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Review Article

Cost of medicines in India - branded, generics and branded generics

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Abstract

The cost of drugs contributes significantly to healthcare expenditure, and any reduction in the cost of medication would provide relief to all. Conventionally, the use of generic drugs is the method of reducing medication cost, however efforts to make prescription by generic name compulsory have failed. India also has a third type of products in addition to branded and generic products, called branded generics. Most drugs are thus available as branded, generic and branded generic versions. Branded generics offer an alternate option for cost cutting, to use of generics. Prices of drug formulations that are included in the "Essential List of Medicines" are fixed by the National Pharmaceutical Pricing Authority, that declares their ceiling price. Examination of the ceiling prices suggests that either the prices are calculated arbitrarily or are manipulated. There is also a lobby of retail chemists, that ensures that low price brands are not easily available to consumers, since they eat into their profits. The current study shows how one could reduce the cost of medicines in India. Educating consumers to understand the pharmaceutical market could drastically reduce the cost of medication.

Keywords: Generic Medicines, Branded Medicines, Costs, Price Control, Healthcare Costs.

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1. Introduction

Universal Health Coverage (UHC) is an important goal of public welfare, and understanding the healthcare environment is essential to realizing it. The public expenditure on health is very low, though it has risen from 1.4 percent in 2017-18 to 1.9 percent in 2023-24.[1] (Min. Finance 2024) India is way behind developed countries like the United States. Due to a variety of factors, including high chronic disease burden and low public spending, there are high out-of-pocket expenses for health, hence health expenditure becomes the second largest cause of indebtedness.[2] Health insur ance is an important component of UHC, but despite the efforts of the state and private insurance players, health insurance coverage is low. A national survey revealed that as low as 14 percent rural and 18 percent urban residents of India have some form of health insurance.[3]

Medicines account for up to 90 percent of healthcare spending by poor people in the country, irrespective of the disease suffered by family members.[4] There is an undeniable need to reduce this expense, and many avenues exist to do so. The out-of-pocket health expenses include the cost of medicines and that of medical consultation, both of which need to be controlled. This would mean that unethical practices in healthcare, need to be exposed and eliminated to bring relief to common people.[5] These practices include excessive consultation charges, cut practice, quackery, unnecessary investigations and prescribing of expensive brands.[6]

Despite the introduction of a Code of Ethical Regulations (COER) by the Medical Council of India (MCI) in 2002, many medical graduates are not aware of it.[7] (It may be mentioned that the National Medical Council (NMC) that has replaced MCI, has adopted the COER). This code proscribes several unethical practices. Medical graduates during registration as medical practitioners undertake to follow the

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COER, but promptly forget it. The COER thus remains a piece of paper that has no relevance to medical practice. An important directive of this code has been to prescribe generic drugs as far as possible, the attempt to make this directive was foiled at the instance of the Indian Medical Association.

In the international market, companies that discover and develop a drug, get a patent that is valid for 20 years. During the validity of the patent, the innovator has monopoly over the drug, and no other company can manufacture or market the same. This monopoly also gives the innovator permission to charge virtually any price for the drug. This may be criticized by some, yet the company needs to recover the expenses of research and development. In a way, the exclusive marketing right granted to the patent holder ensures, that he can recover the cost of development, and have some profits so that further research can be funded. The innovator usually markets the drug under a name that is chosen by him, and this is the brand name.

After the expiry of the patent, another company may manufacture the same product, with identical content of active molecule, dosage strength, indications and market the same with the permission of the regulators. The second or subsequent manufacturers need to demonstrate that their product is pharmaceutically, biologically and therapeutically equivalent to the innovator's product. This product would generally be marketed in the generic name, and would be priced at a much lower level than the original. Lower pricing is not a legal requirement, but since the expenses of developing the generic product are many fold lower than the expenses of discovery and development of the innovator, the generic can have lower pricing. Very often, after the expiry of the patent period the innovator is also forced to bring down the price of the branded product, since it has to stand in competition with the more economical generic version. This is the way the international pharmaceutical market operates.

