Medtronic India Private Limited and Stasis Health Private Limited intends to rise monitoring of patients in India with state of the art facilities. This agreement was entered into during September 2021.

In September 2021, Siemens Healthineers revealed that their Vadodara facility in Gujarat will commence manufacturing molecular testing kits.

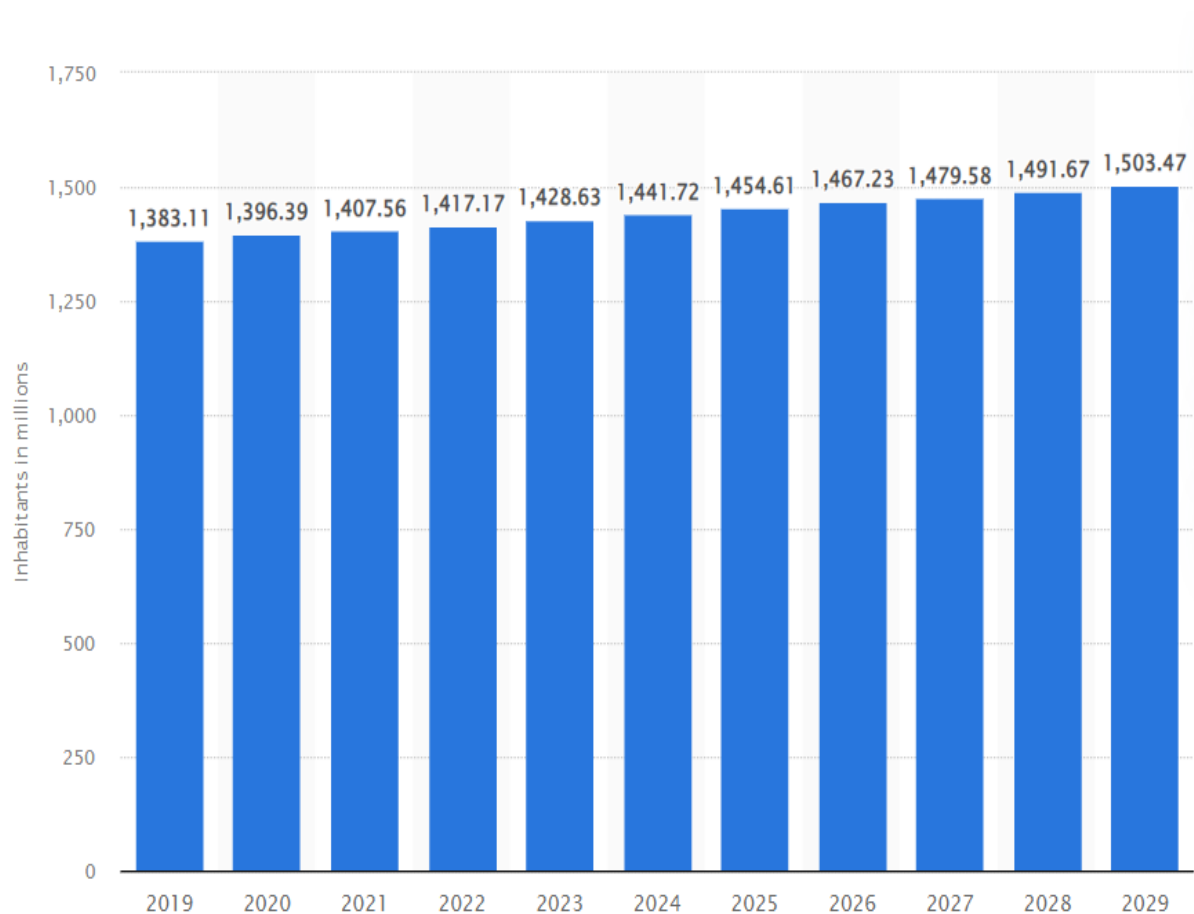
Siemens Healthineers and SyntheticMR expanded their partnership in September 2021 when they signed a new license deal for the latter's product distribution.

2020: Siemens Healthineers declared in 2020 that it will build an innovation hub in Bengaluru with investments of USD179.7 million (EUR160 million) between 2020 and 2025. Entry-level product design and development will be the innovation hub's primary focus. The digital competences that will be the center of attention for the innovation hub include cybersecurity, artificial intelligence, data analytics, and immersive technology.

