

# CHAPTER - 6

## PHARMACOECONOMICS

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## 6.1 INTRODUCTION

### DEFINITION

- "The branch of **economics** that compares pharmaceutical products and treatment strategies using **cost-benefit, cost-effectiveness, cost-minimization, cost-of-illness, and cost-utility analyses.**"
- The concepts and methods of health economics are adopted by pharmacoeconomics and applied to the domain of pharmaceutical policy. The wide range of methods used in health economics evaluation are applied to the particular setting of medication management in pharmacoeconomic evaluation.
- The **description and analysis of medication therapy's costs to healthcare systems and society** is known as **pharmacoeconomics.**

## 6.2 BASICS

### INTRODUCTION

- This area of economics compares pharmaceutical products and treatment plans using **cost-benefit, cost-effectiveness, cost-minimization, cost-of-illness, and cost-utility assessments.** It is a tool that a pharmacist can utilize to increase the effectiveness of his line of work. It applies and adapts health economics' tenets and methods to the subject of pharmaceutical policy.
- **Financial costs** (mandated costs), **economic costs** (resources for which no payment is required), and **opportunity costs** (benefits lost when choosing one therapy option over the next best option) are the three categories of costs associated with pharmacoeconomic evaluation.
- The cost of invention can be measured in terms of several costs. There could be an indirect or direct cost. Employee, capital, and medication procurement costs are all considered direct costs. The costs incurred by the patient, their family, and friends are considered indirect costs.

**The cost can be measured in following ways:**

1. Cost/Unit (cost/tablet, cost/capsule)
2. Cost/Treatment
3. Cost/Person
4. Cost/Person/Year
5. Cost/Case prevented
6. Cost/Life saved
7. Cost/DALY (disability-adjusted-life-years)



Four approaches are available for pharmacoeconomic analysis. They are listed in the following order :

### Pharmacoeconomics Evaluation

Cost-minimization analysis (CMA)

Cost-effectiveness analysis (CEA)

Cost-utility analysis (CUA)

Cost-benefit analysis (CBA)

1. **Cost minimization analysis (CMA):** Measuring solely costs typically limited to health services entails things like administering generic medication rather than name-brand alternatives.
2. **Cost-effectiveness analysis (CEA):** It relates to economic evaluation in its whole, but to a specific kind of evaluation where the health value is quantified and described in natural units, such as years of life saved, healed ulcers, etc.
3. **Cost-utility analysis (CUA):** Similar to cost-effectiveness, but with a utility unit as the result, such as Quality Adjusted Life Years (QALY) comparing the cost per QALY of erythropoietin in renal disease to that of coronary artery bypass grafting.
4. **Cost-benefit analysis (CBA):** In this case, the benefit is measured as the associated economic benefit of an intervention; e.g. monetary value of returning a worker to employment earlier.

### 6.3.1 PHARMACEUTICAL MANUFACTURERS

- Pharmacoeconomics involves four primary stakeholder groups. Manufacturers, pharmacists, patients, and medical professionals who prescribe are them.
- For each of them, pharmacoeconomics is crucial.
- Each stakeholder's issues are covered in the sections below.

### 6.3.1 PHARMACEUTICAL MANUFACTURERS

- Pharmacoeconomics can be a highly helpful tool well in advance of a drug's FDA approval.
- Drug development requires significant investment from pharmaceutical companies. Manufacturers can avoid devoting significant resources to the development of a medication that offers competitive benefits if appropriate pharmacoeconomic research is carried out.





- In the current healthcare environment, "a drug that is cost effective" can be considered a competitive advantage.
- A medication is considered cost-effective if it is both less expensive and at least as effective as a substitute or more expensive and more effective than a substitute. However, better health results outweigh further costs, or a less expensive and less efficient option than what's already available but still a good option for some patients.
- An investigational novel drug's likelihood of emerging from the lab depends on its predicted safety and effectiveness, both of which are determined by a number of particular tests or assessments (e.g., toxicology, adverse reaction, teratogenicity and pharmacology).
- The anticipated pharmacoeconomics of the investigational medication is another important consideration.
- This component would also include particular assessments such as the costs to society and the patient of the ailment for which the medication is prescribed, the expenses and outcomes of current treatment options, and the effect of the sickness and current care on the patient's quality of life (QOL).
- Early access to this kind of data would assist in allay concerns and add to the body of knowledge when determining whether to proceed with additional therapy evaluation through prospective clinical trials.
- In the right phase III studies, cost efficacy and quality of life components can be added to give more details on how a drug affects patient outcomes.
- The scientific foundation for deciding which new treatment prospects to pursue will significantly strengthen if such criteria are consistently implemented.

### **6.3.2 TO HEALTH PRACTITIONERS**

- Pharmacoeconomics is primarily used in clinical practice to support policy and clinical decision-making. Clinical, economic, and humanistic outcomes are the three fundamental evaluation components that should be included in all pharmacotherapy decisions.
- Acquisition costs alone should no longer be the basis for drug selection decisions. The failure to include potential costs linked to reduced safety and effectiveness profiles renders this technique deceptive.





- These three crucial factors can be successfully included in therapeutic decisions by using pharmacoeconomic principles and techniques appropriately.

### 6.3.3 To Pharmacists

- One of the crucial services that pharmacists offer is the examination of drug use.
- The ideal consequence for such value would be to improve patient and financial outcomes. Drug use evaluation focuses on the most cost-effective therapy in addition to overprescribing and incorrectly prescribed therapy.
- To accurately determine such a conclusion, taking into account aspects related to the patient, the condition, and other difficulties, a high level of complexity is needed.
- Drug formulary services, pharmacy, and therapeutics committees are perceived as ways to cut drug budgets and have been somewhat successful in promoting drug therapy cost considerations; however, they do not inherently take into account all consequences, including potential drug interactions, adverse reactions, and treatment response rates, nor do they offer incentives to do so.
- Cost-effectiveness studies enable an assessment of overall expenses and outcomes from multiple angles.



### 6.3.4 To Patients

- The people who receive treatment are the ones who stand to gain the most in the end.
- In a nation like India, where patients must pay the majority of their prescription costs out of pocket, out-of-pocket costs can reach 60 to 70 percent. The sole exemption is for those who have health insurance.
- But in India, that percentage is minuscule- as low as 20%. Patients must therefore pay for the majority of their medication costs, making pharmacoeconomics extremely important to them.
- The least expensive medication in any class of medications with an identical mode of action is the best choice for a patient.
- But when choosing a medication, other aspects like dosage frequency and overall treatment costs must also be taken into account. The greatest option for a typical patient would be essential medications.



- Every year, 2 to 5% of Indian patients are forced into poverty as a result of medical costs; this is a significant sign of what is going on in the area.
- The most seriously impacted segments of the whole relationship are the poor patients, who suffer from high out-of-pocket costs, lack of insurance, and affordability issues that prescribers witness or practice.
- Prescribers will be doing patients a great service if they take pharmacoeconomic issues into mind.

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