Position of Generic Vs. Innovative Drugs

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Abstract **- The pharmaceutical industry is broadly divided into two major segments: innovative drugs and generic drugs. Innovative drugs are newly developed medicines created through extensive research, clinical trials, and substantial financial investment by pharmaceutical companies. These drugs are protected through patent rights, granting innovators exclusive rights to manufacture and market the medicine for a specific period. In contrast, generic drugs are bioequivalent versions of branded medicines introduced after the expiration of patent protection. They contain the same active ingredients, dosage, safety profile, and therapeutic effect as the original drugs but are generally available at significantly lower prices.**

The debate between generic and innovative drugs has gained global significance due to concerns regarding public health, affordability, access to medicines, and the protection of intellectual property rights. Innovative pharmaceutical companies argue that patent protection and market exclusivity are necessary to recover research and development costs and to encourage further innovation. On the other hand, proponents of generic medicines emphasize the need for affordable healthcare and wider accessibility, especially in developing and least-developed countries. International agreements such as the TRIPS Agreement and the Doha Declaration attempt to balance these competing interests by safeguarding patent rights while allowing certain flexibilities to ensure access to essential medicines.

This study examines the legal, economic, and public health dimensions of the relationship between generic and innovative drugs. It further analyses the role of patent law, compulsory licensing, competition policies, and regulatory frameworks in maintaining a balance between pharmaceutical innovation and the public interest.

Keywords: **Generic Drugs; Innovative Drugs; Pharmaceutical Patents; Intellectual Property Rights; TRIPS Agreement; Compulsory Licensing; Access to Medicines; Public Health; Patent Protection; Pharmaceutical Industry**

I. INTRODUCTION

The incorporation of health concerns in the 'rights' discourse, both at the international and domestic level – recognizes that the legal system bears the responsibility of aiding the medical profession in advancing the 'right to health'. In fact, the onus on governmental agencies goes beyond aspects like the regulation of the medical profession and support for research and development in the medical field. It also includes policy-choices pertaining to education, housing, environmental protection, labour laws, social security provisions, access to medicine and the protection of intellectual property among others. Since the end of World War II, many such aspects have come to be recognized as part of a 'right to health' in international human rights instruments, but there has been considerable dispute regarding the scope and nature of this right. Article 25 of the Universal Declaration of Human Rights, 1948 (UDHR) encapsulated the 'right to health' in the following words: *"Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control"* (Art. 25.1). While this declaration articulated the core elements of public health concerns, it did not create any binding obligations on the members of the United Nations. In subsequent years, the right to health came to be incorporated in the International Covenant on Economic, Social and Cultural Rights (ICESCR) which was presented before the UN General Assembly in 1966 and adopted in 1976. In a way ICESCR is reincorporated the mandate spoken in Article 25 of UDHR and reinforced the notion of 'right to health'.

Health is depicted as a *"fundamental human right indispensable for the exercise of the other human rights"*. This statement is simple enough to comprehend that 'right to health' is the supreme of all the human rights enjoyed by every human being by virtue of being human. By this statement, United Nation (UN) Economic and Social Council is not only substantiating the legal basis of 'right to health' but also putting immense importance on this issue. Without any second thought Council is keeping 'right

to health' on top of the list of all human rights as understandably having highest attainable standard of health is a necessary criteria to enjoy the other human rights and to live a life with human dignity.

ICESCR validate the importance of 'right to health' in Article 12.1, which states that, *"the States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health"*. On the other words, every State Parties to this Covenant have to ensure the healthy, disease free life for their citizens. To attain the disease free i.e. healthy life for every human being, the State has to ensure the supply of accessible and affordable medicine for every kind of illnesses, which may have negative impact on the health of human being.