In order to grow its Medtronic Engineering & Innovation Centre (MEIC) in Hyderabad, Medtronic has committed over \$500 million since 2020. With a USD 160 million investment from Medtronic in 2020, MEIC became the company's largest R&D center outside of the United States. Medtronic announced in 2023 that it will be investing USD 350 million to expand MEIC further. Research in fields such robotics, surgery, implantable technology, and imaging technology will increase as a result of the expansion.

Growth Drivers

Growing Population: The increase in population of India to become the most populous nation in the world puts it at the forefront in demand for medical devices.



Graph 3: Population growth, India (2019-2029)

Life Expectancy: The life expectancy of Indian women is predicted to increase by 2.4 years by 2030 and 6.5 years by 2050, from 73.3 years in 2022 to 75.7 years in 2030 and 79.8 years in 2050. Male life expectancy is also expected to rise; it will grow by 2.4 years by 2030 and 6.6 years by 2050, from 69.6 years in 2022 to 72.0 years in 2030 and 76.2 years in 2050.

Changing the Burden of Disease: In India, non-communicable diseases (NCDs) cause 60% of all fatalities and 50% of the illness burden. The four categories of noncommunicable diseases (NCDs) that account for the majority of morbidity and mortality are diabetes, cancer, chronic respiratory conditions, and cardiovascular illnesses. The leading cause of NCD mortality, accounting for 45% of cases, are cardiovascular illnesses (stroke, coronary heart disease, and hypertension), followed by chronic respiratory diabetes(3%), cancers(12%), and illness (22%).

Expanding Middle Class: By the next decade, some 73 million Indian households will move into the middle class, pushing up their spending power, particularly in terms of medical devices.

An increase in travel for medical purposes: The medical tourism industry is projected to reach a value of \$13 billion by 2026, which is expected to drive up demand for, medical equipment, appliances, and high-end electronics.

Infrastructure Development: Four Medical Device Parks are slated to open in Uttar Pradesh, Madhya Pradesh, Tamil Nadu, and Himachal Pradesh. Under the PLI Plan, 13 manufacturing plants and 27 new bulk drug park projects were opened in March 2024 for medical devices.

Top companies in Medical Device Industry

MEDTRONIC, INC.

The provider of medical technology, which has its headquarters in Dublin, Ireland. Since its founding in 1949, Medtronic has provided healthcare systems, doctors, clinicians, and patients with services in more than 150 nations. The company has served more than 74 million patients, employed over 95,000 employees, and has granted more than 46,000 patents.

Portfolio

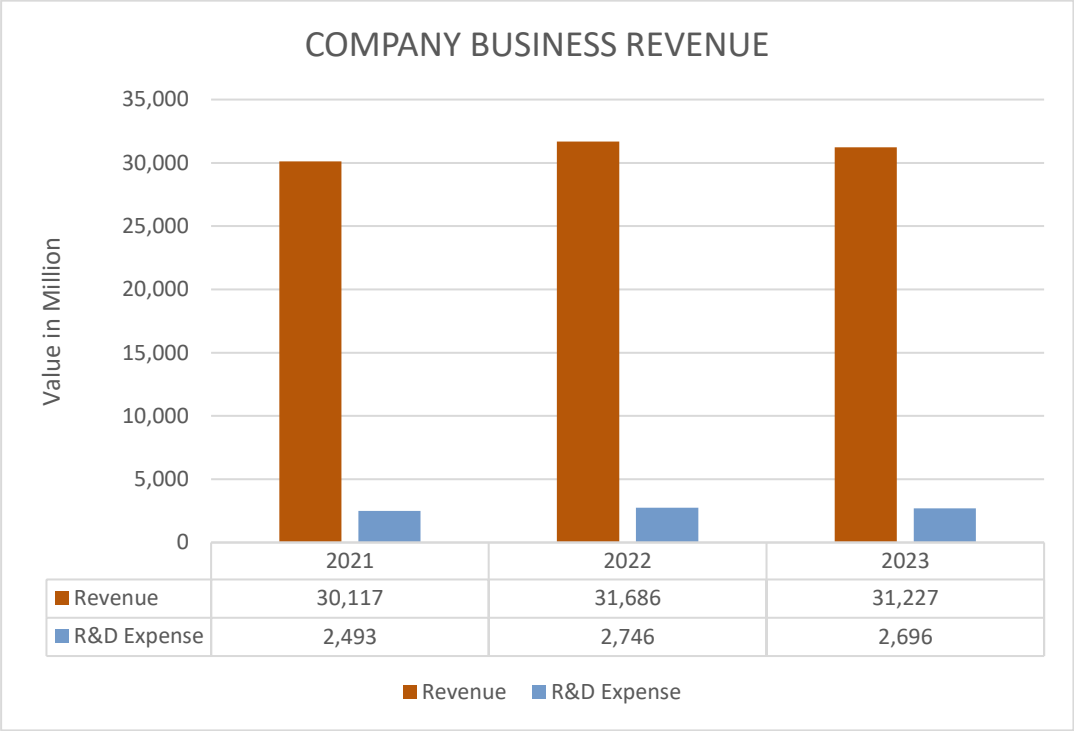
Cardiovascular: Cardiac Rhythm & Heart Failure, Coronary & Peripheral Vascular, Structural Heart & Aortic,

