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PHARMACOECONOMICS: A PIVOTAL ROLE IN INDIAN HEALTHCARE SYSTEM (A Review)

Neelanchal Trivedi*, Abhijit Gupta, Bhuvnesh K. Singh, Anuj Agarwal, Sachin Singhal, Anuj Mittal, Keshari Kishore Jha

Affiliation:

Teerthanker Mahaveer College of Pharmacy, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India

ABSTRACT

India is having a major mass of population below the poverty line which is unable to afford private health care. The cost of medicines is growing constantly since the new medicines are being marketed under the patent law. Beside these, the preference of drug therapy over invasive therapy and the irrational drug prescription elevate the cost of health care system in India. India being a developing country, 85% of total health expenditure is financed by house-hold, out-of-pocket expenditure. The proportion of insurance in health-care financing in India is very low. Many poor people frequently face a choice between buying medicines or buying food or other necessities due to limited resources and high pricing of drug. Hence the pricing of medicines is of great importance for such population. The main objective of study is to review the trends those are being applied in Indian health care system to afford the optimum health care to the peoples of each economic state.

Keywords: Pharmacoeconomics, health, economics

Introduction

Pharmacoeconomics is a branch of health economics which particularly focuses upon the costs and benefits of drug therapy. Most clinicians have little exposure to health economics, as it is a relatively new discipline in the health sciences. It is important that pharmacoeconomic concept be understood not only by policy-makers, health

administrators and health managers, but also by primary care providers. Nowadays, in India, Pharma field with various new drugs, usually of the same family having properties similar to the available (older) drugs. This makes it difficult for the treating physician to judiciously decide which drugs to use. Before prescribing any new drug therapy, two questions must be answered i.e. whether the

new drug is equally or more efficacious in the said disease as compared to the standard treatment; and does the new drug have any economic advantage over the existing drugs.¹

Need of Pharmacoeconomics

The demand for and the cost of health care are increasing in all countries as the improvement in and sophistication of health technologies. Cost of medicines are growing constantly as new medicines are marketed and are under patent law, preference of drug therapy over invasive therapy, discovering various off label uses of existing drugs (Cooke, 2003) and the irrational drug prescription. All over the world patients are affected by high price of medicines. In a developing country like India 85% of total health expenditure is financed by house-hold out-of-pocket expenditure (Godwin et al., 2007). Many poor people frequently face a choice between buying medicines or buying food or other necessities due to limited resources and high pricing of drug. So medicine prices do matter.⁵ Pharmacoeconomics has become more important over the past 20 years, due to an increased emphasis on efficient drug therapies for disease, which increase health costs, etc.¹ Rising health expenditures have led to the necessity to find the optimal therapy at the lowest price. Pharmacoeconomics is an innovative method that aims to decrease health expenditures, whilst optimising healthcare results.² Pharmaceutical expenditures, which

constitute a large part of healthcare expenditures, have been increasing much faster than total healthcare expenditures.³ Numerous drug alternatives and empowered consumers also fuel the need for economic evaluations of pharmaceutical products⁴. The increasing cost of healthcare products and services has become a great concern for patients, healthcare professionals, insurers, politicians and the public.⁵ This increasing concern has prompted demand for the use of economic evaluations of alternative healthcare outcomes. This escalation in healthcare spending is due to increased life expectancy, increased technology, increased expectations, increased standards of living and an increased demand in healthcare quality and services.⁶ Healthcare resources are not easily accessible and affordable to many patients, therefore pharmacoeconomic evaluations play an important role in the allocation of this resources.⁶

Pharmacoeconomic evaluation

General Perspectives

Economic evaluation is a tool for assisting decision-making given assumptions about how society wishes to maximize the benefits from limited health care spending. Economic evaluation involves identification of the benefits and costs of such spending, where: the benefits include improvements in the maintenance of, or prevention of deterioration in, health status (including improvements in length of life, reductions in

illness and improvements in quality of life); and the costs are the resources that are used to generate the benefits. Economic evaluation aims to identify the extent to which a particular decision or set of decisions meets the goal of promoting efficiency.⁷ Generally the societal perspective is considered but the health managers facing problem of low budget concentrates on health service perspective. In the pharmacoeconomic evaluation of back pain treatment health perspective is much more costly and has limited benefit but the societal perspective is beneficial as it enhances working ability of the workers by reducing the working hours.⁸

Costs

In pharmacoeconomic evaluation costs can be mainly divided into, financial cost (mandatory cost) and economic cost (resource for which no mandatory payment is made) opportunity cost is the benefit foregone when selecting one therapy alternative over the next best alternative. Measuring cost: several costs can be measured when weighing up the cost of any invention. This cost may be, Direct: paid by the health service (including staff costs, capital costs, and drug acquisition costs).