Article 12.1 provides a definition of the right to health, while Article 12.2 enumerates illustrative, non-exhaustive examples of States parties' obligations. The right to health is not to be understood as only the right to be healthy. The right to health contains both freedoms and entitlements. The freedoms include the right to control one's health and body, including sexual and reproductive freedom, and the right to be free from interference, such as the right to be free from torture, non-consensual medical treatment and experimentation. By contrast, the entitlements include the right to a system of health protection, which provides equal opportunity for people to enjoy the highest attainable level of health. The notion of *"the highest attainable standard of health"* in Article 12.1 takes into account both the individual's biological and socio- economic preconditions and a State's available resources. Access to medicine is intricately related here with the States' obligation, so State has to use its available resources in such a manner that it can provide affordable medicine to all its subjects. There are a number of aspects, which cannot be addressed solely within the relationship between States and individuals; in particular, good health cannot be ensured by a State, nor can States provide protection against every possible cause of human ill health. Thus, genetic factors, individual susceptibility to ill health and the adoption of unhealthy or risky lifestyles may play an important role with respect to an individual's health. Consequently, the right to health must be understood as a right to the enjoyment of a variety of facilities, goods, services and conditions necessary for the realization of the highest attainable standard of health.

Since the adoption of the International Covenants in 1966 the world health situation has changed dramatically and the notion of health has undergone substantial changes and has also widened in scope. More determinants of health are being taken into consideration, such as resource distribution and gender differences. A wider definition of health also takes into account such as socially-related concerns as violence and armed conflict. Moreover, formerly unknown diseases have become more widespread (such as HIV/AIDS), with that the rapid growth of the world's population has created new obstacles for the realization of the right to health, which need to be taken into account when interpreting article 12.

The Committee interprets the right to health, as defined in article 12.1, as an inclusive right extending not only to timely and appropriate health care but also to the underlying determinants of health, such as access to medicine, access to safe and potable water and adequate sanitation, an adequate supply of safe food, nutrition and housing, healthy occupational and environmental conditions, and access to health-related education and information, including on sexual and reproductive health. A further important aspect is the participation of the population in all health- related decision-making at the community, national and international levels.

The Committee on Economic, Social and Cultural Rights (CESCR) has also stressed that States have a core minimum obligation to ensure the satisfaction of minimum essential levels of each of the rights under the Covenant. While these essential levels are, to some extent, resource- dependent, they should be given priority by the State in its efforts to realize the rights under the Covenant. With respect to the right to health, the Committee has underlined that States must ensure:

- The right of access to health facilities, goods and services on a non-discriminatory basis, especially for vulnerable or marginalized groups;
- Access to the minimum essential food which is nutritionally adequate and safe;
- Access to shelter, housing and sanitation and an adequate supply of safe drinking water;
- The provision of essential drugs;
- Equitable distribution of all health facilities,

goods and services.

II. DEFINITION OF GENERIC DRUGS AND ACCESS TO MEDICINE

While billions of people in the world are suffering from many communicable and non- communicable diseases, their treatment is only possible with supply of effective medicine to them. During buying medicine, patients never bother to think whether the medicine he/she has bought is an original product or a 'generic' version. In many countries, in rural and sub-urban set up, if not even in urban set up, over-the-counter purchase of medicine is very much prevalent. The main factor, which guides the patients during purchase of medicine, is its cost and affordability, and not the originality of the drug per se.

1. Definition of Generic medicine

Generic medicine in general understanding is the medicine, which is chemically same as branded medicine and therapeutically has to have same clinical effects as branded drug but made by any company other than Originator Company. According to FDA, generic medicine should have same active ingredients, route of administration, indication of use, dosage form, strength, safety profile and quality as that of branded medicine.[1] As generic medicine is therapeutically equivalent to the branded drug, so physician can use the generic medicine as a substitute to the branded drug for the same indication. Generic drug may differ than its branded counterpart in the composition of inactive ingredient, fillers, color, flavor etc. In spite of these differences, the generic version of medicine has to pass the rigorous scientific review and has to be of similar in terms of safety and efficacy profile.

So the characteristics of generic medicine would be as follows:

- Active ingredient of branded and generic medicine will be same;
- Inactive ingredient of them may be different;
- Color, flavor, shape, smell, taste etc. may be different in case of generic drug;
- Generic should be bioequivalent with the branded counterpart;
- Indication of use, dosage form, route of administration and safety & efficacy profile of both should be essentially similar to each other.