Medical surgical: Surgical Innovations, Respiratory, Gastrointestinal, & Renal.

Neuroscience: Cranial & Spinal Technologies, Specialty Therapies, Neuromodulation.

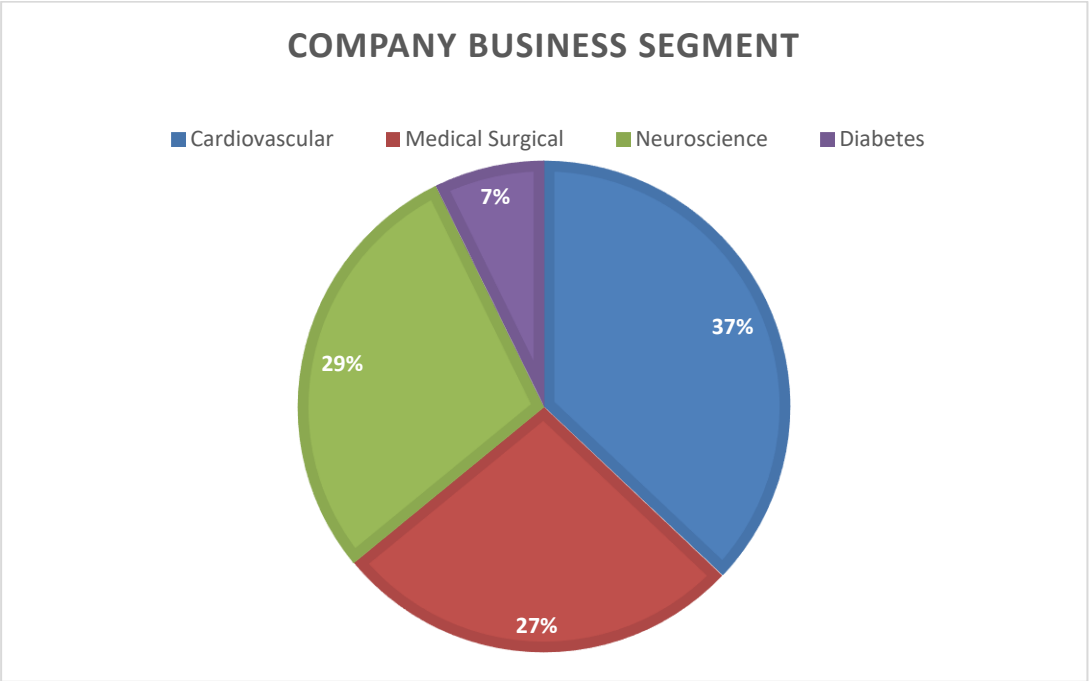
Diabetes operating unit

Company revenue



Graph 4: Medtronic financial overview (FY 2021-23)

Company business segment share (2023)



Graph 5: Medtronic business segment (FY 2023)