The Indian scenario has been quite different since long. In 1970, the Indian government changed the patent law and scrapped the patent on drugs, while maintaining the patent protection to process of manufacture. This meant that innovators had no monopoly on manufacture and marketing of drugs discovered and developed by them. Any pharmaceutical manufacturer could market the new product (with some requirements laid down by the Drugs Controller of India). Drugs could be priced very moderately since the manufacturers had not incurred expenses on discovery and development. The scrapping of the product patent in 1970 had two major impacts on the Indian Pharmaceutical industry, one positive and one negative.

On the positive side was the wide availability of drugs at rock bottom price, which suited the country and its people. Drugs became available to the people at rates which were extremely low, and even the poor could afford medical treatment.[8] New drugs developed and marketed abroad, were synthesized using alternative routes (non-patented ones) at very competitive prices.[9] Many of these were exported all over the world, an activity that hit the foreign innovators profits significantly. India became an important player in the pharmacy of the world, manufacturing 20 percent of active pharmaceutical ingredients and 50 percent of vaccines.[10] On the negative side was the absence of protection of the inventors against those who copied the products. The negative impact, made it unprofitable for companies to spend on new drug discovery and development, and the country lagged in this field despite the scientific knowledge and technical skills. Hardly any new drug was discovered and marketed by Indian companies following the change in patent laws.

In 1995, India was forced to change the patent laws and the product patents were back. India bargained for a 10-year moratorium on the application of the patent law, and from 2005, the rules in India became at par with most other regulated markets. The 35 years between 1970 and 2005, when product patents did not exist in India, changed the face of the Indian Drug markets. By 2005, India had more than 10,000 pharmaceutical manufacturing units,[11] manufacturing more than 50,000 formulations in India. The exact number of formulations available in the market is so high, that even AI fails to put a number on them.

2. Discussion

2.1. Indian pharmaceutical market

There are three types of drug products available in India, branded, generic and the branded generics. Branded generics are a home-grown variety, and a large number of manufacturers market single ingredient and multi-ingredient products under their own brand names. The numbers and varieties are bewildering, and the (**Table 1**) below gives a brief glimpse of what is available in the Indian market (this includes only single ingredient products, and the data is from two e-commerce sites).

There is a large number of brands of combination drugs (called fixed dose combinations or FDCs in India), most popular FDC tablets being of Diclofenac and paracetamol (4459 brands) Ibuprofen and paracetamol (4236 brands), Cetirizine and paracetamol (514) Norfloxacin and Tinidazole (591 brands),

These branded generics are available over a wide price range and a typical product namely cetirizine (10 mg, 10 tablet strip) is available at a price as low as Rs. 1.2 to Rs. 31.1, an 26 times differential in the price. While both these products are branded, generic Cetirizine is available at Rs. 6.0 (Jan Aushadhi). In order to reduce the medical bills one need not always turn to generics, it is adequate to search among the low cost brands. If the Indian Medical Association is totally against generics, doctors can switch over to low cost brands, of which there are plenty in the market.

3. Drug Price Control

When one considers the pricing of drugs, price control is a confounding factor. Drugs that are classified as essential, usually have controlled pricing and they cannot be priced above the ceiling price. The concept of price control evolved in the late 70s and early 80s, and is operational not only in India but over 150 countries.[13] Drugs are deemed essential using set criteria that differ from country to country, and it is proposed that they be preferentially used over non-essential ones.[14] In India, the National Pharmaceutical Pricing Authority (NPPA) under the Department of Pharmaceuticals administers pricing of controlled drug formulations through the Drug Price Control Order (DPCO) issued first in 1970 and amended four times.[15] (Committee to Consider High Trade Margins Issue 2016,[16] The current version has 384 drugs included in the National List of Essential Medicines-NLEM2022

Over the years, to combat the growing medical needs and to make life saving drugs available at reasonable prices for the masses in India, the Government of India has made efforts to increase the number of drugs covered under NELM category.[16] As a consequence, some well-known multinationals withdrew their innovative /patented products from Indian market for being financially unviable. To strike the balance between innovative drugs and affordable drugs, Govt. has exempted patented new drugs from the price control for 5 years from the date of commencement of commercial marketing.[17]

The DPCO has undergone modifications in 1979, 1987, 1995, 2008 and 2013, the concept of price control remains more of less the same. The NPPA announces a ceiling price for formulations of drugs that are price controlled. The method of calculating the ceiling price was initially based on the principle of Maximum Allowable Post-Manufacturing Expenses (MAPE). For every formulation, the price of raw materials (active pharmaceutical ingredient and excipients), the cost of conversion (into the formulation) the cost of packing material and the cost of packaging is calculated. These costs are added up to come to a basic cost of the formulation. Over and above this, a MAPE is allowed (as a percentage of the total cost arrived) to calculate the Maximum Retail Price (MRP).