Generic manufacturer usually copy the original drug, during doing so they make nominal changes to avoid patent infringement; the companies skip the lengthy and costly clinical trials; they show the bioequivalence of the generic product with the original product, thus can sale the product at much less price in the market. Price of generic medicines can be 20 – 80% less than that of branded medicine.[2] Generic medicine is life saving for the countries in Africa, Latin America and Asia where incidence and prevalence of communicable diseases like HIV/AIDS, tuberculosis, malaria is very high, but price of patented brand name drugs are far above the reach of people.

2. Growth of Generic Drug Industry

In the year 2010 the generic pharmaceutical market touched the 100 billion dollar mark. The growth of generic industry is 3 times more than that of overall growth of pharmaceutical industry.

Growth of Indian Generic Industry

Indian pharmaceutical industry is one of the fastest growing pharmaceutical industries of the world. The growth of Indian pharmaceutical market is estimated as 15.7% in December 2011.[3] India holds third rank among global pharmaceutical manufacturing industry in terms of volume, thirteenth rank in terms of domestic consumption value and seventeenth rank in terms of export. Indian pharmaceutical industry evolved from a non-existent place to a leading position in last three or four decades. Its growth is expected to increase at a rate of 9.5% till 2015 and the sale of Indian pharmaceutical companies is expected to reach US$ 72 billion by the end of 2020. Export market of Indian pharmaceutical business includes 200 countries including the market of USA, Japan, Australia and European countries. Table 5 includes top 20 Indian pharmaceutical companies.

III. GENERIC *VS*. INNOVATIVE DRUGS – POLICY FORMULATION

[1] 21 CFR 314.92 and 314.105(c)

[2] *Savings: An Economic Analysis of Generic Drug Usage in the USA*, GPhA September 2011, p.1.

[3] Bera, A. & Mukherjee, A., *The Importance of Generic Drugs in India*, International Journal of Pharmaceutical, Chemical and Biological Sciences, 2012, 2(4), 575-587

Requirements for market approval of the generic drugs are different from innovative drugs. Originator companies need to produce detailed clinical trial results which must include human pharmacology trials (Phase I) for safety and tolerability; therapeutic exploratory trials (Phase II) for evaluation of effectiveness of the medicine for specific disease and to check short term side effects; and therapeutic confirmatory trials (Phase III) for confirmation of therapeutic benefit and safety profile. On the contrary the generic companies have to provide only bioequivalence study report to show that the generic product is therapeutically comparable with the innovator product. This technical difference in marketing approval procedure accounts for the price difference of patented original version and the generic version. Because of huge competition in generic industry itself among several generic manufacturing companies, cost has become even more affordable.

Table 9. List of Drug price comparison between patented product and generic version

		Generic Version				Patented Version		
SR.NO	PRODUCT	PACK	MRP	COMPANY	BRAND	PACK	MRP	COMPOSITION
1	ARMOTRAZ 1MG	10'S	495	ASTRA GENICA	ARMIDEX	10'S	6000	ANASTRAZOLE
2	FEMPRO 2.5 MG	10'S	60	NOVARTIS	FEMARA	10'S	2000	LETRAZOLE
3	ERLOCIP 150 MG	30'S	45900	ROCHE	TARCEVA	30'S	120900	ERLOTINIB
	ERLOCIP 100MG	30'S	30600	ROCHE	TARCEVA	30'S	103500	ERLOTINIB
4	GEFTICIP 250 MG	30'S	10200	ASTRA GENICA	IRESSA	30'S	99789	GEFITINIB
5	TEMOSIDE 250 MG	5'S	20250	FULFORD	TEMODAR	5'S	80000	TEMOZOLOMIDE
	TEMOSIDE 100 MG	5'S	8900	FULFORD	TEMODAR	5'S	34500	TEMOZOLOMIDE
	TEMOSIDE 20MG	5'S	1875	FULFORD	TEMODAR	5'S	7400	TEMOZOLOMIDE
6	CAPEGARD 500 MG	10'S	1200	ROCHE	XELODA	10'S	1820	CAPCETABINE

According to WHO data in 2000 the treatment of AIDS by patented drugs were $ 10,000 per person per year (ppy); but in 2013 the cost of AIDS treatment is reduced by 99% and the first line treatment is available at $100 ppy in 2013.[467] Such huge reduction in treatment cost is the reason why in spite of increase of number of eligible patients by 50%, they can still be covered by the treatment quite effectively. Credit goes to generic competition, which contributed strongly in the steep reduction in price of ART regime.

