Evaluating MSD India's Pricing Strategy of Oncology Drug Keytruda

(and suggesting approaches to improve patient access)

Annika Shah, Aditya Birla World Academy (Grade 12, IBDP)

Aug 2024 – Sep 2024

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Abstract:

This paper provides a comprehensive analysis of the Indian oncology sector with a particular emphasis on Keytruda (Pembrolizumab), an anti-PD-1 therapy marketed by Merck Sharp & Dohme (MSD). PD-1/PD-L1 inhibitors are a class of cancer immunotherapy drugs that work by targeting specific proteins in the immune system to enhance the body's ability to fight cancer. Given the critical role of chemotherapy drugs in cancer treatment and the rising incidence of cancer in India, this paper aims to dissect the pricing strategy of Keytruda, which remains one of the most expensive cancer medications in the country. Initially, the paper assesses the global oncology landscape, emphasizing market size, growth drivers, and cancer incidence, before narrowing the focus to the Indian oncology market, drawing correlations between economic factors and cancer treatment affordability. The analysis highlights the significant price disparity between Keytruda and its competitors, as well as its affordability in the context of Indian household income levels. Utilizing economic metrics, a pricing sensitivity analysis is conducted to propose feasible price reductions that could enhance patient access to Keytruda. Ultimately, this research aims to provide actionable insights that could guide MSD toward an optimized pricing model, facilitating better patient access and potentially saving 15x more lives.

Introduction and Aim:

MSD's is a leading global research-intensive pharmaceutical company, founded over 130 years ago, with a mission centered on innovation and a commitment to advancing healthcare. MSD, operating in more than 140 countries, is dedicated to developing breakthrough therapies across a range of therapeutic areas, including oncology, vaccines, and infectious diseases. Through its extensive research efforts and patient-first philosophy, MSD continues to impact the oncology landscape significantly.

With cancer incidence rates rising globally, the role of chemotherapy drugs has become increasingly critical. The complexity of cancer, stemming from its unclear causes and variable survival rates, has driven significant investments in cancer research. Keytruda is recognized as one of the highest-priced cancer chemotherapy medications currently available. This paper seeks to explore the overall market dynamics, therapeutic landscape, competitive environment, and types of cancer relevant to Keytruda's usage.

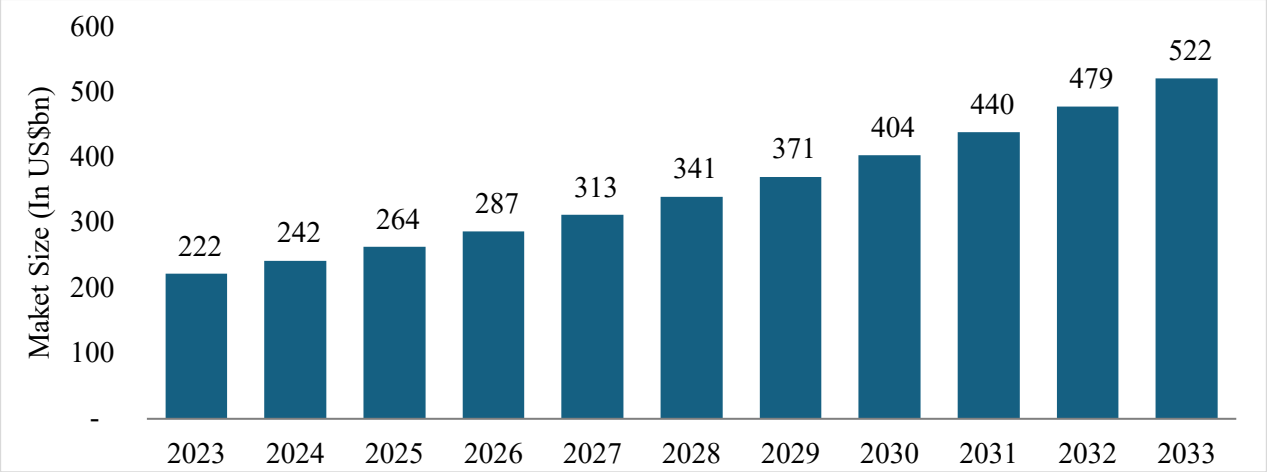
It aims to suggest an optimum pricing model for Keytruda. Important considerations include the Indian demographic, GDP factors, income levels and cost of therapy. By lowering the price to match certain benchmarks, MSD can ultimately improve patient access and affordability, saving the lives of cancer patients who earlier may not have been able to afford this critical and life-saving drug.

