



## Sensitization of Medical Students to Pharmaco-economic Importance

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### Abstract

*Pharmaco-economics is an emerging field comparing the cost-effectiveness of medical products and services. Pharmacoeconomic analysis will help in decision making process and should be carried out by doctors in day to day practice. The current study aimed to provide some knowledge to medical students about pricing of drugs in their early medical career. Data was collected from various pharmacy stores by MBBS students. Huge difference was found in prices of generic and branded medicines. Physicians should take into consideration patient's socio-economic status including drug safety, effectiveness and compliance. Sensitization of medical students will help avoid economic losses in near future.*

**Keywords** – Pharmaco-economics, generic, branded, cost, drug.

### Introduction

The description and analysis of costs of drug therapy in health care system and society is been termed as Pharmaco-economics. <sup>[1]</sup> New drug development is known to involve high cost and risk; also drug development returns are highly skewed. <sup>[2]</sup> So Pharmaco-economics is a social science which deals with identifying, measuring and comparing the costs and consequences of pharmaceutical products and services. Attributes involving drug research, production, distribution, storage, pricing and usage by people are better described by Pharmaco-economic analysis. Every cost involved in drug development, marketing, storage and distribution is covered and this money is processed back to manufacturer from the consumer (patient). <sup>[3]</sup> Pharmaco-economic study

as a part of decision making process was first carried out in Australia. <sup>[4]</sup> Major differences in cost of generic and brand medicines are found for some medications which may economically affect the health status of a patient. <sup>[5]</sup>

### Materials and Methods

Essential drug and P drug concepts based on safety, affordability, need and efficacy is being taught during the undergraduate program schedule. So along with, it is important for the students to have practical knowledge about pricing of medicines before they prescribe in near future. <sup>[6]</sup> The aim of this study was to sensitize MBBS student's about growing importance of Pharmaco-economics. Students were first given the concept of generic and branded medicines. Four

random students from 2<sup>nd</sup> Year MBBS were selected to note down the prices of some common medications used in ailments like backache, fever, diabetes, dyspepsia, pharyngitis, sinusitis and rhinitis. Students gathered information from pharmacies about generic and branded medicines for the above mentioned health problems in a period of 1 week. Data collected was analyzed and plotted in a table.

### Results

Data was gathered from various pharmacies for both generic and branded medicines. Students at the pharmacy counters first asked for a generic drug for a particular health condition but the pharmacy people responded by giving a substitute branded drug. The reason for this alternative was said to be shortage of generic drugs. Some pharmacies preferred giving a locally manufactured alternative. These practices would

surely help the seller in getting some economic gains as a high price is paid by the consumer. Medical students also noted that the branded medicines were priced higher compared to generic ones. After calculating the differences between generic and branded medicines, a 3-4 times price difference was observed. Students also need to understand that pricing of drugs is dependent on their sell in market, whether directly bought by minimal retail price or tender or by contract and whether procured from company or through a chain of distributors. [3] Percentage differences in cost were calculated between generic and branded medicine. Drug compliance was discussed with medical students keeping in mind the differences in cost. Worldwide practicing physicians vary in their dynamics of prescription and should understand the willingness of a patient for a particular therapy considering the socio-economic status of patient. [7]

**Table 1:** Comparative pricing of generic and branded medicines

Generic Name	No. of tab	Generic Price (Rs)	Branded medicine	Branded price (Rs)	% difference in cost
Amoxicillin 500 mg	10	47.77	Erox (Micro eros)	82.50	42
Azithromycin 500 mg	10	135.70	Aztin (Laksun)	260	48
Ciprofloxacin 500 mg	10	39.79	C – OD (GSK)	94.35	58
Levofloxacin 500 mg	10	49.80	Lavaza (Orion)	83.50	40
Norfloxacin 400 mg	10	31.22	Quinobib (Micronova)	68	54
Ofloxacin 400 mg	10	40.64	Tarivid (Sanofi Aventis)	531.46	92
Omeprazole 20 mg	10	10.03	Axifire (Genesin Rem)	45	78
Paracetamol 500 mg	10	7.23	Calpol (GSK)	19.60	63
Metformin 500 mg	10	6.20	Cetapin XR (Sanofi Aventis)	131.23	95
Diclofenac Sodium (SR) 100 mg	10	5.72	Ornac-SR (RishabhOrochem)	72	92
Cetirizine 10 mg	10	4	Cetzine (GSK)	37.50	89
Aceclofenac 100 mg	10	6.77	Ultinac (Biovitamins)	39.60	83
Atenolol 50 mg	14	5.56	Tenoformin (AHPL)	53.09	90
Alprazolam 0.5 mg	10	3.97	Alprocontin (Modi Mundi)	44.50	91
B.Complex	10	2.84	Nervup – ER (AHPL)	120.81	98

{ Generic Medicine prices obtained from reference no. 11 }

### Discussion

Major savings in health care expenditures can be obtained if substantially lower priced generic drugs are used instead of branded drugs. Less confusion is present with generic drug names. [8]

Health professionals can play a vital role by having a good positive communication with the patient and explaining the importance of low cost generic medicines. Promotion of generic drugs can be done by doctors by prescribing generic

drugs instead of fascinating branded ones. <sup>[9]</sup> One way of intervention from the physician is incomplete and needs participation from patient's as well, as ultimately they are going to be the final beneficiaries. This approach is called as "patient centered approach". <sup>[10]</sup>

In today's world, the undergraduate medical students must have knowledge about this aspect of pharmacology. The best way of imparting knowledge about Pharmacoeconomics is to have short theory lectures on the topic and practical lessons. After completion of lectures on particular system, students can discuss among themselves the total cost of treatment needed for a given illness. Disorders like Diabetes, Hypertension, Bronchial Asthma, Myocardial Infarction and Cough are some important health disorders which can be taken as examples in finding total cost for a month or a year. CIMS or MIMS are the Indian drug indexes available in market. Such indexes will help students to find the cheapest alternatives available for any drug and could possibly increase their practical knowledge for future. Practical problems based on Pharmacoeconomics can be placed in exams and many colleges are responding it well. All these practices will improve students' knowledge about cost of drugs including direct and indirect prices paid by the patients.

### Conclusion

Pharmaco-economic knowledge of drugs is important for every health care professional and medical student. Generic drug should be used more commonly instead of heavily priced branded drugs. Sensitization of medical students at earlier stage will help them in their near future for prescribing generic medicine and will avoid economic loss of the consumer.

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