A Review of Pharmacoeconomics: the key to “Healthcare for All”

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ABSTRACT
Pharmacoeconomics deals with allocation of health resources considering the cost benefit, safety and efficacy of drugs. The art of finely balancing the availability and cost of essential drugs in resource-scare area is the key to success. Factors like clinical efficacy, safety and cost-effectiveness of the medicines need to be considered together for granting license for usage of new medicines. For effective pharmacoeconomics management we need to close the gap between academics, health care practitioners, pharmaceutical industry and policy makers. This will in turn help us to fulfill the dream of affordable, safe and effective health care for all.

Facts and figures
In the UK, the healthcare is delivered largely by the NHS. Medicines now cost the NHS more than £15.5 billion per annum[2]. Due to this, in recent years the longevity of the NHS has been challenged considering the monetary expenditure associated with the high cost in delivery of treatments and medicines[8].

On the other hand, the Unites States of America spent 3.65 trillion US dollars on healthcare in 2018 and it was observed that drug spending went up by 3.3% year on year[3]. In the USA, healthcare is mostly paid by insurance companies linked to employers and pension funds but there exists a large section of the population who are still not insured or are unemployed or are on private insurance and they are required to spend huge amounts of money in the event of a health crisis or as premiums for private insurance policies. This is a scary reality and the healthcare bubble may burst anytime for want of affordable healthcare.

In developing countries like India, the economics of healthcare is different. India is a global hub for production of generic medicines at lower costs but still a section of the population lacks access to primary healthcare and essential medicines[5]. This deficit is because of high pricing of medicines inspite of low production cost and the overall poor health infrastructure[8]. Most of the people in India either pay for private health care or rely on government-associated healthcare services. India has recently set the prices for emergency and a few essential drugs but still a section of the population lacks access to primary healthcare or rely on government-associated healthcare services. The art of finely balancing the availability and cost of essential drugs in resource-scare areas is the key to success.

The problem
The concept of the Essential Drug List (EDL) was introduced by the World Health Organization (WHO) in 1977[9]. The Essential Drug List comprises of a list of the most effective and safe medicines required to treat common and important diseases across the world[9]. It is the responsibility of the government to make sure that these medicines are made available to the people at an affordable rate. It has been observed that constant availability and appropriate use of medicines from the EDL has increased the longevity of the people[10,11]. This has resulted in increased use of medicines by the people suffering from diseases because of which the cost of the medicine used for treatments has collectively exceeded the budgetary limits in most countries[12,13].

Pharmacoeconomics is the branch of health economics which looks at optimal allocation of health resources considering the cost benefit and efficacy of drugs[10]. This discipline utilizes an evidence-based approach, and overlaps with the fields of economics, medicine and humanity. The art of finely balancing the availability and cost of essential drugs in resource-scare areas is one of the keys to success in our mission of healthcare for all. Since medicine is an ever-evolving branch of science, a regular update of the EDL is done to facilitate the use of new technology for the benefit of mankind. The addition of new drugs to the EDL is a huge challenge for governments across the world due to cost concerns[10]. A close watch on cost management and the best available treatment is always needed.

Affordability of and access to quality essential health care is also a common problem encountered across the world[14-17]. However, the approach to solving the problem differs from country to country. In developed countries, the demand for quality healthcare is high compared to developing countries. The price incurred in delivery of such advanced healthcare is also very high. Unfortunately, there exists no universal law to limit and equalize the cost of drugs and treatment in the world. A medicine listed in the EDL may be subjected to overpricing in developed countries compared to developing countries. In addition to this, nowadays treatment is becoming complex and involves a host of elements that play an important role in the outcome. If we take into consideration only the drug cost as a parameter to compare health economics, it will be a mistake and will project wrong numbers for budgetary allocation.

Rationing of drugs is the core problem in health economics. Rationing of drugs creates a gap between the medicines which are available for treatment and the treatment that technologically is possible[18]. This gap is ever-increasing, and it is a challenge for the governments to bridge the gap. The approach to resolve these differences is “value-based rationing”. Patients will pay more for life-enhancing drugs like Sildenafil, but they will pay less for life-saving drugs like insulin or adrenaline[19].

Selection of a new drug
The selection process for a new drug will involve a hierarchical pattern of committees for drug selection from local to national level[20]. Factors like clinical efficacy, safety of the medicines will be considered together for granting license for use of new medicines. Pricing of drugs also...
decides the inclusion of drugs in the list of EDL. However ethical consideration is a must before making any decision. It should, however, be noted that at each level of approval different domains like efficacy, safety and financial implications will be taken into consideration.

A specialist should closely watch the entire process of approval and help in effective communication within the committees for a fruitful dialogue and favorable outcome. The other purpose of this process is to help in formulating a uniform process of drug selection and usage of policy to balance and maximize health outcomes in the population.

Pharmacoeconomics analysis involves following steps such as: (1) define the problem, (2) determine the outcomes (3) select the appropriate pharmacoeconomic method (4) place monetary values on the outcomes (5) apply decision analysis, (6) discount costs and apply incremental cost analysis.

Techniques used for pharmacoeconomic evaluation are

Cost-minimization analysis: Takes into consideration only the cost of the medicines and ignores the benefit.

Cost-effectiveness analysis: measures costs in monetary terms for different programmes and benefits achieved in their natural clinical units (e.g. strokes prevented).

Cost Utility analysis: The purpose of medical intervention is to improve the quality of life of patients and that changes in quality of life should be measured alongside measures of increase in life expectancy.

Quality-adjusted life-years: Considers the total number of life-years gained and matches it with the standard of health in those years. Different scores to calculate this are available. In the UK, a medicine is cost-effective if a year of quality adjusted life is gained by using a medicine and costs for the medicine is between £20,000–30,000.

Implementation of health economics to improve the system

It is a challenge to implement the principles of Pharmacoeconomics in practice. The knowledge of Pharmacoeconomics is at a stage of infancy and developing countries cannot afford to invest money in the healthcare sector to get reliable and continuous data regarding usage, safety and pricing of drugs. Pharmacoeconomics is a branch of medicine in which rational decisions are based on evidence. For enough beneficial evidence to accumulate with use of a medicine, a strong data gathering machinery should be in place. Collection of data should be continuous, reliable, and transparent process. In absence of strong data gathering machinery in the country, decisions regarding the selection of drug are made on poor rationale and the system ends up paying more with no benefit in the treatment of disease.

Allocation of money where it is needed the most is another way to introduce the most effective drug to the healthcare system. Allocation of money where it is needed the most is yet another challenge for these organizations. Supply of lifelong medications to continuous, reliable, and transparent process. In absence of strong data gathering machinery in the country, decisions regarding the selection of drug are made on poor rationale and the system ends up paying more with no benefit in the treatment of disease.

References