In 2013, the NPPA made a significant change in the method of calculating the ceiling price. In brief, for any drug formulation, all products that had a market share of 1percent or more were listed and their prices were averaged. Over this a 16 percent margin was granted to the retailer and the ceiling price calculated.[18]

Ceiling Price = Average Price X (1 +16/100)

Many studies have been conducted on the relative merits and demerits of price controls around the world.[19] It has been suggested that the DPCO of 2013 does not really help the poor of the country. The change in method of calculation of ceiling price from cost based pricing (CBP) to market based pricing (MBP) led to the increase in prices of many drugs, affecting out-of-pocket expenses on medicines.[20] These observations apart, what is noted that there are many anomalies in the current ceiling prices announced by NPPA, one cannot say whether these anomalies are due to the altered system of calculation, or other forces are at play.

Manufacturers are required to fix the price of controlled drug formulations, under the ceiling price announced by NPPA. For drugs not included in the controlled list, there is no ceiling price and the manufacturer is free to fix the price. Since pricing of uncontrolled drugs is at the discretion of the manufacturer, a higher variation in prices of uncontrolled drug formulations compared to those of controlled drug formulations is expected. We examined the prices of randomly selected 50 controlled and uncontrolled drug formulations. The most expensive and least expensive brand details were obtained from Tata 1mg website, and we calculated the ratio of prices (most expensive to least expensive). Their mean and standard deviation is calculated and presented in (**Table 2**).

As expected, there is a higher variation in prices of uncontrolled drug formulations than those of controlled drug formulations, the difference is statistically significant. Manufacturers have a lesser leeway to play around with prices in case of controlled drug formulations, than uncontrolled ones.

A careful examination of ceiling prices announced by NPPA, suggests that there are anomalies in pricing. The anomalies become apparent while examining pricing of different strengths of the same drug. There were many examples of price fixation, that we find perplexing and these need examination.

In general, if the content of the active ingredient in the final product doubles, the price rises by a factor less than 2. However, in case of Amitriptyline, that is available in two strengths, 25 mg and 50 mg, the 50 mg tablet is allowed a ceiling price that is 2.41 times higher than that of the 25 mg tablet. Thus, it is more profitable to market the 50 mg tablet compared to the 25 mg tablet. There is a similar anomaly in the price of Atorvastatin, where the difference between 20mg and 10 mg formulation is 2.54. In case of paracetamol, the situation becomes clearly out of proportion. Paracetamol 500 mg has a ceiling price of Rs. 0.90 while Paracetamol 650 mg has a ceiling price of Rs. 2.01. With a 30 percent increase in paracetamol content, the price jumps 124 percent. (**Table 3**) shows more such examples.

It will be recalled that during Covid pandemic Paracetamol 650 mg was very widely used. There is very little evidence for the use of this strength, but tablet Dolo was prescribed very widely for fever and even given/prescribed after

vaccination. The preferential pushing of paracetamol 650 over 500 which took place during the COVID pandemic could be due to the higher profitability of the formulation. It would be difficult and naïve to believe that the manufacturers pushed the 650 mg strength merely for difference in efficacy.

The pricing of L Thyroxine is very curious. Thyroxine dose needs to be customized carefully depending upon the levels of T3, T4 and TSH of patients. Tablets of L Thyroxine are not scored, and 11 different strengths are available. The seemingly illogical way in fixing ceiling price becomes apparent when the prices of various strengths are compared. The current ceiling prices are shown in (**Table 4**).[21] It is difficult to believe that these prices are a result of pure arithmetic, unaffected by industry pressures. The customers can exploit these prices, if they choose the formulation with lowest price.