A. Global Oncology Landscape

A.1 Market Size

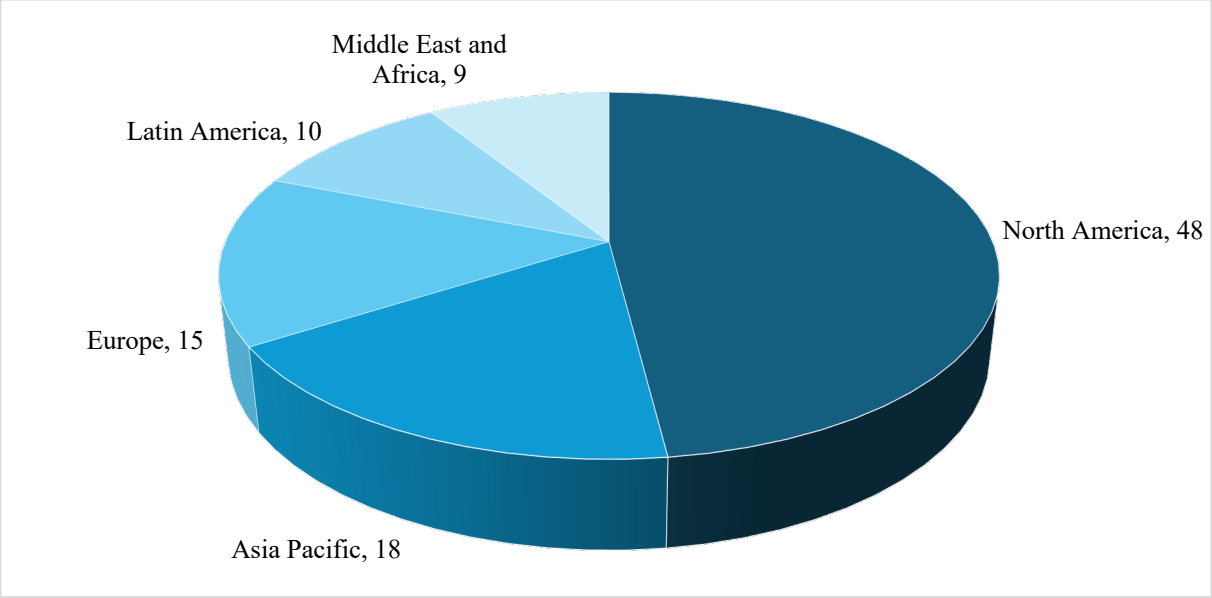
The global oncology market size was valued at $222Bn in 2023 and is projected to grow from $242 bn in 2024 to $522 bn by 2033, growing at a CAGR of 8.9%. As a nation, the United States leads oncology drug development and innovation. Many new therapies and drugs are being researched and launched in the US with the approval of the FDA. [1]

Global Oncology Market Size, 2023 to 2033 (In US$ Bn)



Source: Nova One Advisor

Oncology Market Share, By Region, 2023 (%)



Source: Nova One Advisor

A.2 Growth Drivers

The global oncology market is growing rapidly as the incidence of cancer increases. With 20M cases in 2022, this is expected to grow to 32M cases in 2050.

There are 4 key factors driving the growth of this market:

1. Increasing prevalence of cancer
2. Growth in oncology related R&D activities
3. Introduction of Novel Active Substances (NAS)
4. Increasing global oncology spending

Increase in Prevalence of Cancer:

As aforementioned, the year 2022 saw approximately 20M new cancer cases and 9.7M deaths. This is set to increase by more than 12M new cases each year over the next 25 years. Asia is likely to witness more than half of this increase, led by China with an incremental 2.4M cases per year by 2050, which is up 51% from 2022. [2]

The growing global cancer incidence is due to aging population, population growth, and changes to people's exposure to risk factors, several of which are associated with socioeconomic development. Tobacco use, alcohol consumption, unhealthy diet, physical inactivity, and air pollution are all well known risk factors. [3]

In addition, pre-existing infections play a significant role, especially in low and middle-income countries. Around 13% of global cancers diagnosed in 2018 were due to carcinogenic infections such as Helicobacter pylori, human papillomavirus (HPV), hepatitis B and C viruses, and Epstein-Barr virus. Hepatitis B and C viruses increase liver cancer risk, while certain HPV types heighten the risk for cervical cancer. [4]