STRYKER CORPORATION

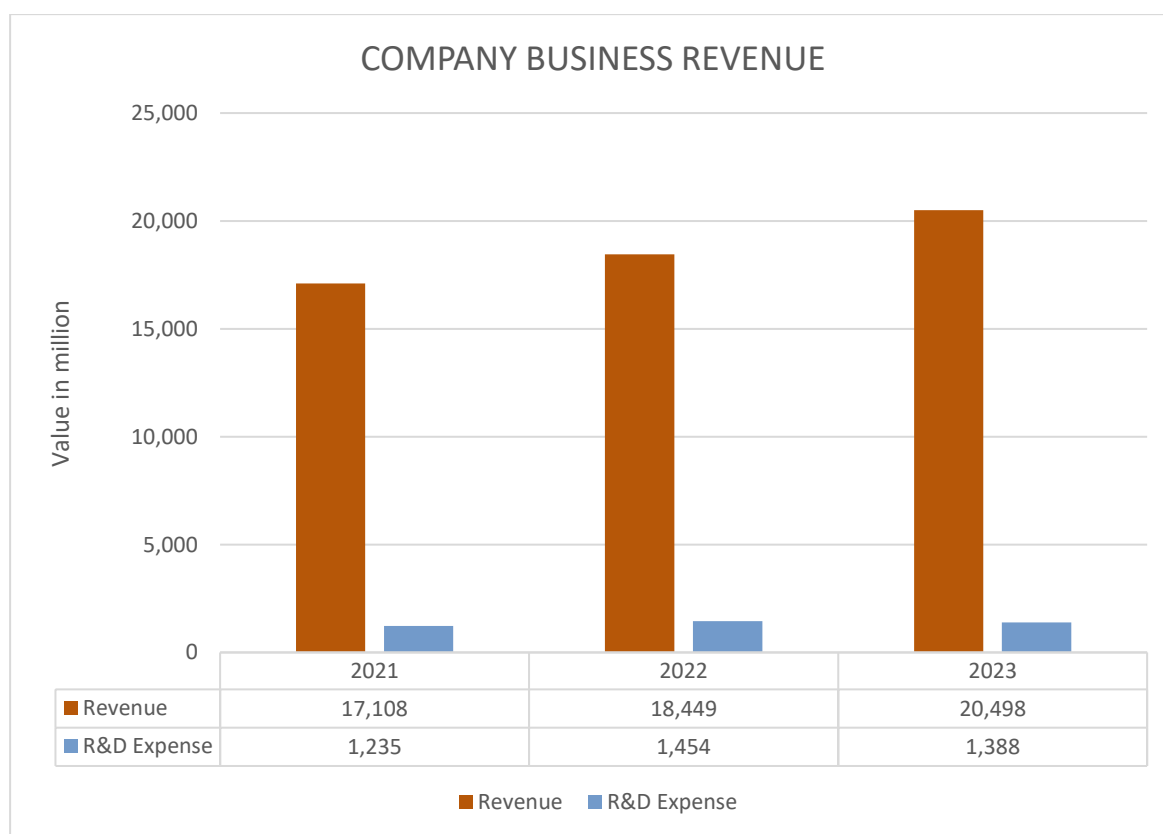
In 1941, Stryker became a Michigan corporation. Through both company-owned subsidiaries and branches and independent dealers and distributors, the business offers its products in about 75 countries. Surgical equipment, surgical guidance systems, endoscopic and communication systems, patient handling, disposable items for critical care, emergency medical equipment, and clinical communication; workflow and clinical communication solutions, equipment for neurosurgery and neurovascular disorders; implants used in trauma and joint replacement surgeries