Indirect: cost experienced by patient (family, friends).

The cost can be measured in following ways,

- Cost / unit (cost/tab, cost/vial)
- Cost / treatment
- Cost / person
- Cost / person / year
- Cost / case prevented

- Cost / life saved
- Cost / DALY (disability-adjusted life year)

Outcomes (benefits)

The second fundamental component of a pharmacoeconomic study is outcomes. What is the effect of alternative drug therapies on disease progression, survival, quality of life? In assessing outcomes, it is also important to take into account both positive and negative outcomes. Positive outcome is a measure of the drug's efficacy. Negative outcomes include side effects, treatment failure, and the development of drug resistance.⁸

Methodology

The main objective is to reveal the importance of pharmacoeconomic evaluation in Indian health care. **General objectives include** the pharmacoeconomic evaluation, essential to find the optimal therapy at the lowest price & the use of economic evaluations of alternative healthcare outcomes and drug alternatives.

Cost-effectiveness analysis (CEA):

Cost-effectiveness analysis is used to compare two or more treatment options for a specific condition. Cost-effectiveness is dependent on the value in nonmonetary terms that is placed on the outcome in relation to the cost. This analysis compares the unit of effectiveness – i.e. number of years of life saved, number of lives saved, percentage lowering of glucose level, etc. – with the cost of the treatment. A treatment can be referred to as being cost-

effective if it has an outcome that is worth its corresponding cost in relation to alternative therapies. For example, the diuretic hydrochloro-thiazide may be the most inexpensive treatment for hypertension, but it often requires a potassium supplement. The additional cost involved in the therapy means that this drug is not always the most cost-effective therapy.⁶

Cost minimization analysis (CMA):

When two or more interventions are evaluated and demonstrated or assumed to be equivalent in terms of a given outcome or consequence, costs associated with interventions may be evaluated and compared. An example would be prescribing a generic preparation instead of the brand leader (lower cost but same health outcomes).^{9,10}

Cost-benefit analysis (CBA):

A cost-benefit analysis compares the costs and outcomes of alternative therapies and the outcome is then expressed in monetary terms.⁹ CBA is the most comprehensive and the most difficult of all economic evaluation techniques. In this technique, the benefits are also assigned a monetary value so that costs and benefits can be easily compared. Thus, totally different interventions can be easily compared, making it a useful tool (like CUA) for resource allocation by policy-makers. The most difficult and challenging part of CBA lies in calculating the benefits in economic terms. Some benefits are easy to convert, others

need subjective judgement. CBA may ignore intangible benefits (pain, anxiety, stress), the benefits of improved patient quality of life, patients satisfaction with the healthcare system these are difficult to express in monetary terms.^{1,6}

Cost-utility analysis (CUA):

Cost-utility analysis is performed in the same manner as cost-effectiveness analysis except that the endpoint differs. The endpoint of cost-utility analysis is described as 'quality-adjusted life years saved'. This allows cost-utility analysis to compare therapies for different diseases. Cost-utility analysis integrates both the costs and the consequences of a therapy into its comparison. Cost utility measures the final outcomes in changes of life-expectancy. This method is often used when a programme affects morbidity and mortality.⁶

Limitations in evaluation:⁵

- a) Choice of the drugs is given according to the marketed pressure. Pharmacists give drugs as per their will (alternative drugs for prescribed medicine).
- b) Drugs are prescribed under promotional pressurizing activities of marketing executives of pharmaceutical firms. Incentives and gifts offered by these firms to doctors have a major impact on prescribing brands.
- c) For chronic diseases, bio-availability consideration can have an upper-hand over

pharmacoeconomics.