Growth in Oncology R&D Activities:

While the number of oncology trials declined from 2022 to 2023, trials in 2023 remained 11% higher as compared to 2019. The main focus of R&D in oncology is the segment of solid tumors (which are an abnormal mass of tissue and represent one of the biggest types of tumors found in cancer patients). Emerging biopharmaceutical companies led the charge, accounting for 60% of these trials,

a substantial rise of 33% from a decade ago. Novel treatments such as cell and gene therapies, antibody-drug conjugates (ADCs), and multi-specific antibodies are showing significant promise in cancer treatment. PD-1/PD-L1 inhibitor trials have increased by 29% over the past five years. In 2023 alone, over 250 CAR T-cell therapy trials were initiated, mainly for blood related cancers. [2]

Launch of Novel Active Substances:

A novel active substance (NAS) is a new molecular or biologic entity or combination that has not been previous authorized for sale. In 2023, 25 new oncology novel active substances (NASs) were introduced globally, adding to a cumulative total of 192 since 2014. However, there are significant regional disparities in the availability of these medications. Emerging biopharmaceutical companies were responsible for 61% of the new oncology drugs in 2023, having launched 45% of them. [2]

Global Oncology Spending

The manifold growth in the spending on cancer medicines is also driven by the volume of patented brands and the introduction of new products over the past five years, despite some treatments losing their exclusivity. The widespread adoption of biosimilars (a biological drug that is similar to another biological drug that has already been approved by the FD) in major markets has also led to significant cost savings.

Six major tumor categories (such as Breast, NSCLC, multiple myeloma, etc.) experienced a robust growth in demand due to breakthrough medicines and improved patient access. PD-1/PD-L1 inhibitors, which are widely used in solid tumor treatments, saw high demand at $52B in spending in 2023, with expectations of an increase to over $90B by 2028. Between January and March 2023, the FDA issued 14 approvals for cancer indications, reflecting significant progress in across various types of treatments options. [2]

This underscores the growing economic burden of cancer treatment, driving healthcare expenditures and prompting potential shifts in healthcare policies. Heightened demand of PD-1/PD-L1 not only stimulates pharmaceutical innovation and job creation within the industry but also has broader implications for patient access to advanced therapies, which can enhance productivity and reduce long-term societal costs associated with cancer care.

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A.3 Incidence of Cancer

While there are a number of different types of cancers, trachea, bronchus, lung, breast, colorectal, and prostate cancers were the most common worldwide in 2022, accounting for nearly 46% of all cancer cases globally, as seen in the table below. [6]

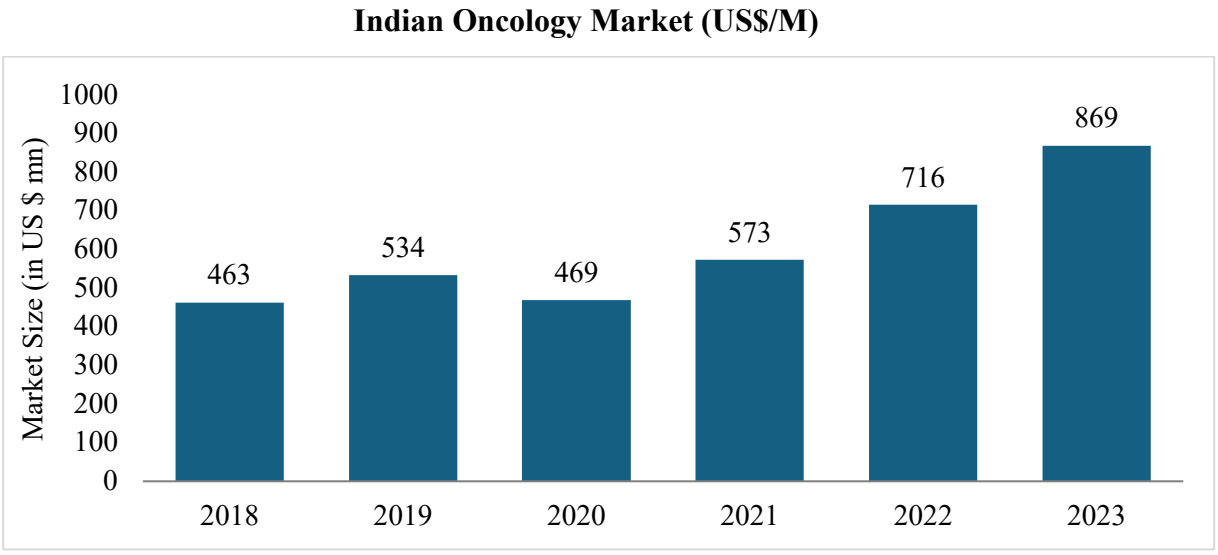
Rank	Cancer Type	New Cases (2022)
1	Trachea, bronchus and lung	2.48M
2	Breast	2.29M
3	Colorectum	1.90M
4	Prostate	1.46M
5	Stomach	0.96M