Portfolio

MedSurg and Neurotechnology: Endoscopy, Neuro Cranial, Neurovascular, Medical

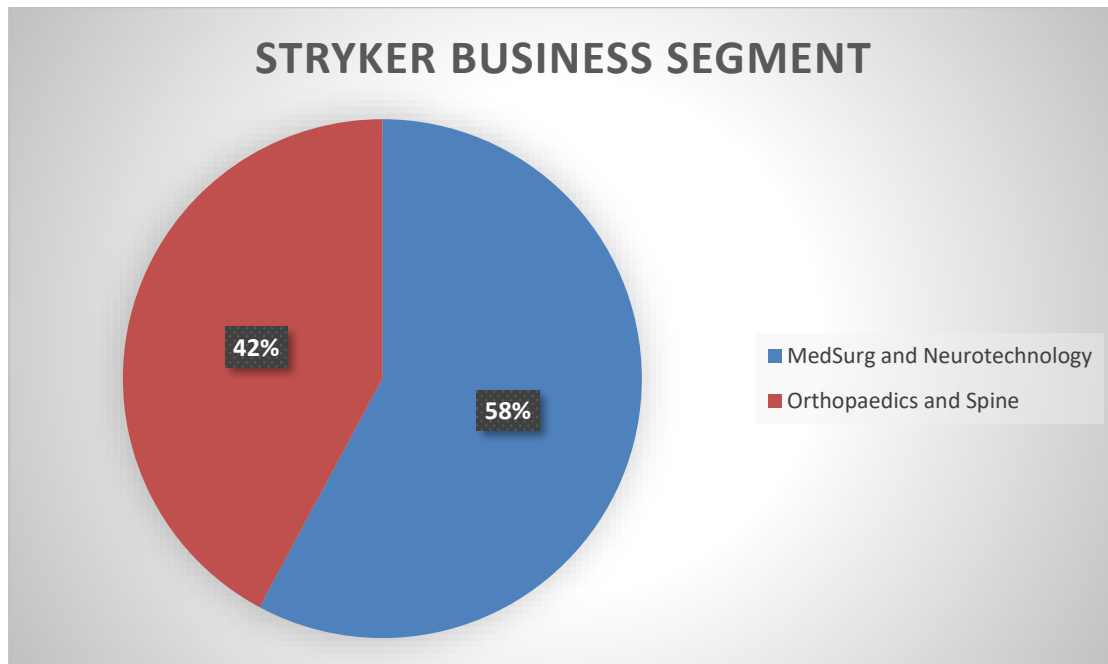
Orthopaedics and Spine: Trauma and Extremities, Knees, Spine, Hips and other.

Company revenue



Graph 6: Stryker financial overview (FY 2021-23)

Company business segment share (2023)



Graph 7: Stryker business segment (FY 2023)

BAXTER INTERNATIONAL INC.

Founded in 1931, Delaware, the company has a broad portfolio of products in dialysis, infusion system, parenteral, anesthetics, surgical equipment, smart bed system, respiratory health devices. The company manufactures products in over 20 countries and provide its services to more than 100 countries.

Portolio

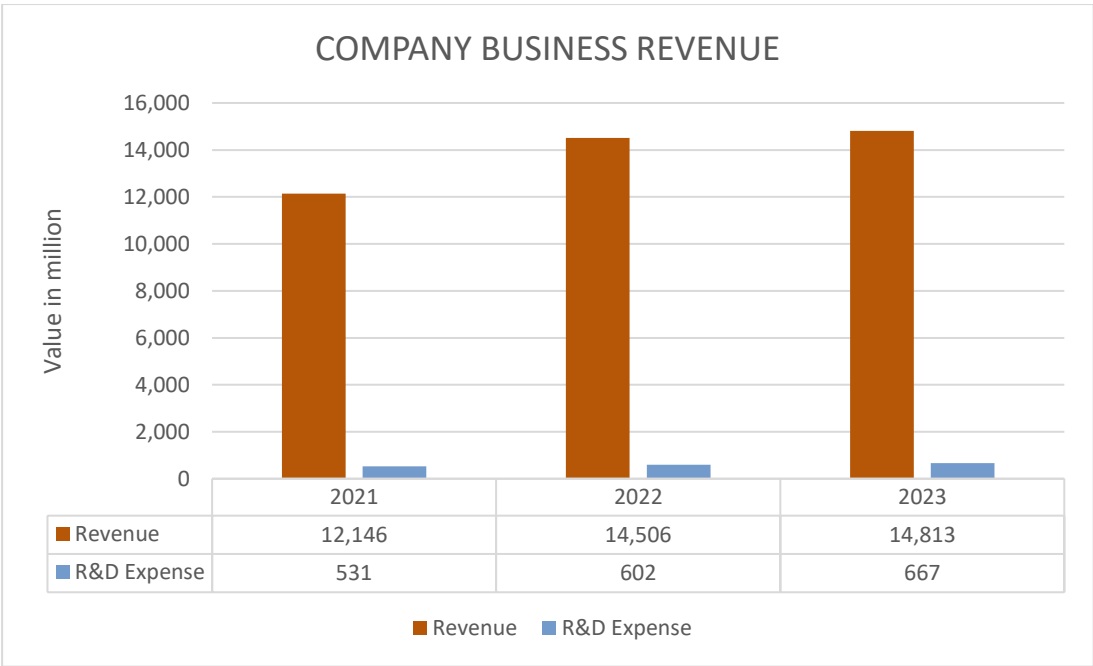
Medical Products and Therapies: Infusion Therapies and Technologies, Advanced Surgery