4. Generic Shops and Generic Drugs

Of late a number of generic drugs shops have opened up in a number of cities. They offer not only generic drugs, but also branded drugs at heavy discounted prices. The discounts offered by these shops are unbelievable and do not follow any formula. On interaction with the owners of a few shops, it was learnt that there is no fixed formula for calculating the price they charge, it depends mostly on the cost at which they get the product. Comparative prices of select list of drugs in normal retail shops (that offer the products at MRP) and in generic shops are given in (**Table 5**).

The discount offered to customers varies from 10 percent to 84 percent. Since no store sells medicines at loss, they must be getting the medicines at a very low cost. Vildagliptin 50 mg with an MRP of Rs.198 is sold for Rs. 70 in a generic shop, while a regular chemist sells it for Rs. 198. If one assumes that the generic shop takes a nominal profit of 10 percent, the purchase price for retailers would be around Rs. 63. Since both these sellers must be getting the drug at the same price, the profit margin of the chemist must be higher than 68 percent. Among all businesses, retail chemist shops must be making the maximum profits, and profits of manufacturers is not as high as people believe.

5. Branded and Generic Medicines

One of the ways to reduce the cost of medical treatment as recognized world-wide is by the use of generic medicines.[22] The initiative by the government was to promote generic drugs, by launching the Jan Aushadhi Scheme, under which cost of medicines is cut by as much as 66 percent. However not all medicines under Jan Aushadhi are lower than low cost brands, and the ratio of Jan Aushadhi/branded prices varies widely. However, even if a few medicines could be procured at lower price, this would provide relief to people whose budgets are already strained.

Generic medicines are available worldwide after the expiry of the product patent. These products are often marketed by companies that are not innovators, but see an opportunity in marketing a patent expired product. In India, products are available under Jan Aushadhi scheme in a generic name. There are many, who defend the availability and use of generic medicines.[23-24] and some who raise doubts about the quality of generic medicines, albeit without adequate evidence. Repeated claims of superior quality of branded medicines versus that of generics are usually without evidence in the form of API assay or bioequivalence studies. There are few studies comparing prices and quality of generic versus branded medicines, and they suggest no difference in quality.[25] On studying the perception of users 93 percent of generic and 87percent branded drug users believed that their drugs were effective (P = 0.238) in controlling their ailments, and there was no difference in adverse effects.[26]

Government schemes like Jan Aushadhi have not met with great success despite the significantly lower costs. The failure is attributed to lack of awareness among the people, and resistance from doctors for prescribing in generic names.[27] Most stake holders of the pharmaceutical business are against generic medicines, since they eat into the profits of marketing companies, wholesale, and retail chemists and even doctors. Those few doctors who do prescribe by generic names (or low-cost brands) get frustrated since retailers aren't ready to stock and sell low-cost products.

Retailers margins usually depend on the MRP, since they are calculated as a percentage of the MRP. Obviously, a formulation with a higher MRP gives them a higher profit margin. Hence, retailers prefer to sell formulations with higher MRP compared with those with lower MRP. As a result, if a doctor prescribes a low-cost brand, it will not be easily available in the market. Patients go back to the doctors, asking them to prescribe a brand that is easily available (expensive brand). Here we assume that the doctors know the comparative prices of different formulations and choses one which will be economical for the patient. Thus, the retail chemist ensures that even if doctors initially choose economical brands, they are forced to revise their prescriptions.

The generic versus branded debate has been going on in the country since long. The debate was again sparked off when the National Medical Council recently announced that medical, practitioners would henceforth be required to prescribe medicines by generic names only. The NMC had accepted the Code of Ethical Regulations (COER) from its previous avatar, the Medical Council of India (MCI), which stated that medicines should preferably be prescribed in generic names. The actual wording being "Every physician should, as far as possible, prescribe drugs with generic names and he / she shall ensure that there is a rational prescription and use of drugs'.[28]

The NMC on 25 May 2022 published a public notice, calling for suggestions on the Registered Medical Practitioner (Professional Conduct) Regulations 2022. The

draft was finalized and the amended regulations read "Every RMP should prescribe drugs using generic names written legibly and prescribe drugs rationally, avoiding unnecessary medications and irrational fixed-dose combination tablets."[29] As expected there was a severe backlash from doctors and the industry. Physicians fumed that their right to prescribe the medicine, they considered best had been challenged, and the industry realized that this meant an end of their marketing strategies. On behalf of the pharmaceutical industry, the Indian Medical Association spearheaded the fight against the generic only rule.