Source: World Cancer Research Fund International

B. Indian Oncology Landscape

B.1 Market Size

The Indian oncology market has expanded from $463 mn in 2018 to $869 mn in 2023, reflecting a CAGR of 13.43%, even higher than the global CAGR of 8.9%. In this market, targeted therapy holds the largest share at 46%, followed by immunotherapy at 28%, and cytotoxic therapy at 14%.



Source: IPSOS Dec 2023 full year

B.2 Growth Drivers

The following are some of the factors responsible for the growth of the oncology market in India.

1. Rising Burden of Cancer
2. Government Initiatives
3. Growing Demand for Precision Medicine
4. Price Controls

Rising Burden of Cancer:

The International Agency for Research on Cancer has predicted that the cancer burden in India will rise from 1M new cases in 2012 to over 1.5M in 2035. Additionally, India ranks third after China and U.S. in cancer burden. The various causes of cancer include lifestyle related reasons (33%), unhealthy diet (33%), infections (20%), hormones/genetics (10-20%), occupation (2%) and pollution (1%), among others [7] The most common cancers in India are breast, oral, and cervical cancer.

Government Initiatives:

Between 60-75% of cancer patients in India receive treatment in private hospitals, where they run the risk of high costs and distressed financing. However, the government is launching various initiatives, such as the Health Minister's Cancer Patient Fund within the Rashtriya Arogya Nidhi which provides financial aid to cancer patients living below the poverty line (income below $150/month). Further, the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke is being implemented under National Health Mission to include rural towns and districts. Lastly, Ayushman Bharat, an initiative aimed at providing healthcare coverage to economically vulnerable families, offers support for a wide range of diseases and medical conditions (including cancer) and ensures that beneficiaries have access to good quality healthcare without financial hardship/burden. [1], [8]

These initiatives contribute to reducing catastrophic healthcare expenditures, allowing families to allocate resources to other essential needs, which boosts overall household financial stability. By improving access to early diagnosis and timely treatment, they enhance the long-term survival rates of cancer patients, preserving a part of the workforce that would otherwise be lost due to illness. As healthcare costs are mitigated for lower-income families, there is a reduced dependency on informal borrowing or high-interest loans, promoting financial resilience within these communities. The government's investment in public health infrastructure can also stimulate local economies by

creating healthcare-related jobs and improving access to medical services in underserved areas. Over time, the reduction in healthcare inequality may foster broader social stability, leading to increased labor participation and economic growth.

Growing Demand for Precision Medicine:

There is a growing demand for precision medicine, which tailors' treatments based on individual genetic profiles and specific characteristics of cancer. In January 2024, Apollo Cancer Centre, Bengaluru, launched AI-Precision Oncology Centre (POC). Several other hospitals are also adopting precision oncology techniques such as genetic profiling, liquid biopsy and tumor tissue analysis. [9], [10] This potentially reduces the need for prolonged or repeated interventions, thereby lowering healthcare costs over time. Additionally, advancements in precision medicine can drive innovation in the healthcare sector, attract investment, and create high-skilled jobs, positioning India as a leader in cutting-edge medical technology.

Price Controls:

There is an imperative to reduce the costs associated with drug discovery and development. The National Pharmaceutical Pricing Authority in India has imposed price controls to reduce the cost of cancer drugs under the National List of Essential Medicines (a list of important drugs that pharmaceutical companies cannot charge beyond a certain price for). [11] Price controls on cancer drugs have been implemented to make essential treatments more affordable and accessible, particularly for economically vulnerable populations in India. These controls can reduce out-of-pocket expenses for patients, prevent excessive profiteering by pharmaceutical companies, and ensure broader access to life-saving medications, although they may also limit the incentives for innovation in drug development.