When price of second line ARTs are concerned, the WHO recommended second line treatment cost has decreased significantly (by about 75%) due to augmentation in generic competition. In 2006, ABC+ddL+LPV/r regime would cost US $1,198 ppy, which had been reduced drastically to US $ 303 ppy. The reason behind such drastic decrease in cost is the opposition from India on LPV/r patent, which ensured generic competition in production of second line ART drugs and subsequent reduction of market price. MSF report of 2013 also mentioned about two more important piece of information about price reduction in second line ART, which is enumerated in Table 11.

Table 11. Price Evolution in Second Line ART Regimes

Drug Regime	Price in 2007 (US $ ppy)	Price in 2009 (US $ ppy)	Price in 2011 (US $ ppy)	Price in 2013 (US $ ppy)
Original LPV/r	1000	1000	1000	740

Lowest generic LPV/r	1034	500	450	268
Lowest generic ATV/r	Data not available	Data not available	304 (in 2012)	219

If the price evolution of second line anti-retroviral therapy (ART) is analyzed it is found that in the span of only seven years the price of original version of LPV/r dropped by 26%; but if the price of original LPV/r is compared with lowest costly generic version the initial cost of generic was more than original in 2007, but the cost has dropped dramatically in the span of seven years by 25%.[471] Again in 2013 the lowest generic version of LPV/r is found to be 36% less costly than original version. Since 2012 one alternative second line ART regime (ATV/r) which is even cheaper than the generic LPV/r; the cost of ATV/r is just about 70% cheaper than original LPV/r and 20% cheaper than generic LPV/r. Availability of second line ART is limited, in this situation this reduction is effective and will enhance the assurance of quality life for AIDS patients in developing world.

Some governments of African countries try to negotiate-for even more affordable prices, e.g. in South Africa the one-pill-a-day of TDF/3TC/EFV is available at lowest price ($114 - 121 per person per year) which is unique price only for South Africa as a result of South African governmental initiative.[474] Zambian Government also took very positive attempt to provide low cost ART to the AIDS patients in the country, which needs special discussion.

IV. GENERIC *VS*. INNOVATIVE DRUGS – PATENT INFRINGEMENT CASES

Generic drugs are legitimate copies of originator drugs, generic manufacturing companies try to escape patent infringement cases by making nominal chemical changes in the molecule but still has to face infringement litigation number of times. Following examples are some recent cases of patent infringement.

- USA based Merck Sharp & Dohme (MSD) has filed a infringement suit against Indian company Glenmark for their generic version of the anti-diabetic drug Zita & Zita Met which is said to infringe MSD's original drugs Januvia and Janumet (Sitagliptin); Glenmark has filed an ANDA and certifies against patents listed in Orange Book. Case is still on hearing and judgment is yet to come.
- Three multinational pharmaceutical companies Medicines Company, Hospira and Kowa suit against Indian firm Aurobindo Pharma in three different cases; Medicines Company for the ANDA filing of bivalirudin (angiomax) at District Court of New Jersy, Hospira for generic version of dexmedetomidine hydrochloride injection at US District Court of Delaware, and Kowa for the drug pitavastatin at District Court of Southern District of New York. All the three companies prayed for permanent injunction, decision is yet to come.
- Roche and Cipla were engaged in patent infringement battle on the drug erlotinib for long time and lastly Delhi High Court ordered them to go for mediation; it is said that there is high probability that mediation will result in a settlement. Delhi High Court found Roche's patent to be valid and at the same time Cipla held not guilty of infringement.
- Novartis sued four generic Indian manufacturing companies, namely Bajaj Healthcare, Alembic Healthcare, Glenmark and Cadila Healthcare for alleged patent infringement of their original compound vildagliptin; among those cases Court granted ex-parte ad- interim injunction in Bajaj Healthcare and Alembic Healthcare cases and case with Glenmark and Cadila is still going on.