The main plank of IMA's argument was that doctors should not be forced to prescribe generic medicines, since they have the right to decide what is the best for their patients. This implies that generic medicines are inferior in quality to branded medicines, an unproved assumption. It is true that the government's oversight on the quality of medicines is poor, and prosecution of manufacturers of substandard medicines is rare. A well-researched book 'The Truth Pill' by Thakur and Reddy in 2022, has given a detailed account of cumbersome procedures required to prosecute makers of substandard products.[30] What is not revealed is that 'The Truth Pill' does not claim that substandard pharmaceuticals are only generic. Drug regulation is lax both for branded and generic medicines.

Recently 50 drug formulations were flagged by the Central Drugs Standard and Control Organization (CDSCO) for being substandard. Among the formulations were some manufactured by leading pharmaceutical companies.[31] (Singh 2024, CDSCO Website) The list of formulations detected to be 'not of standard quality' are regularly uploaded on the CDSCO website in the "Alerts" section under Notifications. While a larger number of formulations declared substandard are from smaller and less known companies, pharmaceutical giants also feature in this list.

The Indian Pharmaceutical Industry's response to the Generic rule of NMC, was muted and seemed to harp on violation of the rights of doctors; "*Power thus shifts to chemists instead of doctors. Whichever company offers better incentives, the chemist would prefer it*."[32] Articles sponsored and supported by the industry championed the rights of doctors and patients, claiming that 'chemists would push the products which gave them maximum profit'.[33] What they never told the people is that the current system does exactly the same.

In August 2023, and the NMC (or government) relented and withdrew the plan to make generic compulsory, thus keeping patients in the grip of the exploitive industry-doctor-chemist nexus. Unlike a decade ago, generic medicines are freely available today, but as doctors continue to prescribe branded drugs, most patients continue to pay literally through their noses for expensive brands. The benefits of this go to the industry, doctors and the chemist, for which the patient alone pays.

It must be remembered that everything in the healthcare sector, be it the glossy decor of hospitals, air-conditioned consulting rooms of doctors or fancy chemists' shops, all are paid for by the patient. If the patient did not exist, there would have been no need for this industry. Ironically it is only in this industry, that the customer is not the king. The paying customer is at the mercy of the doctors, very few of whom if any, bother to follow the NMC Code of Medical Ethics. The doctor patient relationship is fiduciary in nature, since the patients totally depend on the doctor. For this reason the doctor is bound by the World Medical Association's Declaration "The health and well-being of my patient will be my first consideration." (World Medical Association website) ny drug manufactured in India, has to follow compendial standards, and each manufacturer is responsible to ensure that his products are of the requisite quality. The State governments (with their drug control departments) are required to provide oversight and ensure that this is so, by inspecting manufacturing premises, methods and regularly collecting samples from the markets and testing the same. State governments have thoroughly failed in their duties. Though samples are withdrawn from markets, their testing is often delayed and incomplete and prosecution rarely takes place. If at all the manufacturer is prosecuted, conviction and punishment is extremely rare.

6. Branded Generics

Currently in India, multiple brands of a single drug are available at widely varying prices. The large index of medical products lists drugs by pharmacological class and generic names. This index used to list the MRP of each brand, and hence it was an invaluable resource to search for less expensive brands of prescribed medicines. Of late the price details have been dropped. One wonders at whose insistence the vital information on prices was dropped. This website was used by patients to pick out the most economical alternative to the prescribed product, it is obvious which stakeholder would not like this information to reach the consumer.