C. Overview on MSD

C.1 Global Overview

MSD is a premier research-intensive pharmaceutical company based in the US, whose focus on innovation and development of its products makes it a key differentiator in the market. The company was founded 130 years ago by George Merck. Today, it is present in more than 140 countries with over 68,000 people. Its values are driven by focusing on people first, showing respect, and prioritizing ethics and integrity, while focusing on science and innovation of its products. MSD has

products in fields such as of Oncology, Vaccines, Infectious diseases, Cardio metabolic diseases, Immunology and Neuroscience therapy. [16], [17]

MSD's best-selling product is Keytruda (Pembrolizumab), a critical drug used in cancer therapies. MSD's commitment to research in cancer therapy has seen it invest significant time, resources and money annually to discover and develop new medicines. In 2023, the oncology segment generated revenue of $27.60Bn, contributing 45% of the total revenue of $60Bn. Within the oncology segment, Keytruda alone accounted for approximately 90% of the revenue, about $25 bn. [18]

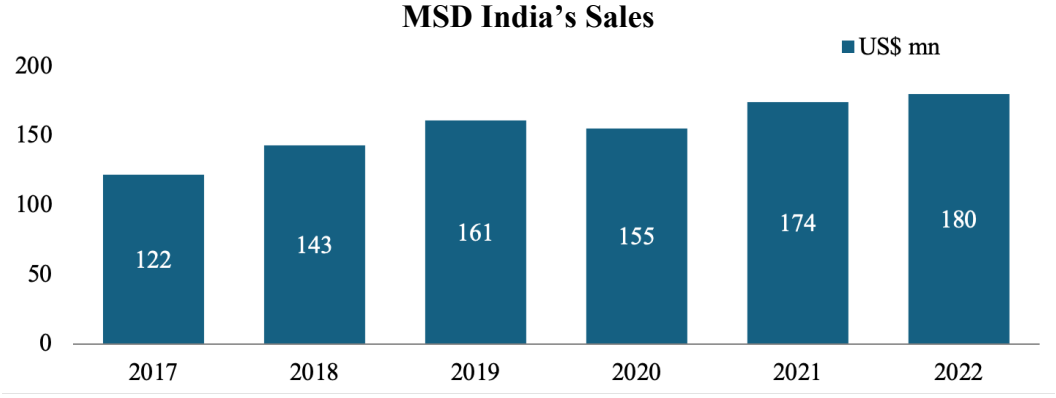
C.2 MSD in India

MSD India started its operation in 2005, and ranked as the top oncology company in the country. with a 45% market share in immunotherapy. The firm has been actively involved in advancing cancer treatment options within the country. Below is a timeline of MSD's business activities and significant milestones in the oncology domain in India: [19], [20], [21]

Year	Milestone
2005	The company commenced operations in India through wholly owned subsidiary.
2008	Announced the launch of Gardasil, a vaccine to help prevent cervical cancer.
2017	Launched Keytruda in India for treatment of melanoma, a form of skin cancer.
2023	DCGI approved Keytruda, anti-PD-1 therapy, for cervical cancer and advanced gastroesophageal junction adenocarcinoma. Keytruda is now approved for 14 indications across 8 different types of tumors.

C.3 Revenue in India

MSD India's aim is to exceed revenues of $600M by 2027. The graph below highlights the sales of MSD products in India from 2017-2022.



To achieve this goal, the company will focus on transforming its portfolio of oncology medicine by increasing types of cancers that its oncology products can be used for. Given the inelasticity of pharmaceutical products and oncology drugs, due to them being necessities, MSD India can increase their total revenue by hiking prices. However, this would result in drugs being unaffordable to a households with low incomes, thus promoting inequity and conflicting with MSD's beliefs.

Additionally, MSD India aims to drive revenue through digital innovation, enhance access by partnering with states, and improve talent representation.

C.4 Competitive Analysis

Keytruda plays a crucial role in the prevention and treatment of cancer and contributes significantly to MSD's overall revenue, as aforementioned. In the Indian market, companies selling drugs like Keytruda (Pembrolizumab) are Bristol-Myers Squibb, Roche and AstraZeneca. These companies are known for their PD-1/PD-L1 inhibitors, which are similar to Keytruda in their mechanism of action.