Healthcare Systems and Technologies: Care and Connectivity Solutions, Front Line Care

Pharmaceuticals: Injectables and Anesthesia, Drug Compounding

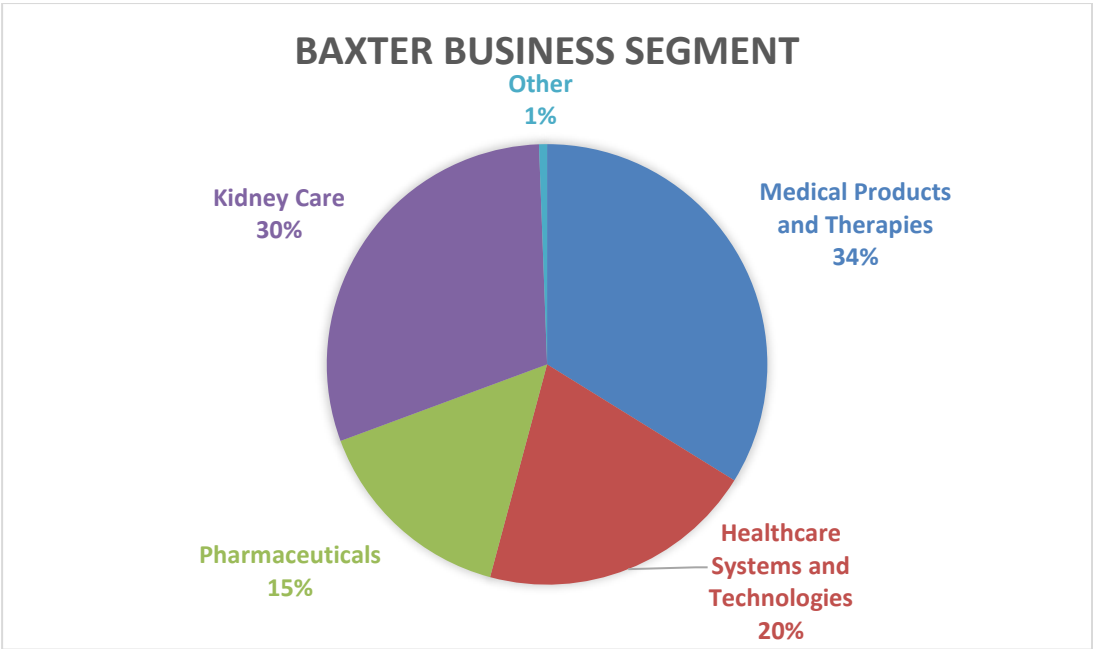
Kidney Care: Chronic Therapies, Acute Therapies

Company revenue



Graph 8: Baxter financial overview (FY 2021-23)

Company business segment share (2023)



Graph 9: Baxter business segment (FY 2023)

SWOT Analysis of Indian Medical Devices Industry

Strengths:

The Indian medical device market benefits from a supportive policy environment, including the allowance of 100% FDI, which has opened up substantial opportunities. There is significant potential for import substitution and a vast untapped market, driving the sector's growth. The increasing number of health technology start-ups is fueling innovation and development. Moreover, government initiatives like the establishment of med-tech parks are significantly enhancing infrastructure and supporting local manufacturing, providing a robust boost to the industry.

- A favorable policy environment, allowance of 100% FDI.
- There is a vast untapped market and significant potential for import substitution.
- Increase in the number of health technology start-ups.
- Boost by government initiatives, such as med-tech parks.