Fortunately, another website has assumed this important responsibility. Tata 1 mg is an online medicine supplier that generally offers many brands of every product. This site provides a list of substitutes with brand names, manufacturers, and price for every listed product. Such information is not provided by many of the other online suppliers like Pharmeasy or MedPlus Mart. Given below in (**Table 6**) are the price details of a few branded products from the Tata 1 mg website

Table 1: Number of brands available in the market. (Medindia.net)[12]

Sr. No	Generic Name	Number of brands
1	Aspirin 75 mg Tabs	87
2	Cetirizine Tabs	477
3	Domperidone Tabs	126
4	Erythromycin Tabs	153
5	Fexofenadine Tabs	191

Table 2: Variation in prices of controlled and uncontrolled formulations

Sr. No	Category of formulations	Highest/Lowest Ratio (Mean)	Std. Dev
1	Controlled	4.62	6.68
2	Uncontrolled	11.3	16.2*

*$p<0.05$

Table 3: Ceiling Prices (Per Tablet) of different strengths of drugs (As per NPPA 2023)[21]

S. No	Generic Name	Strength	Ceiling Price	Strength	Ceiling Price
1	Amitriptyline Tablet	25 mg	2.49	50 mg	5.99
2	Amlodipine Tablet	5.0 mg	2.50	10 mg	5.44
3	Atorvastatin Tablet	10 mg	4.94	20 mg	12.56
4	Cefixime Tablet	200 mg	9.78	400 mg	22.10
5	Fluconazole Tablet	100 mg	7.62	200 mg	17.46
6	Rifampicin Capsule	450 mg	5.67	600 mg	11.36
7	Thyroxine Tablet	12.5 mcg	1.48	25 mcg	1.45
8	Paracetamol Tablet	500 mg	0.90	650 mg	2.01

Table 4: Ceiling Price of L Thyroxine tablets as per NPPA 2024

S. No	Strength	Ceiling Price (Rs. Per Tablet)
1	12.5 mcg	1.48
2	25 mcg	1.45
3	37.5 mcg	1.47
4	50 mcg	1.03
5	62.5 mcg	1.61
6	75 mcg	1.44
7	88 mcg	1.65
8	100 mcg	1.32
9	112 mcg	1.66
10	125 mcg	1.69
11	150 mcg	1.70

Table 5: Price of drug formulations in retail and generic shops

S. No	Generic Name	Brand name	Company	Retail Shop (MRP)	Generic Shop Price	Discount %
1	Metformin 500 mg	Okamet	Cipla	27.60	18.00	35
2	Atorvastatin 20 mg	Atorvee	Roussel	140.67	42.00	70.14
3	Spironolactone25mg	Aldactone	Searle	36.6	33.00	10
4	Carvedilol 3.125 mg	Cardichm	Biochm	40.70	20.00	51
5	Mecobalamin 1.5 mg	MecofolD	Intas	154.00	60.00	61
6	Ramipril 5 mg	Cardrace	Roussel	137.42	25.00	82
7	Vildagliptin 50 mg	Vildader	Elder	198.00	70.00	65
8	Voglibose 0.3 mg	Vogli	Medley	188.00	30.00	84
9	Multivitamin	Becosule	Pfizer	60.49	50.00	17.34
10	Vitamin E	Evion	E Merck	86.87	51.00	41.3
11	Rosuvastatin + Fenofibrate	Novastat-TG	Lupin	478.5	431.00	10
12	Mecobalamin 1.5 mg+ Folic acid	Mecofol Plus	Intas	227	70.00	69.2
13	Telmisartan + HCTZ	Tazloc H	USV	171.35	154.0	10.12
14	Alprazolam 0.5 mg	Trika	Torrent	73.5	66.00	10.2

Table 6: Highest and lowest approximate prices of drugs as per tata website.