To overcome these limitations, the following steps should be taken:

1) State associations should buy medicines directly from the firm/industry and sell to retailers who are associated members. These drugs would cost 30 - 40% lesser than current prices.

2) Retailers should lower their profit margins. There are three layers between drug makers and purchasers; super stockiest, authorized stockiest and semi-wholesalers. Dealing directly with the drug firm and availability of drugs through affiliated drug retailers would lower prices by 10 -12%.

3) Hospitals can buy expensive drugs for cancer and HIV directly from drug firms and sell through their pharmacies. To purchase the drug, select the firm having good marketing practices (GMP) and invite technical bids from them. Avoid the firm selling drugs with very low prices as this does not mean cost-effective drugs.

4) Sensitization of students of health sciences on pharmacoeconomics during their formative years is needed as they are future prescribers. The revised undergraduate medical curriculum stresses on the importance of the essential drug concept and to prescribe a drug tailored to individual needs based on safety, tolerability/suitability, efficacy and price (STEP). The students should be sensitized during their under graduate course to consider the cost of the medicine

they would be prescribing (Jana, 2005).

5) Creating awareness of concepts and principles of pharmacoeconomics in existing physicians should also be done. Whether this carries implications for day-to day clinical decision making directly or through clinical practice guidelines formulated by a panel of experts, requires for clinician to understand various methods of evaluations and also to develop skills to interpret and critique results.

Conclusion

The study concludes that in India the pharmacoeconomic evaluation is essential to obtain optimal therapy at lowest price, alternative treatment plans, which help the poor and middle class Indians to obtain well health care services. In India, many households below poverty line and those are unaffordable for private health care. Costs of the medicines are growing constantly. In a country with scarce resources and an ever-growing population with diverse health care needs, health economics (pharmacoeconomic evaluation) plays a pivotal role in determining the delivery of equitable and cost-effective health services.

References

1. Ahuja J, Gupta M, Gupta A and Kohali K. Pharmacoeconomics. *The National Medical Journal of India* 2004; 17(2):80-83.
2. Prinja S et al. *The Cost of Universal Health Care in India: A Model Based Estimate*. PLoS 1 January 2012; 7(1):e30362.

3. Tarn Yen-Huei et al. *Health-Care Systems and Pharmacoeconomic Research in Asia-Pacific Region*. International Society for Pharmacoeconomics and Outcomes Research 2008; 2:S137-S155.
4. Mauskopf JA. *Why Study Pharmacoeconomics*. Expert Rev. Pharmacoeconomics Outcomes Res. 2011; 1(1):1-3.
5. Kulkarni U, Dalvi K, Moghe V. and Deshmukh Y. *Pharmacoeconomics: An emerging branch in health sciences for decision making*.
6. Wertheimer A and Chaney N. *Pharmacoeconomics. Business Briefing: Pharmagenetics* 2003:1-4.
7. *A Prescription for Pharmacoeconomic Analysis. Pharmaceutical Management Agency Ltd*. September 2004; 1:1-33.
8. Gattani S G, Patil A B and Kushare S S. *Pharmacoeconomics: A Review*. Asian Journal of Pharmaceutical and Clinical Research July-Sept. 2009; 2(3):15-26.
9. Bootman J L, Townsend R j and McGhan W F. *Introduction to Pharmacoeconomics. Principles of Pharmacoeconomics*. 1-28.
10. Welley T. *Pharmacoeconomics and Economic Evaluation of Drug Therapies*. Department of Pharmacology and Therapeutics, University of Liverpool, UK. 67-74.
11. Mallick R, Kuznik A, Weber D. *Treatment of complicated skin and skin structure infections in the US: expected cost differences between tigecycline and vancomycin/aztreonam* [abstract]. Clin Microbiol Infect 2006; 12(Suppl 4):P1494.
12. Berger A, Edelsberg J, Weber DJ, et al. *Clinical and economic consequences of initial antibiotic therapy failure in complicated skin and skin structure infections* [abstract]. Presented at: 43rd Annual Meeting of the Infectious Diseases Society of America; October 2005; San Francisco, CA. Abstract 1169.