AstraZeneca

Astra Zeneca is one of the top five leading companies in oncology in India as per Ipsos Research, and is committed to bringing the latest scientific advances to serve patients with cancer in India. In the initial two months of 2024, Astra Zeneca undertook multiple initiatives in India. They partnered with the government of Goa to promote equitable healthcare access models across the state to eliminate cancer as a cause of death. Additionally, they launched Trastuzumab Deruxtecan for HER-2 positive metastatic breast cancer patients and announced plans to import a range of critical drugs, including Tremelimumab for cancer. [22], [23], [24]

Roche

In India, Roche has undertaken various initiatives to enhance cancer treatment. In July 2024, the company received CDSCO panel approval to study the anti-cancer drug Pralsetinib capsule. In December last year, Roche Diagnostics India signed an MoU with AstraZeneca to improve breast cancer diagnostics. Additionally, Roche announced a partnership with the Cancer Awareness Prevention and Early Detection Trust to promote cancer awareness, prevention, and early detection. Roche has also partnered with the Government of Punjab and Niramai Health Analytix to accelerate breast cancer management. [25], [26], [27]

Bristol Myers Squibb

Bristol Myers Squibb focuses on advancing drug development, enhancing digital healthcare, and supporting local health initiatives through strategic partnerships and grants. At the start of 2024, Bristol Myers Squibb inaugurated a $100M innovation hub in Hyderabad to accelerate drug development and enhance digital capabilities. Additionally, they operate a research and development centre in Bengaluru in partnership with the Biocon Group's Syngene International. In Jan 2024, the CDSCO panel granted approval for an additional indication of the anti-cancer drug Nivolumab. [28], [29], [30]

Economic Impact on MSD

These competitor initiatives put competitive pressure on MSD in the oncology market, pushing them to innovate and adjust pricing strategies to retain market share. Possible manners to achieve this are acceleration of development and introduction of new treatments, improvement of existing offerings, or strategic partnerships, potentially increasing R&D costs while striving to maintain profitability. In the long run, the competition may drive down drug prices, making advanced therapies more affordable and accessible to a larger Indian population. Ultimately, patients stand to benefit from improved access to cutting-edge treatments at more competitive prices.

D. Drug Pricing

D.1 Overview

In India, National Pharmaceutical Pricing Authority is a government regulatory agency that controls the prices of pharmaceutical drugs. Over the years, government has announced various initiatives to increase the affordability of the cancer drugs in India, outlined below.

National List of Essential Medicines (NLEM):

The NLEM, as aforementioned, is a list of essential medicines with price controls. The Health Ministry and various industry experts have published a list of drugs which included in the NLEM, which have prices regulated by NPPA to ensure affordability. In 2022, India released its fifth NLEM, which contains a total of 384 medicines. However, Keytruda is not included in NLEM yet. [31]

Price Revision through Trade Margin Rationalization:

In February 2019, the NPPA implemented trade margin rationalization on 42 non-scheduled anti-cancer drugs, capping the trade margin at 30%, leading to price reductions of up to 91% for 526 brands and generating annual savings of $120 million for cancer patients. [32] This price control initiative reduces the financial burden on cancer patients, increasing their disposable income and preventing poverty due to medical expenses. Lower drug prices enhance access to life-saving treatments, improving public health outcomes and potentially increasing workforce productivity. However, by restricting profit margins, pharmaceutical companies and distributors may face reduced incentives to innovate or invest in new cancer drugs, potentially impacting long-term drug availability and innovation in the market.

Exemption of Custom Duty in Cancer Medicine:

In 2023-24 budget, the finance minister announced the exemption of three cancer medicines—Trastuzumab Deruxtecan, Osimertinib, and Durvalumab from the custom duty. This results in the drygs being cheaper and thus more affordable to the Indian population when imported. However, Keytruda was not included in this list. [33] Thus, it is instrumental that MSD lowers the price of Keytruda in order to be competitive and reach a wider audience. This will help them gain market share and remain competitive.

D.2 Keytruda – Pricing Comparison

Keytruda works by blocking specific proteins that regulate immune responses, enhancing the body's ability to fight cancer. In order to analyze the pricing of Keytruda, it is important to first understand how Keytruda is priced vs its competitive drugs. This can be seen in the table below. [34]

Price Comparison of Keytruda and Competition:

Drug	**Keytruda**	**Opdivo**	**Tecentriq**	**Imfinzi**	**Yervoy**
Manufacturer	MSD	BMS	Roche	AstraZeneca	BMS
Vial Quantity	100mg	10mg	840mg	50mg	50mg vial
Price in India	$2,602	$602	$3,345	$2,284	$873

Source: Drugs.com, Apollo Pharmacy.