Weakness:

The Indian medical device market encounters multiple challenges, including insufficient investment in research and development (R&D), which limits innovation and progress. The industry also relies heavily on imports for advanced devices, leading to supply chain vulnerabilities and increased costs. Additionally, there is a shortage of reliable raw materials and parts, impacting production quality and consistency. Moreover, limited involvement in international trade and export marketing tours hinders the industry's global presence and competitiveness.

- Low investment in R&D.
- Large import dependency.
- Lack of dependable raw material and parts.
- Lack of participation in international trades and export marketing tours.

Opportunities:

Initiatives like the Production Linked Incentive (PLI) scheme, med-tech parks, purchase policies, and favorable FDI regulations are fueling the growth of the Indian medical device market. Additionally, the implementation of Ayushman Bharat and the expansion of insurance coverage are driving increased market demand. The government remains strongly committed to supporting and promoting domestic medical device manufacturing, showing flexibility and a readiness to adapt policies as required.

- Schemes such as PLI, med-tech park, purchase policy, FDI policy.
- Implementation of Ayushman Bharat, increase in insurance coverage lead to increase in market demand.

- The government is highly committed to supporting and promoting Indian medical device manufacturing, showing policy flexibility and a willingness to adapt policies as needed.

Threats:

Competing nations are making substantial investments in research and development, which puts pressure on the Indian medical device market. The industry faces challenges due to its lack of a strong global presence and its reliance on international supply chains for raw materials and components, making it vulnerable. Additionally, there is a heavy dependence on global imports for advanced medical devices, which further complicates the situation.

- Competing nations are heavily investing in research and development.
- Lack of global presence.
- Dependence on global supply chains for raw materials and components can lead to vulnerabilities.
- Heavily dependence on global imports of medical devices.

Conclusion

The medical device market is rapidly changing as a result of advancements in research, development, and invention that enhance the range of issues that medical devices may solve as well as the patients quality of life. This has already been substantiated by the fact that software as a medical device has already been integrated into the European Union, the United States of America, and India. There is hardly any doubt that the new effort by the government in making the health systems more adept and building a robust framework will succeed. Projects like Ayushman Bharat Digital Mission include fundamental integration of information from various websites onto one IT platform, sharing of that information with the masses, and integration towards developing a trustworthy digital health information system. Also, uniform testing protocols need to be evolved for the newer medical devices designed and launched into market. While lots of effort has been made to encourage the production of medical devices in India, very few studies looked upon cost-effectiveness in such interventions and health technology assessment—research that, therefore, is needed to guide future policy decisions in the nation. FDI by MNCs with adequate resources can indeed support a capital-intensive medical device industry dependent upon expensive research and development, but to build up a strong medical device industry that may one day be comparable in service to the pharmaceutical manufacturing industry in India, catering to the healthcare needs of this nation and many others a complete assurance over capital and skilled human resources has to be there regarding its availability within the nation for the long term.

Recommendations

Increase R&D by working together between industry and academia:

The National Medical technologies Policy 2022 advance paper outlines the government's plan to accelerate the expansion of the medical device industry, thereby paving the way for greater accessibility to these technologies. Enhancing research and development (R&D) in the medical device industry is imperative, and a productive collaboration between academics

and industry is essential to achieving this goal. Academic innovation is fundamental to the field, and universities produce a significant amount of high-caliber intellectual property. The majority of these innovations, meanwhile, do not lead to commercial translation. The industry and academia must collaborate for the best possible use of these breakthroughs.

Encouraging policies sufficiently:

The medical device industry needs adequate policy protection and encouragement to draw in more private investment. By creating medical device parks and clusters, the government hopes to lessen its dependency on imports and increase access to healthcare. But since India still imports 70% of its medical equipment, the sector needs more than PLI plans to entice international medical device businesses to manufacture in India in exchange for a 5–7% incentive on earnings from such items.

Adopt a collaborative approach:

The medical device clusters can reach their maximum potential by adopting a collaborative and forward-thinking strategy. Joint venture initiatives and industry cooperation can help overcome a number of obstacles. Regularly scheduled seminars and events can be held to bring together the medical device industries.

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