

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 needs to be considered together for granting license for use 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.

Key words: Pharmacoeconomics, Quality-adjusted life years, Healthcare for all, Essential Drug List.

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INTRODUCTION

The global worth of the pharmaceutical industry was 934.8 billion dollars in 2018 and is expected to reach 1170 billion dollars by 2021¹. New drugs are being launched on the market daily and most of the drugs are innovated in developed countries e.g.: United States of America, UK, France, Japan, and Switzerland¹. Intense price wars exist to capture the ever-growing market share in emerging economies like India, Latin America and China for treatments for communicable and non-communicable diseases². The issue of affordable healthcare is troubling the governments across the globe. Governments across the world have failed partly to regulate drug pricing which in turn can cause economic crisis in healthcare sector^{3,4}.

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 annum⁵. 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 medicines⁶.

On the other hand, the United 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 year⁷. 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 medicines⁸. This deficit is because of high pricing of medicines in spite of low production cost and the overall poor health infrastructure^{8,9}. 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 currently this approach is far off from giving “healthcare for all”⁹. The government is economically burdened to satisfy the healthcare demands of its huge population. In addition, a limited number of people have health insurance in India, and this has fueled the rise of distress in most of the population to ever-increasing prices of medicines and treatments in India^{8,9}.

The problem

The concept of the Essential Drug List (EDL) was introduced by the World Health Organization (WHO) in 1977¹⁰. The Essential Drug List comprises of a list of the most effective and safe medicines required

to treat common and important diseases across the world¹⁰. 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^{11,12}. 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^{13,14}.

Pharmacoeconomics is the branch of health economics which looks at optimal allocation of health resources considering the cost benefit and efficacy of drugs¹⁵. 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 concerns¹⁶. 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^{17,18}. 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 possible¹⁹. 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 adrenaline²⁰.

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 level²¹. 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^{21,22}. 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 consideration²². 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^{21,22}. 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 analysis²³.

Techniques used for pharmacoeconomic evaluation are^{24,25}:

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 years²⁶. 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 £20,000–30,000²⁷.

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^{28,29}.

Allocation of money where it is needed the most is yet another challenge for these organizations. Supply of lifelong medications to people with chronic diseases has the power to cripple the economy of the country. High priced medications are difficult to get at affordable rates to people unless in emergency as the economics of drug development, manufacturing and profit-making policies do not support the system²⁷.

Introduction of pharmacoeconomic curriculum to health care professionals is important. An insight into the problem of health economics should be given to healthcare students so that they act as well-informed guardians of the system rather than mute spectators²⁸. Health promotion for the public will also mark the start of new era in understanding the needs and limits of health care system and health economics of the future. Legislation to formalize drug selection process is another way to introduce the most effective drug to the healthcare system²⁹. Closing the gap between academics, healthcare practitioners, the pharmaceutical industry and policy makers is required. Effective

communication and dialogue at local, national and international level will help in identifying and solving the problem at the earliest.

“Act local and think global” is the way out for resolving Pharmacoeconomics issues. Each health practitioner should participate in process of gathering data and try to use cost effective yet effective medicine.

CONCLUSION

It is our collective responsibility to embrace the principles of economics in health industry so that the dream of affordable, safe and effective healthcare can be delivered for a long time in this world to all.

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