It is evident that Keytruda is more expensive than competitive drugs from BMS, but remains in line with drugs from AstraZeneca while also being more affordable than drugs from Roche.

E. The Pricing Model

E.1 Background

The objective of this section is to analyze the pricing of MSD's oncology drug, Keytruda, and its affordability for cancer patients in India. As established in the previous section, it is necessary that MSD lowers the price of Keytruda in order for it to remain competitive in the market, especially due to its equivalent counterparts having been granted customs exemptions.

The analysis focusses on two methods:

1. Income-wise comparison to cancer drug prices
2. Comparison using macroeconomic indicators, such as GDP

This section aims to point out the limited affordability of Keytruda within the Indian population, and also recommend multiple price points that MSD can evaluate to price Keytruda in a more appropriate manner given the economic status and condition of the Indian population. By reducing the price of Keytruda, MSD can improve access to this important cancer drug and save more lives

E.2 Keytruda – Current Affordability

To start, it is important to understand the total population that can benefit from this drug. This calculation is based on available MSD metrics from 2022.

The total number of cancer patients in India in 2022 was 1,400,000, out of which, ~900,000 were diagnosed with cancers that can be treated with Keytruda. The annual price of treatment through Keytruda is $94,000, which is found based on the calculation in table E.2 below.

Factor	Value
Current Price	$2,602 per vial
Recommended Dosage	$200mg$ every 3 weeks

Treatment Duration: Treatment Duration (52 weeks, rounded to once every 3 weeks)	17.33 (rounded to 18 for ease of calculation)
Total dose per year	$18 \times 200mg = 3600\ mg$
Yearly Expense	$2{,}602 \times 36 = \$94{,}000$ (rounded off)

Table E.2.1: Calculating expense of Keytruda

Table E.2.2 below shows a breakdown of the type of households in India and their respective income levels. Households are divided into eight consuming classes. The percentage of households in each class and their respective income ranges are stated in the table below. [35]

Assuming an even spread of the number of cases across household types, it is possible to calculate potential number of cases of cancer that can be treated by Keytruda in each household bracket. For example, if 15% of the Indian population is 'Poor', it follows that 15% of the total ~900,000 cancer cases treatable by Keytruda exist in this household category. This number is calculated and stated in the 'Cancer Incidence' column in the table below for each consuming class.

Consuming Class	**Percentage of Household (%)**	**Annual Income ($)**	**Cancer Incidence** (treatable by Keytruda*)
Poor	15	<1,680	1,32,200
Aspirers	52	1,680 to 6,750	4,70,400
Seekers	25	6,000 to 20,000	2,25,700
Strivers	4	20,000 to 40,000	40,500
Near Rich	1	40,000 to 67,000	9,500
Clear Rich	1	67,000 to 135,000	9,300
Sheer Rich	1	135,000 to 270,000	7,100
Super Rich	1	>270,270	5,300
TOTAL	100	N/A	~900,000

Table E.2.2: Consuming Classes, Incomes, and Cancer Incidence

Looking at this table, it is clear that the overall treatment cost ($94,000) is burdensome for majority of households in India. Further, the penetration of health insurance is low; reducing the price of Keytruda could provide relief to a larger section of the population and hence save more lives.

E.3 Option A – Pricing Sensitivity Based on Affordability (Annual Basis)

As seen in Table E.2.2, only about 3% of the households in the 'Clear Rich', 'Sheer Rich', and 'Super Rich' categories can afford Keytruda as a treatment option for cancer. A sensitivity analysis can be run based on a reduction in price of Keytruda by 30%, 50% and 80% to determine the potential increase in patient access for each percentage reduction in price. The results are seen in Table E.3 below. Red boxes indicate unaffordability of Keytruda. Yellow boxes indicate partial affordability, and green boxes indicate full affordability.