Not only Indian generic companies but also generic companies of other countries are facing patent litigation from the originator companies, but that cannot undermine the effectiveness of generic medicine to bring down the cost of original and/or other generic versions in the market; which in turn poses positive impact on the access to medicine.

V. IMPACT ON ACCESS: ZAMBIAN EXPERIENCE

In spite of above said litigation Availability of cheaper and effective medicine for a life threatening disease (for example AIDS which is chronic infection with no cure) can make a sea change in lives of individual as well as socio-economic structure of a country or region. Example of Zambia is discussed here as a pathfinder for many other African as well as other low and middle-income countries.

i. Case Study: Zambia

Since 2002 Zambian Government took responsibility to help providing the affordable treatment to all Zambian HIV/AIDS patients with the aim of reduction of disease burden in the country. Low cost Indian generic versions of ART were decided to import for Zambia. Zambian government had to face much debate for that decision, but the matter of fact was the cost of original triple therapy regime, which was three times more costly than generic version, was not affordable even for the national public health sector; Zambian government responded to the debate by collecting comparative data on safety and efficacy of Indian generic medicines on the Zambian patients treated with zidovudine based ART both generic and original version between 2004-2007. The study showed comparable reaction, good survival and immunological response as well. Due to this initiative Zambia has 72% of ART coverage by end of 2011, which is much higher than African regional average of 48%; more interestingly in 2011 number of Zambian patients receiving ART (2,83,863 people) outnumbered American ART receiving patients (2,68,000 people). Zambia had also taken a lead to procure tenofovir as first line ART even before WHO recommendation, which subsequently was validated by data supporting better tolerance. Not only that, Zambia has taken a lead to implement the WHO recommendation of initiating early treatment of sero-discordant couples among the AIDS patients, which is expected to shrink the disease burden further.

ii.Impact of generic on Access to Medicine

Medicine is required in case of disease to save the patient's life. Some diseases, mostly infections, are so deadly that late treatment can kill a patient, e.g. HIV/AIDS or meningitis or encephalitis or malignant malaria. Among the deadly non-infectious diseases cancer will come in the top, which costs a lot of human lives each year globally. Chronic diseases also need proper treatment in time otherwise they may lead to deadly consequences, like untreated diabetes leads to renal failure and untreated hypertension leads to brain hemorrhage and/or paralysis. In case of any serious disease there is no choice but treatment with proper medicine in proper time. Choice of medicine is also important, as in case of bacterial infections wrong antibiotic may lead to resistance and eventual death. With the advancement of science and pharmaceutical industrial revolution most of the diseases have effective medicine but serious issue is the availability of those medicines for the patients in need at affordable prices. This concern is the backbone of this thesis and for several other research projects. Medicines are made for treatment of patients, if due to huge cost patients become unable to buy them and remain untreated, and then the main ethical reason of the huge process of pharmaceutical research and marketing fails. Incentive theory of patent protection for pharmaceutical research and development can be bought unless it completely jeopardizes the principal focus of the whole process. There exists a huge conflict of interest between pharmaceutical corporate sector and public sector. There must be some mechanism to balance the interests of original medicine manufacturing companies and the world's poor to poorest patients, and that mechanism must be very effectively implemented in developing and least developed countries.

VI. CONCLUSION

Health facility is one of the basic facilities which state has to provide for its citizens. Health facility has many components; one of them is essentially the availability of affordable medicine. Cost of patented, newer generation, life-saving medicine is high, and researchers have identified this as the most probable reason that even governments of some developing and least developed countries are not been able to supply essential medicine for its citizens. Comparatively poor health facility, higher disease burden, fairly less research capacity, underdeveloped or nascent pharmaceutical industrial sector intersects to create a huge challenge for the developing countries. Poverty affects the purchasing power, thus reduces effective market demand, hence affect the degree of interest of many pharmaceutical companies.

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