S. No	Generic	Strength	Number of Brands	Highest (In Rs.)	Lowest (In Rs.)	H/L Ratio
1	Ibuprofen	400 mg	25	3.85	0.52	7.4
2	Cetirizine	10 mg	409	5.8	0.125	46.4
3	Metformin	500 mg	194	2.19	0.42	5.2
4	Cefixime	200 mg	532	11.9	1.09	10.9
5	Glimepiride	1 mg	380	4.1	0.46	8.9
6	Voglibose	0.3 mg	329	18.1	1.38	13.1
7	Ramipril	5 mg	168	9.16	0.75	12.2
8	Carvedilol	6.25 mg	74	8.5	0.66	12.9
9	Budesonide/Formoterol Inhaler	200 mcg/6 mcg	20	497	120	4.1
10	Montelukast	10 mg	109	18.4	2.4	7.7

Table 7: Comparison of prices between Jan Aushadhi, Locost and most economical brand on Tata website

S. No	Generic	Strength	Lowest Brand (1mg)	Lowest Brand	Locos Pharma	Jan Aushadhi
1	Ibuprofen	400 mg	Brufen	1.34	0.82	0.53
2	Cetirizine Tablet	10 mg	Dio-1	1.20	0.3	0.55
3	Metformin	500 mg	Okamet	1.38	0.575	0.66
4	Cefixime	200 mg	Sefjim	6.2	NA	5.3
5	Glimepiride	1 mg	Glyzee-1	0.6	NA	0.44
6	Voglibose	0.3 mg	Vogliter	1.5	1.225	1.54
7	Ramipril	5 mg	Ramnil-5	1.4	NA	1.0
8	Carvedilol	6.25 mg	Cardilox 6.25	0.95	NA	0.77
9	Budesonide/ Formoterol Inhaler	200 mcg/6 mcg	Budenol-F-200	130	NA	165
10	Montelukast	10 mg	Montecip	2.56	1.725	1.98

The government has actively promoted generic drugs to bring down cost of medical treatment. Jan Aushadhi is a government of India undertaking under the Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers. It procures generic medicines and offer them to customers at an affordable rate. Locost Standard Therapeutics is a Vadodara based generic drug manufacturer, the price list of which is available on the net. Given below is the comparison of a few medications offered from these two sources. **Table 6** provides prices of Jan Aushadhi and Locost compared with those of the most economical brand listed on the Tata website.

The above data highlight a number of issues. Generic medicines from Jan Aushadhi or Locost Pharma are usually cheaper than the cheapest brand, but not always so. Some brands are sold at prices even lower than those of generic drugs.

With the presence of really economical brands in the market, one would wonder why are high-cost brands prescribed by doctors ?. Low-cost brands are often not available in chemists' shops. The retail chemists do not prefer to stock and sell low-cost brands, since their profit margin is dependent on Maximum Retail Price (MRP) and higher the MRP, higher the profit.

Whether branded drugs are really superior to generic ones, has been debated for long. In the Medline one finds six papers that have studied the bioequivalence of generic drugs versus branded ones, but none of these studies are from India. Even so, a meta-analysis provided evidence for clinical equivalence between brand-name and generic cardiovascular drugs.[34] A randomized, cross over study demonstrated that generic Montelukast was bioequivalent with the original branded product.[35] Using an innovative, controlled bioequivalence study design,[33] demonstrated equivalence between branded tacrolimus and its two generic versions in individuals after kidney or liver transplantation. Similar observations were made for quetiapine[37] and clopidogrel.[38] However, based on the number of hospital visits, it was concluded that users of generic warfarin made 10 percent higher hospital visits compared to users of branded warfarin.[39]

Every product in the Indian market must meet the pharmacopeial standards, whether branded or generic. While many reports of fake and substandard drugs appear in the public domain, it is wrong to assume that generic medicines are of poor quality and branded are better. There is need to balance the affordability over assumed quality, it makes no sense to prescribe a high-quality drug which the patient cannot afford.

To curb all unethical marketing practices in the industry, Dept. of Pharmaceuticals has issued the Uniform Code for Pharmaceutical Marketing Practices. It outlines a frame-work within which pharma companies can engage with doctors, without interactions becoming an endorsement or inducement to push drug prescriptions.

One should always keep in mind the words by Mr. Amrut Modi (founder of Unichem Laboratories), 'Pharmaceuticals is just not a business, it is a social responsibility."

This to our mind is a noble philosophy. The customer also has little understanding of this business, and until the customer becomes educated, he will continue to pay very heavily for maintaining his health and that of his family.

7. Source of Funding

None.

8. Conflict of Interest

None.

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