Pricing Sensitivity Analysis						
Consuming Class	**Annual Income ($)**	**Cancer Incidence**	**Current Affordability**	**30% Reduction**	**50% Reduction**	**80% Reduction**
Poor	<1,680	1,32,200	No	No	No	No
Aspirers	1,680 to 6,750	4,70,400	No	No	No	No
Seekers	6,000 to 20,000	2,25,700	No	No	No	Some
Strivers	20,000 to 40,000	40,500	No	No	No	Yes
Near Rich	40,000 to 67,000	9,500	No	Some	Yes	Yes
Clear Rich	67,000 to 135,000	9,300	Some	Yes	Yes	Yes
Sheer Rich	135,000 to 270,000	7,100	Yes	Yes	Yes	Yes
Super Rich	>270,270	5,300	Yes	Yes	Yes	Yes

Table E.3: Sensitivity Analysis

From the sensitivity analysis above, it is clear that current affordability of Keytruda in India is very low, approximately only 17,050 patients. As the price of Keytruda continues to reduce, affordability increases. At a 30% reduction in price, the total affordability is 26,450 patients. This represents a 55% increase from the current state but still is only accessible to a smaller number of patients. At 50% reduction in price, the total affordability is 39,200 patients. This more than doubles accessibility – yet, the absolute number with access to Keytruda remains small in comparison to total population. At 80% reduction in price the total affordability is 272,250 patients. This is the price at which accessibility exponentially increases and a significant part of the population can afford Keytruda.

The above analysis is done assuming that the patient needs Keytruda for at least a year or longer. However, if time duration is short, a larger number of patients will be able to afford Keytruda as the cost of therapy would be lower and thus affordable by a higher number of patients.

It is important to remember, though, that while an 80% reduction in price appears optimal, it may be unfeasible. This is especially due to high costs associated with Keytruda's research, development, and production. As an innovative immunotherapy, Keytruda represents a significant investment in cutting-edge biotechnology, clinical trials, and regulatory approvals, which pharmaceutical companies seek to recoup through pricing. An 80% price cut could drastically reduce the profitability of the drug, potentially discouraging continued R&D investment in MSD for similar breakthrough therapies. Furthermore, such a steep reduction may have a loss-making result on MSD. MSD would thus have a reduced incentive to invest in the Indian market, leading to slower introduction of future life-saving treatments like Keytruda.

E.4 Pricing Sensitivity Based on Macroeconomic Figures

An alternative manner to run the pricing sensitivity analysis would be to compare the price of Keytruda in the US and India with their respective GDP per capita value, listed below: [36]

Factor	**India**	**USA**
GDP Per Capita ($) (2023)	2,484	81,695
Keytruda Price ($) (100mg)	2,602	5,978

The GDP per capita of India and the USA highlights a significant economic disparity. USA's GDP per capita is almost 14 times the price of a 100mg vial of Keytruda. Conversely. India's GDP per capita is lesser than the price of a 100mg vial of Keytruda. If the same economic consideration is applied for India, Keytruda should be approximately 13 times cheaper, pricing it around $182 for a 100 mg vial. Consequently, the yearly cost of Keytruda would be approximately $6,500. This pricing could provide access to more than 500,000 patients out of the total population of 900,00 and could have a significant impact on helping save patient lives.

As mentioned in the previous section, this may be unfeasible due to the same reasons. In the long run, it could then harm the Indian economy rather than benefit it. Thus, it is important that future studies take into account MSD's profit margins as well as these accessibility and affordability figures to find a common ground that benefits both consumers in India as well as MSD as a profitable firm.

F. Conclusion

This analysis underscores the pressing need to optimize the pricing strategy of Keytruda in the Indian oncology market to enhance accessibility for cancer patients. With the rising incidence of cancer and the associated financial burdens on patients, current pricing of Keytruda remains a significant barrier, limiting treatment access primarily to affluent households. The sensitivity analysis demonstrates that substantial reductions in price—specifically a 30%, 50%, or even an 80% decrease—could increase the affordability and accessibility of Keytruda by 15x, potentially saving lives and improving health outcomes across the population.

However, while lowering the price is essential for improving patient access, it is equally important to consider the economic implications for MSD as a pharmaceutical company. A pricing model that accounts for both affordability and MSD's need for sustainable profit margins will be critical in ensuring the company's continued investment in research and development for innovative therapies. By finding a balanced pricing strategy that accommodates the economic realities of the Indian healthcare landscape, MSD can fulfill its commitment to patient welfare while maintaining its role as a leader in oncology. Such an approach will not only facilitate broader access to life-saving treatments like Keytruda but also contribute to the overall improvement of public health in India, ultimately fostering a healthier and more productive society.

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